Department of Artificial Intelligence & Data Science

Report on Faculty Development Program

in Association with the Department of Rural Development, NITTTR, Chandigarh

"Research Methodologies for Science, Management and Engineering (ICT-44)"

(19.08.2024 - 23.08.2024)

Objective:

The Faculty Development Program (FDP) on "Research Methodologies for Science, Management, and Engineering" aimed to equip participants with essential skills and knowledge required for conducting high-quality research across various disciplines. The objective was to:

- Introduce participants to advanced research methodologies.
- Enhance their understanding of research design, data collection, analysis techniques, and hypothesis testing.
- Familiarize them with modern tools and software for data analysis and literature review.
- Encourage interdisciplinary research and project formulation aligned with societal needs.
- Develop competence in using statistical software like SPSS, conducting literature reviews, and applying intellectual property rights (IPR) concepts.

Key Takeaways:

1. **Research Problem Formulation and Design:**
   - Participants learned the importance of framing well-defined research questions and aligning them with appropriate methodologies for different disciplines.
2. **Data Collection and Questionnaire Design:**
   - Methods for collecting reliable data and designing effective questionnaires were discussed, emphasizing the importance of selecting suitable data collection techniques based on research objectives.
3. **Statistical Testing:**
   - Practical application of statistical tests like z-test, t-test, and chi-square test were demonstrated, helping participants gain a deeper understanding of hypothesis testing.

4. **Sampling Techniques:**
    - The FDP covered both probability and non-probability sampling techniques, explaining how to choose the right method to ensure accurate data representation.
5. **Literature Review and Gap Analysis:**
    - Participants were introduced to various research portals (e.g., Google Scholar, IEEE Xplore) and open-source tools to conduct comprehensive literature reviews and perform gap analysis.
6. **Software Tools for Data Analysis:**
    - Hands-on experience with open-source software (R, Python) and SPSS for conducting data analysis and interpreting results.
7. **Intellectual Property Rights (IPR) and Patents:**
    - Sessions on IPR and patents informed participants about protecting intellectual property and the procedures involved in patenting research work.

Overview of Sessions:

Day 1: Monday, 19th August 2024

- **Session I (10:00 AM - 11:30 AM): Inaugural Session: Expectations of the Participants**
  Speaker: Dr. UN Roy
  The program began with an inaugural session where Dr. UN Roy discussed the participants' expectations from the FDP. The session provided a platform for participants to express their needs and areas of interest, which helped to align the FDP content with their research aspirations.
- **Session II (11:30 AM - 1:00 PM): Inaugural Session: Expectations of the Participants**
  Speaker: Dr. UN Roy
  The second session continued with a detailed discussion on participants' expectations, focusing on common challenges they face in research across different disciplines.
- **Session III (2:30 PM - 4:00 PM): Literature Review and Gap Analysis**
  Speaker: Dr. UN Roy
  The afternoon session emphasized the importance of a comprehensive literature review in identifying research gaps. Techniques for conducting systematic reviews and performing gap analysis were discussed, which is essential for framing strong research questions.

Day 2: Tuesday, 20th August 2024

- **Session I (10:00 AM - 11:30 AM): Research Design and Problem Formulation**
  Speaker: Dr. UN Roy
  This session covered the fundamentals of research design and how to formulate clear and

concise research problems. The importance of aligning research objectives with the chosen methodology was highlighted.

- **Session II (11:30 AM - 1:00 PM): Methods of Data Collection and Design of Appropriate Questionnaire**
  Speaker: Prof. Kulwinder Singh, Punjabi University, Patiala
  Participants were introduced to various methods of data collection and the principles of designing effective questionnaires. The session included examples of how to choose the right data collection method for different research studies.
- **Session III (2:30 PM - 4:00 PM): Testing of Hypothesis using z-Test and t-Test**
  Speaker: Dr. Archana K Roy, IIPS Mumbai
  The final session of the day provided a hands-on understanding of hypothesis testing using z-test and t-test. Practical examples were discussed, showing participants how to interpret test results and draw meaningful conclusions from their data.

Day 3: Wednesday, 21st August 2024

- **Session I (10:00 AM - 11:30 AM): Sampling and Types of Sampling**
  Speaker: Dr. UN Roy
  Dr. UN Roy introduced the participants to various sampling techniques, both probability and non-probability methods. The session stressed the importance of choosing the right sampling technique to ensure data accuracy and representation.
- **Session II (11:30 AM - 1:00 PM): Research Portals for Literature Review, Open Software, and Tools for Research in Engineering and Technology**
  Speaker: Dr. Gaurav Kumar
  This session provided insights into key research portals and open-source software that are essential for conducting literature reviews and data analysis in the fields of engineering and technology.
- **Session III (2:30 PM - 4:00 PM): Chi-Square Test, Data Collection, Data Sorting, and Application of SPSS**
  Speaker: Dr. Archana K Roy, IIPS Mumbai
  The session introduced participants to the chi-square test and how it can be used in research. It also covered data collection and sorting methods using SPSS, offering hands-on experience in computing data and running statistical tests.

Day 4: Thursday, 22nd August 2024

- **Session I (10:00 AM - 11:30 AM): Research Projects Formulation in Various Disciplines**
  Speaker: Dr. UN Roy
  The focus of this session was on how to formulate effective research projects in different

disciplines. Dr. UN Roy explained how to align research with contemporary needs and trends, providing practical tips on drafting successful research proposals.

- **Session II (11:30 AM - 1:00 PM): Research Portals for Literature Review, Open Software, and Tools for Research in Engineering and Technology**
  Speaker: Dr. Gaurav Kumar
  A continuation of the earlier session, this time with more in-depth examples of tools and techniques for data gathering and analysis, specifically targeting engineering and technology research needs.
- **Session III (2:30 PM - 4:00 PM): Application of SPSS: Few Examples of Data Computing and Analysis**
  Speaker: Dr. Dipti Govil, IIPS Mumbai
  This session provided a detailed walkthrough of using SPSS for data computing and analysis, with real-world examples from various research fields. Participants learned how to apply different statistical tests and analyze their data effectively.

Day 5: Friday, 23rd August 2024

- **Session I (10:00 AM - 11:30 AM): Research, Patents, and IPR**
  Speaker: Er. Amardev Singh
  The session focused on intellectual property rights (IPR) and the importance of patents in research. It provided an overview of the process of applying for patents and how to protect intellectual property generated from research.
- **Quiz Test**
  The FDP concluded with a quiz test, assessing participants' understanding of the topics covered throughout the program.

Outcomes:

1. **Improved Research Skills:**
   - Participants gained a comprehensive understanding of research methodologies, making them better equipped to conduct systematic, structured research.
2. **Practical Application of Tools:**
   - Hands-on experience with tools such as SPSS and open-source software enhanced participants' ability to analyze data efficiently and effectively.
3. **Enhanced Collaboration and Networking:**
   - The interdisciplinary approach encouraged collaboration between participants from different fields, fostering a culture of research innovation and knowledge sharing.
4. **Competence in Research Portals and Software:**

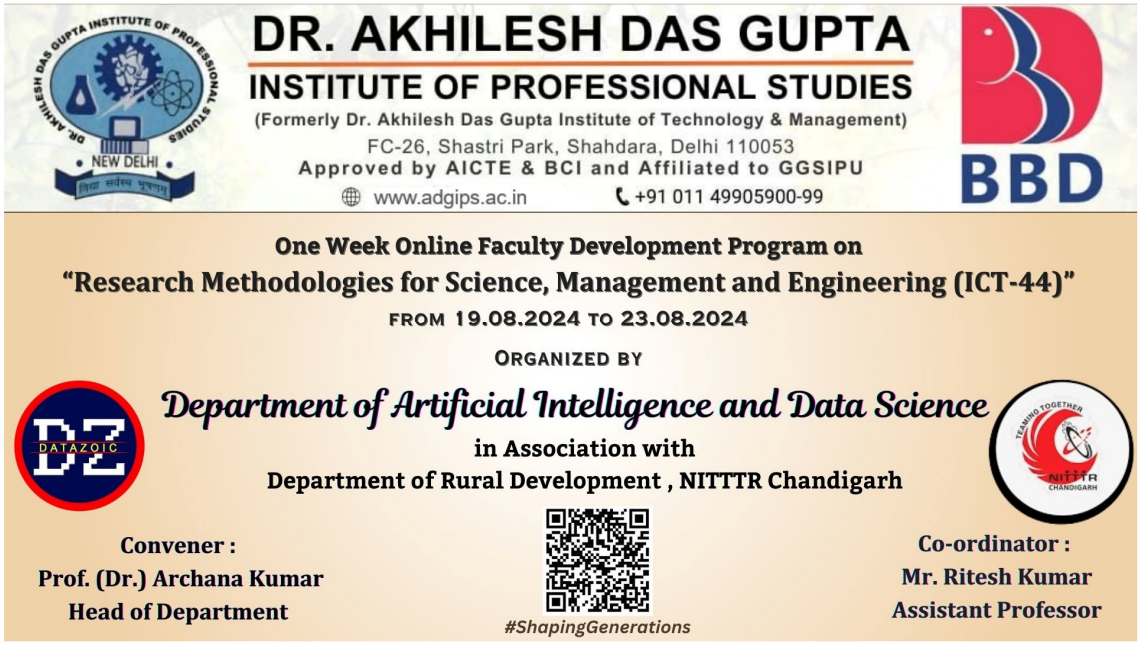
- Participants are now proficient in using research portals for literature review and are familiar with various open-source tools for conducting research in science, management, and engineering.

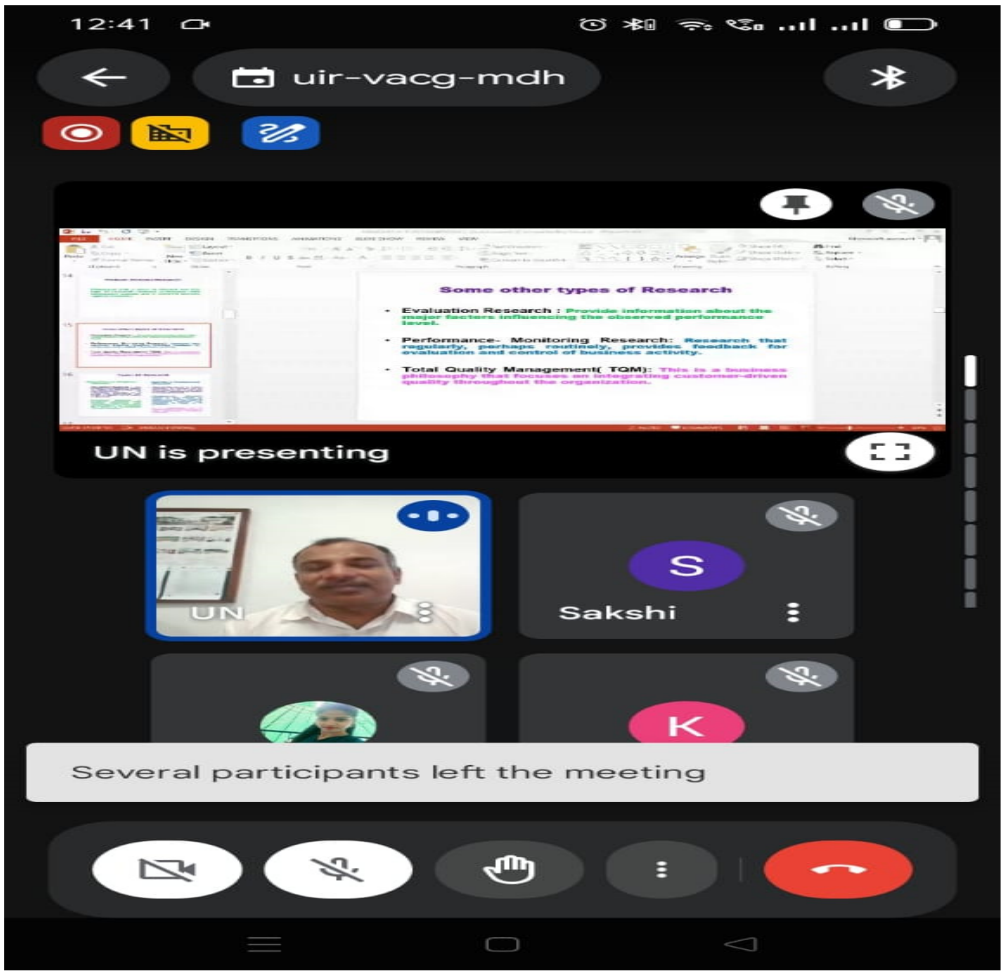
5. **Awareness of IPR and Patents:**
   - The sessions on IPR and patents provided participants with the knowledge needed to safeguard their research innovations, ensuring their contributions are protected.

Conclusion:

The FDP on "Research Methodologies for Science, Management, and Engineering (ICT-44)" successfully provided participants with the knowledge and skills required to excel in research across various disciplines. It equipped them with the tools and methodologies needed to conduct high-quality research, from project formulation to data analysis and publication. The program also emphasized the importance of interdisciplinary collaboration, the use of modern software tools, and protecting intellectual property through patents. Overall, the FDP empowered participants to enhance their research output and contribute more effectively to academic and professional research.

Glimpses of FDP :

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Some other types of Research
Evaluation Research : Provide information about the major factors influencing the observed performance level.
Performance- Monitoring Research: Research that regularly, perhaps routinely, provides feedback for evaluation and control of business activity.
Total Quality Management(TQM): This is a business philosophy that focuses on integrating customer-driven quality throughout the organization.
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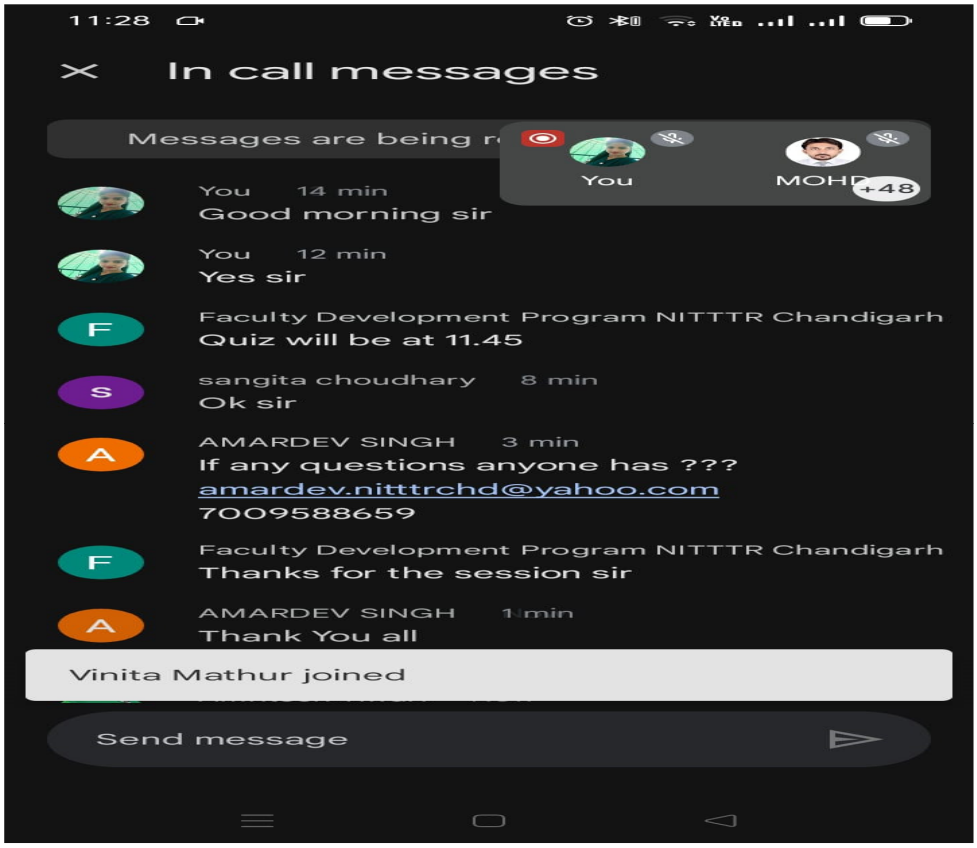
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Faculty Development Program NITTTR Chandigarh
Thanks for the session sir
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Thank You all
Vinita Mathur joined
Send message

Ritesh Kumar
Assistant Professor
(Local Co-Ordinator, FDP)

Dr. Archana Kumar
HOD & Professor
(Convener, FDP)

Department of Artificial Intelligence & Data Science

Report for Industrial Visit on

"Awareness Program on AICTE IDEA Lab"

Dates: August 27 - August 29, 2024

Location: Deenbandhu Chhotu Ram University of Science and Technology (DCRUST), Murthal

Participants: B.Tech AI & DS Students

Objectives of the Visit

The primary objectives of the visit were to:

1. **Enhance Practical Knowledge:** Expose students to the practical applications of artificial intelligence and data science.
2. **Familiarize with AICTE Idea Lab:** Provide insight into the resources, facilities, and opportunities available in the AICTE Idea Lab.
3. **Encourage Innovation:** Inspire students to engage in innovative projects and understand the importance of AI and data science in modern technology.

Day 1: August 27, 2024

Morning Session: Introduction and Overview

- **Welcome Address:** The visit began with a welcome address by the head of the AICTE Idea Lab. The session provided an overview of the lab's mission, vision, and the significance of fostering innovation in technology.

- **Presentation on AICTE Idea Lab:** A detailed presentation was given, highlighting the lab's facilities, ongoing projects, and its role in supporting research and development in AI and data science.

Afternoon Session: Tour of the Lab

- **Facility Tour:** Students were guided through the various sections of the AICTE Idea Lab, including the advanced computing labs, machine learning and data science workstations, and prototype development areas.
- **Demonstrations:** Live demonstrations of some of the cutting-edge technologies and tools available in the lab were conducted, showcasing their applications in real-world scenarios.

Evening Session: Interactive Q&A

- **Interactive Session:** An interactive Q&A session was held where students had the opportunity to ask questions and engage with the lab's experts on various topics related to AI and data science.

Day 2: August 28, 2024

Morning Session: Workshops and Hands-on Training

- **Workshop on Machine Learning:** A hands-on workshop was conducted, focusing on practical applications of machine learning algorithms. Students engaged in coding exercises and data analysis tasks.
- **Workshop on Data Science Tools:** Another workshop covered data science tools and platforms, offering students practical experience with tools like Python, R, and SQL.

Afternoon Session: Project Showcase

- **Student Projects Presentation:** Students had the chance to present their own projects and receive feedback from lab experts. This session aimed to encourage peer learning and innovation.

- **Lab's Ongoing Projects:** The lab team presented some of their current research projects, providing insights into advanced techniques and methodologies used in their work.

Evening Session: Networking and Reflection

- **Networking Event:** A networking event allowed students to interact with professionals, researchers, and fellow students, fostering connections and collaborations.
- **Reflection Session:** Students reflected on their learning experiences and discussed how they could apply the knowledge gained to their future projects and studies.

Day 3: August 29, 2024

Morning Session: Industry Insights and Career Guidance

- **Guest Lectures:** Industry experts were invited to give lectures on emerging trends in AI and data science, providing students with a broader perspective on the field's future.
- **Career Guidance:** The session included advice on career paths, internships, and opportunities in the AI and data science domains.

Afternoon Session: Wrap-Up and Feedback

- **Summary and Feedback:** The visit concluded with a summary of the key takeaways and feedback from students. This session aimed to gather insights on the visit's effectiveness and areas for improvement.
- **Closing Remarks:** The visit was formally concluded with closing remarks from the university's representatives and a certificate distribution ceremony.

Conclusion

The industrial visit to the AICTE Idea Lab at DCRUST, Murthal was highly educational and beneficial for the B.Tech AI & DS students. It provided them with valuable exposure to advanced technologies and practical applications of their field of study. The interactive

sessions, workshops, and networking opportunities significantly enhanced their understanding and sparked enthusiasm for innovation in artificial intelligence and data science.

Acknowledgments

We extend our gratitude to the AICTE Idea Lab team at DCRUST, Murthal for their hospitality, insightful presentations, and hands-on training sessions. Special thanks to the faculty and staff who organized and facilitated this visit.

Glimpses of Industrial Visit:


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DR. AKHILESH DAS GUPTA
INSTITUTE OF PROFESSIONAL STUDIES
BBD
DEPARTMENT
OF
ARTIFICIAL INTELLIGENCE & DATA SCIENCE
Organizing an Industrial
Visit for
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Meenu
Assistant Professor
Industrial Visit Co-ordinator

Prof. (Dr.) Archana Kumar
HOD & Professor

Report on Industrial Visit to IIT Delhi:

Indigenous 5G Test Bed O&M Project for IoT Setup

Date of Visit: 27th September 2024
Venue: Bharti School of Telecommunication Technology and Management at Indian Institute of Technology (IIT) Delhi.
Participants: Students of B.Tech in Artificial Intelligence and Data Science (AI & DS)

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1. Introduction

On 27th September 2024, the students of B.Tech in Artificial Intelligence and Data Science (AI & DS) had the opportunity to visit the Indian Institute of Technology (IIT) Delhi for an industrial visit focused on the "Indigenous 5G Test Bed Operations and Maintenance (O&M) Project" and its integration with Internet of Things (IoT) applications. The visit provided students a comprehensive overview of how the latest 5G technology is being developed and tested in real-time environments, particularly for IoT-based setups.

2. Objective of the Visit

The primary objective of the industrial visit was to:

- Understand the 5G Test Bed infrastructure and its potential for IoT applications.
- Gain insights into the indigenous development and maintenance of 5G technology.
- Explore how 5G technology can be integrated into IoT ecosystems to facilitate smart devices, automation, and data analytics.
- Bridge the theoretical knowledge acquired in the classroom with practical, hands-on industry experience.

3. Overview of the Indigenous 5G Test Bed O&M Project

The 5G Test Bed O&M Project at IIT Delhi is part of the larger "Indigenous 5G Project" initiated by the Government of India to develop in-house 5G technology. The project focuses on the design, implementation, and maintenance of 5G infrastructure suited to India's specific needs, such as rural connectivity and smart cities.

During the visit, students were introduced to the test bed infrastructure, which comprises:

- **Radio Access Networks (RAN)**: Essential for providing wireless connectivity between devices and core networks.
- **Core Networks**: The backbone of the 5G system, handling data transmission and management across devices.
- **Edge Computing**: Enabling real-time processing and analysis of IoT data.
- **Network Slicing**: Allowing customized virtual networks tailored to different IoT use cases.
- **Security Protocols**: Ensuring data integrity and privacy, crucial for IoT devices.

4. IoT Integration with 5G

A key highlight of the visit was the demonstration of IoT setups powered by 5G. The IIT Delhi research team explained how 5G technology is pivotal in enhancing the capabilities of IoT, providing faster communication, reduced latency, and greater bandwidth.

Key IoT applications discussed included:

- **Smart Homes and Smart Cities**: Utilizing 5G-enabled IoT devices for monitoring energy usage, water management, and transportation systems.
- **Healthcare IoT**: Implementing remote monitoring systems for patients, with data transmitted in real-time for analysis using AI models.
- **Agriculture**: Employing 5G-connected sensors to monitor soil conditions, weather patterns, and crop health.
- **Manufacturing and Industry 4.0**: Leveraging 5G for automated factories, predictive maintenance, and supply chain optimization.

5. Key Learnings

The students gained valuable insights into the following aspects:

- The **importance of 5G** as a transformative technology for IoT systems, significantly improving performance and reducing energy consumption.
- The **challenges in developing indigenous 5G technology**, including the need for robust O&M frameworks and continuous innovation to keep up with global advancements.
- The **role of AI in managing IoT devices** and networks, such as optimizing data flow and improving decision-making in smart systems.

6. Interaction with Experts

Students had the opportunity to interact with domain experts, including senior researchers and engineers from the project. A Q&A session followed, where students discussed:

- The potential for **scaling 5G-IoT solutions** in urban and rural areas.
- The **future scope of AI and data science** in 5G development.
- The **real-world application** of IoT setups in sectors such as healthcare, agriculture, and infrastructure.

7. Conclusion

The industrial visit to IIT Delhi's Indigenous 5G Test Bed was a highly informative and enriching experience for the students of B.Tech in AI & DS. The visit helped students better understand the potential of 5G technology and its crucial role in advancing IoT systems. It provided practical insights that complemented their academic learning, inspiring them to explore further applications of AI in the domain of telecommunications and IoT.

The faculty and students expressed their gratitude to IIT Delhi for organizing such an insightful visit and for the invaluable knowledge shared during the event.

Glimpse of visit


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INDIAN INSTITUTE OF TECHNOLOGY DELHI
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NBIoT
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Report on One-Day Workshop on

"Generative AI with Large Language Models (LLM)"

Date: 10th October 2024
Venue: Auditorium, Dr. Akhilesh Das Gupta Institute of Professional Studies (ADGIPS)

The **Department of Artificial Intelligence & Data Science** at **ADGIPS** successfully organized a one-day workshop on **"Generative AI with Large Language Models (LLM)"** for the **B.Tech students of AI & DS**. The workshop aimed to provide in-depth knowledge about the rapidly evolving field of Generative AI, focusing on the capabilities and applications of Large Language Models (LLM), such as ChatGPT and other transformative AI technologies.

The event commenced at **10:00 AM** in the college auditorium, with **Mr. Mukesh Kumar**, **Senior Software Developer at Gedu Services Pvt. Ltd., Noida**, serving as the resource person for the workshop. Mr. Kumar is a well-regarded expert in AI and machine learning, and his deep understanding of large-scale models made him the ideal guide for this session.

Key Highlights of the Workshop:

1. **Introduction to Generative AI and LLMs:** The workshop began with an overview of **Generative AI**, focusing on how these models create content ranging from text to images and music. Mr. Kumar emphasized the importance of LLMs in today's AI-driven world and provided insights into their architecture, including **transformer models** and **deep learning techniques**.
2. **Applications of LLMs:** Mr. Kumar elaborated on various real-world applications of LLMs in industries like **customer service**, **healthcare**,

content generation, and **automation**. He demonstrated how models like GPT (Generative Pretrained Transformer) have revolutionized natural language understanding and text generation.

3. **Hands-on Session:** The workshop featured an interactive **hands-on session**, where students worked with pre-trained LLMs to generate text based on user inputs. This practical experience gave students a better understanding of the inner workings of these models and their potential for problem-solving.
4. **Ethical Considerations and Challenges:** The resource person also addressed the **ethical concerns** and **limitations** surrounding LLMs, such as data privacy, bias in training datasets, and the potential misuse of generative models. The discussion on how to balance innovation with responsible AI practices was highly engaging.
5. **Q&A Session:** The workshop concluded with a lively **Q&A session**, where students raised questions about the technical aspects of LLMs, the future scope of AI research, and career opportunities in AI and data science. Mr. Kumar provided detailed answers and encouraged students to explore further studies and projects in the field of AI.

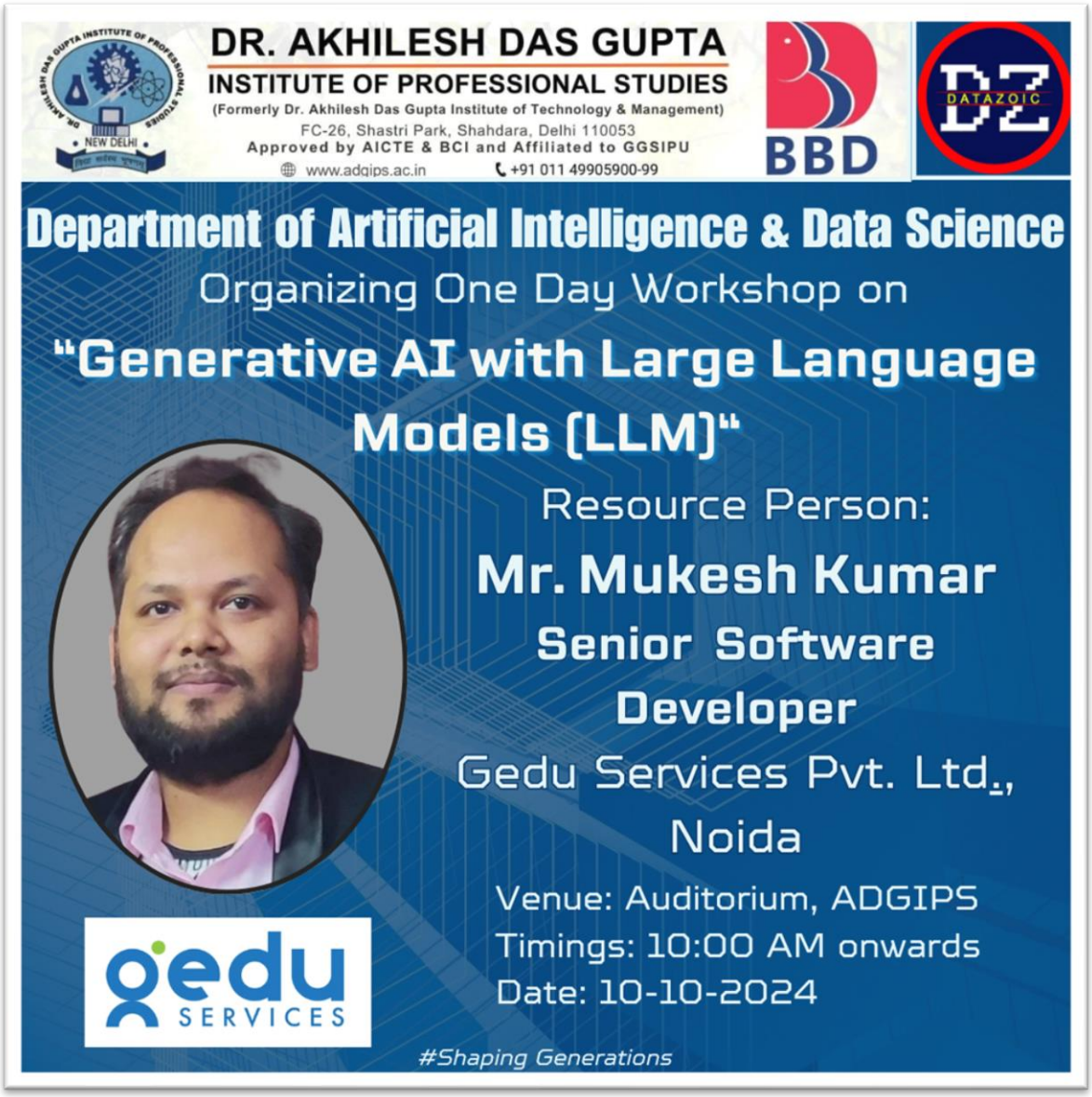
Feedback and Conclusion:

The workshop was well-received by the participants, who appreciated the depth and clarity with which the topics were covered. The students found the hands-on session particularly helpful in understanding how large language models can be utilized for various applications. The event proved to be an enriching experience for the attendees, offering both theoretical knowledge and practical skills.

In his closing remarks, the Head of the Department**,** Prof(Dr.) Archana Kumar , thanked Mr. Mukesh Kumar for his insightful contributions and encouraged students to continue learning and exploring the world of AI. The workshop ended on a positive note, with students eager to apply the knowledge they gained to their ongoing projects and research.

The event marked another successful effort by the Department of AI & DS in providing students with opportunities to engage with cutting-edge technology and industry experts.

Glimpse of Seminar

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DR. AKHILESH DAS GUPTA
INSTITUTE OF PROFESSIONAL STUDIES
(Formarly Dr. Akhilesh Das Gupta Institute of Technology & Management)

Department of Artificial Intelligence & Data Science

Event Report: QUIZ COMPETETION (PROGRAMMING)

Event Name: Quiz Competition
Date: Monday, October 14, 2024
Venue: Room 2216, Dr. Akhilesh Das Gupta Institute of Professional Studies.
Time: 02:00 PM - 03:00 PM

Event Overview:

The **Programming Quiz Competition** was an engaging and fast-paced MCQ competition designed to test the participants' knowledge across various subjects. The event was well-attended, with students actively participating and demonstrating their quick-wittedness and problem-solving abilities.

Event Highlights:

- **Individual Participation**: The quiz required participants to join individually, making it a highly competitive event.
- **Online Format**: Participants used smartphones and stable internet connections to take part in the quiz, creating a seamless and accessible experience for all.
- **Prizes**:
  E-Certificates to all the participants

Participation:
A wide range of participants from various departments attended the event. The energy in the room was high as students raced against the clock to answer questions.

Faculty and Coordinators:

- **Faculty Members**:

  Dr. Archana Kumar (HOD)

  Mr. Ritesh Kumar

  Ms. Meenu Kaushik

- **Student Coordinators**:
  - Ankur Yadav (02996211923)
  - Rakesh Singh (60196208424)

Event Link:

The event was easily accessible through an online Google Form for registration:
Join link: https://bit.ly/3zW3IWm

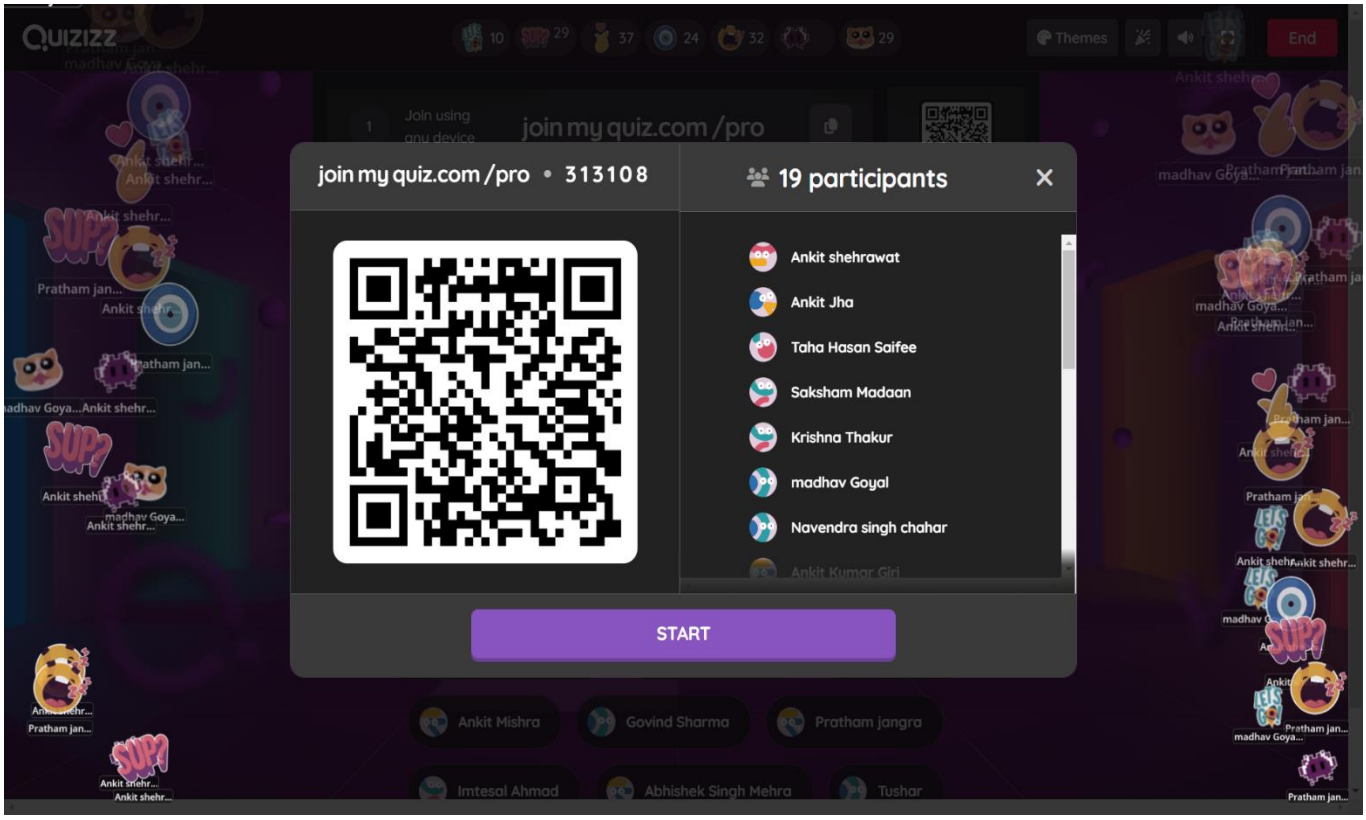
Conclusion:

The Programming Quiz Competition was a huge success, filled with enthusiasm and excitement. Participants enjoyed the challenging questions, and the competitive spirit in the room made for an engaging quiz session. The winners walked away with exciting prizes, motivating others to sharpen their skills for future events.

Winners:

- **1st Place**: Govind (AI&DS) – 2nd Year
- **2nd Place**: Ankit Mishra (AI&DS) – 1st Year
- **3rd Place:** Saksham Madaan (AI&DS) – 1st Year

Glimpses of the Event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Ankit Jha
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Krishna Thakur
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Govind Sharma
Pratham jangra
Imtesal Ahmad
Abhishek Singh Mehra
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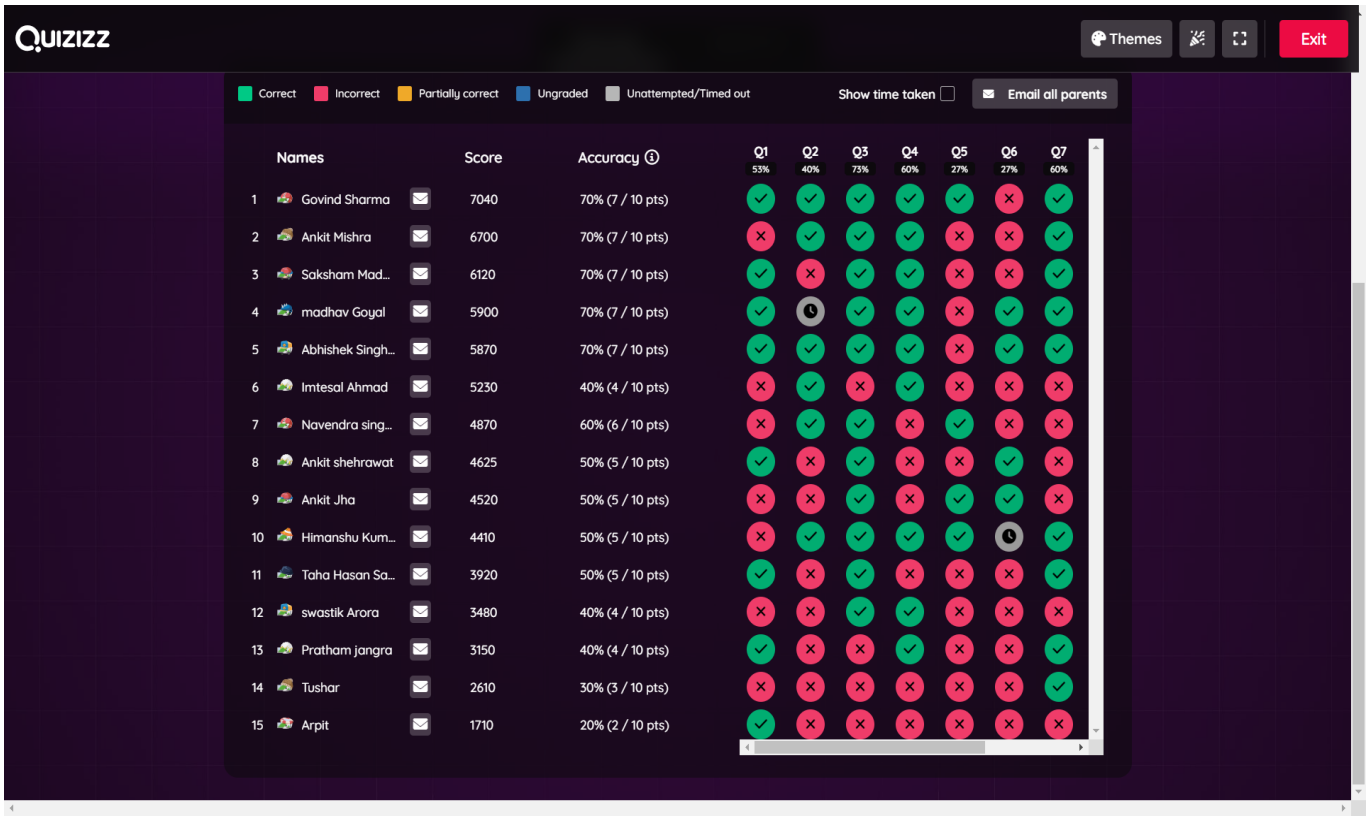
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Q2 40%
Q3 75%
Q4 60%
Q5 27%
Q6 27%
Q7 60%
1 Govind Sharma 7040 70% (7 / 10 pts)
2 Ankit Mishra 6700 70% (7 / 10 pts)
3 Saksham Mad... 6120 70% (7 / 10 pts)
4 madhav Goyal 5900 70% (7 / 10 pts)
5 Abhishek Singh... 5870 70% (7 / 10 pts)
6 Imtesal Ahmad 5230 40% (4 / 10 pts)
7 Navendra sing... 4870 60% (6 / 10 pts)
8 Ankit shehrawat 4625 50% (5 / 10 pts)
9 Ankit Jha 4520 50% (5 / 10 pts)
10 Himanshu Kum... 4410 50% (5 / 10 pts)
11 Taha Hasan Sa... 3920 50% (5 / 10 pts)
12 swastik Arora 3480 40% (4 / 10 pts)
13 Pratham jangra 3150 40% (4 / 10 pts)
14 Tushar 2610 30% (3 / 10 pts)
15 Arpit 1710 20% (2 / 10 pts)


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Questions
15 participants
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Name
Score
1 Govind Sharma 7040
2 Ankit Mishra 6700
3 madhav Goyal 5900
4 Abhishek Singh Mehra 5870
5 Imtesal Ahmad 5230
6 Ankit shehrawat 4625
7 Ankit Jha 4520
8 Himanshu Kumar 4410
9 Taha Hasan Saifee 3920
10 swastik Arora 3480


Quizizz
Programming Quiz 3
Govind Sharma
Ankit Mishra
Saksham Madaan
2nd
1st
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QUIZ
COMPETITION
ORGANISED BY THE DEPARTMENT OF
ARTIFICIAL INTELLIGENCE & DATA SCIENCE
REGISTER NOW
THEME - PROGRAMMING
Certificates will
be provided to all
the participants
2-3PM
FACULTY MEMBERS :
RITESH KUMAR


Dr. Akhilesh Das Gupta Institute
of Professional Studies
IEEE Student Branch
REGISTER NOW
QUIZ
COMPETITION
ORGANISED BY THE DEPARTMENT OF
ARTIFICIAL INTELLIGENCE & DATA SCIENCE
THEME : PROGRAMMING
CHALLENGE YOURSELF
LEARN MORE,
AND LEAD THE WAY
PARTICIPATE
Certificates will
be provided to all
the participants
Winners will
also be featured
in the college
magazine
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LECTURE ROOM 2216
2-3PM
FACULTY MEMBERS :
RITESH KUMAR
MEENU KAUSHIK


VISION
MISSION
VISION
MISSION

DR. AKHILESH DAS GUPTA
INSTITUTE OF PROFESSIONAL STUDIES
(Formerly Dr. Akhilesh Das Gupta Institute of Technology & Management)
FC-26, Shastri Park, Shahdara, Delhi 110053
Approved by AICTE & BCI and Affiliated to GGSIPU
www.adgips.ac.in +91 011 49905900-99

Department of Artificial Intelligence & Data Science

Report On

Mind Exchange: Speak to Succeed (Group Discussion)

Event Details:

- **Event Name:** Mind Exchange: Speak to Succeed
- **Date of Event:** 15 October, 2024
- **Location:** Room No. - 2216, ADGIPS
- **Organized by:** Priyanshu Gupta & Lokesh Kumar Arya (AI & DS Department, 3rd Year, T11)
- **Coordinators:** Kasak & Jyoti Rana (AI & DS Department, 3rd Year, T11)
- **Judged by:** Ms. Pragya (Assistant Professor)

Event Overview:

Mind Exchange was a group discussion event designed to promote critical thinking, articulate communication, and the sharing of ideas among participants. Organized by the Artificial Intelligence & Data Science Department, the event provided a platform for students to engage in thought-provoking discussions on various topics relevant to technology, data science, and current trends in AI.

Participants were divided into groups, with each group tasked with discussing a given topic, presenting their viewpoints, and defending their arguments.

Impact:

The event encouraged collaboration while also pushing participants to express their ideas clearly and confidently.

Evaluator's Role:

Ms. Pragya served as the judge for the event, providing insightful feedback on each group's performance. She assessed participants on their ability to articulate their thoughts, engage in meaningful dialogue, and contribute constructively to the group discussion.

Result:

- **1st Position -** Ankit Kumar Giri (B Tech ECE)
- **2nd Position -** Krishna Gupta (B Tech AI & DS)
- **3rd Position -** Simran (B.Tech CSE)

Conclusion:

Mind Exchange successfully fostered an environment of healthy debate and intellectual exchange, helping students hone their communication and teamwork skills. The event was a great learning experience for all participants, encouraging them to think critically and discuss complex ideas with clarity. Thanks to the efforts of the organizers, coordinators, and evaluator, the event was well-received by all attendees.


MIND EXCHANGE

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Department of Artificial Intelligence & Data Science

Report on TECHQUEST: Decode & Dominate

Event Details:

- **Date:** 15th October 2024 (11 a.m. – 12.30 a.m.)
- **Room No. :** 2216
- **Organizers:** Kasak & Jyoti Rana (AI & DS Department, 3rd Year, T11)
- **Coordinators:** Priyanshu Gupta & Lokesh Kumar Arya (AI & DS Department, 3rd Year, T11)

Event Overview:

TechQuest: Decode & Dominate was an exciting event aimed at testing the participant's knowledge of Python, Machine Learning, and Data Science. The event attracted numerous students eager to showcase their skills and engage in a friendly yet competitive atmosphere.

The event was structured into three unique rounds, each designed to evaluate different technical skills:

In **Round 1**, participants tackled a crossword puzzle based on fundamental Python concepts, including data types, functions, loops, and libraries. This round tested their foundational Python knowledge while challenging them to think quickly under pressure.

Round 2 shifted focus to machine learning, where participants faced a word search with clues leading to key terms such as "Outlier," "Neural Network," "Clustering," and "Variance." Competitors had to combine their technical understanding with speed to identify these terms hidden within the grid.

In **Round 3**, the final quiz covered both basic Python and data science topics, testing participants on Python syntax, data handling, and important data science methods, requiring a strong grasp of both fields to succeed.

Results:

- **1st Position:** Mayank Garg, AI & DS Department, S13
- **2nd Position:** RRR Team
- **3rd Position:** Syntax Squad

Conclusion: TechQuest: Decode & Dominate was a resounding success, providing students with a platform to demonstrate their understanding of Python, Machine Learning, and Data Science. The event encouraged learning through competition and showcased the talent within the department. A big congratulations to the winners, and thanks to all participants for their enthusiasm and effort.

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BBD

Department of Artificial Intelligence and Data Science

Report on the Projects Exhibition in Technorax 10.0
Collaboration with IEEE ADGIPS

S.No.	Project Name	Student Name	Year	Date (Presented)
1	Virtual Desktop Assistant	Moksh Jain Amish Kumar Sehaj Vij	2nd year	15.10.24
2	Chatbot	Harshit Rathore Mohit Daundiyal	2nd year	15.10.24
3	Kishaan Seva	Rakshit Dabral Aman Singh Jaival, Abhigayn Divya, yash	3rd year	15.10.24
4	Research On Perfect Numbers	Mayank Garg	2nd year	15.10.24

About Virtual Desktop Assistant

Introduction

A Virtual Desktop Assistant (VDA) is a software agent designed to assist users by performing tasks, providing information, and managing interactions through a graphical user interface or voice commands. These assistants can automate routine tasks, respond to queries, and improve user productivity by integrating seamlessly with desktop environments.

Key Features

1. **Task Automation**: VDAs can automate repetitive tasks such as opening applications, setting reminders, organizing files, and sending emails.
2. **Voice and Text Interaction**: Users can interact with VDAs using either voice commands or typed inputs, depending on the interface and capabilities of the assistant.
3. **Artificial Intelligence (AI)**: Many VDAs use AI techniques like machine learning and natural language processing to understand user commands, predict needs, and improve responses over time.
4. **Personalization**: The assistant can be customized to individual user preferences, learning their habits and optimizing the workflow.
5. **Multitasking**: VDAs can handle multiple tasks simultaneously, offering users real-time assistance without requiring manual input for every action.

Benefits

1. **Increased Productivity**: By automating routine tasks, VDAs allow users to focus on higher-priority work.
2. **Convenience**: VDAs streamline processes, eliminating the need to perform complex tasks manually.
3. **24/7 Availability**: These assistants are available at all times, providing consistent support whenever needed.
4. **Error Reduction**: VDAs reduce human error by accurately following programmed commands and automating repetitive tasks.

Applications

- **Office Assistance**: Scheduling meetings, managing emails, creating to-do lists.
- **Customer Service**: Providing automated responses and assistance through virtual help desks.
- **Education**: Offering personalized tutoring, reminders, and study aids for students.
- **Home Use**: Managing household schedules, controlling smart devices, and providing entertainment.

Challenges

- **Privacy Concerns**: Handling personal data can raise security risks if not properly managed.
- **Accuracy of Responses**: VDAs may struggle to interpret ambiguous or complex instructions without sufficient training.
- **Dependence on AI**: The effectiveness of VDAs depends on the development and application of advanced AI algorithms, which may vary in quality.

Conclusion

Virtual Desktop Assistants are powerful tools for improving efficiency and enhancing user experience. As AI technology continues to advance, VDAs will likely become more

intuitive, capable, and integral to daily digital workflows, offering significant benefits in both personal and professional settings.

About Chatbot Project

Introduction

A Chatbot project involves developing an AI-powered software application designed to simulate human conversation through text or voice interactions. Chatbots can be used for customer support, information retrieval, or to automate business processes. They are integrated into websites, messaging apps, and other platforms to provide instant communication with users.

Objectives

The primary objectives of a Chatbot project are:

1. **Improve User Experience**: Provide quick, accurate responses to user queries.
2. **Automate Processes**: Handle routine inquiries, reducing the workload on human staff.
3. **24/7 Availability**: Offer continuous support without the need for human intervention.

Key Features

1. **Natural Language Processing (NLP)**: Enables the chatbot to understand and process user inputs in a conversational manner.
2. **Machine Learning (ML)**: Allows the chatbot to improve responses over time by learning from past interactions.
3. **Multichannel Support**: Can be deployed across various platforms, such as websites, mobile apps, and social media.
4. **Predefined Responses & Free-Flow Conversations**: Chatbots can use either predefined scripts or generate dynamic, AI-driven responses.

Development Process

1. **Define Use Case**: Identify the problem the chatbot is solving (e.g., customer support, lead generation).
2. **Design Conversation Flow**: Create dialogue paths, ensuring smooth and logical user interactions.
3. **Train the Chatbot**: Use datasets to train the chatbot for NLP, ensuring it understands language nuances.
4. **Testing & Optimization**: Test the chatbot with real users and refine based on feedback.

Benefits

1. **Cost Efficiency**: Reduces the need for human agents by automating frequent queries.

2. **Scalability**: Can handle thousands of simultaneous interactions without performance drops.
3. **Consistency**: Provides uniform responses, ensuring consistency in communication.
4. **Data Collection**: Gathers insights from user interactions for business intelligence.

Challenges

- **Complex Queries**: May struggle with handling ambiguous or highly specific questions.
- **Language Barriers**: Accuracy may be limited when dealing with multiple languages or dialects.
- **User Frustration**: Poorly designed chatbots may frustrate users if they fail to understand inputs.

Conclusion

A Chatbot project enhances communication and efficiency by automating tasks, providing quick responses, and improving user engagement. With ongoing advancements in AI and NLP, chatbots will continue to evolve, becoming an essential part of digital interaction strategies across industries.

About Kishaan Seva

Objective: To develop a predictive system for plant soil fertilizer and water needs using machine learning techniques.

Overview

Kishaan Seva aims to assist farmers by providing data-driven insights into optimal fertilizer and water requirements for various crops. By leveraging machine learning, the project seeks to enhance agricultural productivity, promote sustainable farming practices, and reduce resource wastage.

Methodology

1. **Data Collection:**
   - Soil quality parameters (pH, moisture, nutrient content)
   - Weather data (temperature, rainfall, humidity)
   - Crop type and growth stage
   - Historical yield data
2. **Data Preprocessing:**
   - Cleaning and normalizing datasets
   - Handling missing values and outliers
   - Feature selection based on relevance to plant growth
3. **Machine Learning Models:**
   - Utilized algorithms such as Random Forest, Support Vector Machines, and Neural Networks to predict fertilizer and water needs.

- Split data into training and testing sets for model validation.

4. **Model Training and Evaluation:**
   - Trained models on diverse datasets to ensure robustness.
   - Evaluated model performance using metrics such as accuracy, precision, and recall.
5. **Deployment:**
   - Developed a user-friendly application for farmers to input soil and crop data.
   - Integrated real-time weather data for dynamic recommendations.

Results

- The predictive models achieved an accuracy of over 85% in forecasting the optimal fertilizer and water needs for different crops.
- Early field tests indicated a significant improvement in crop yield and resource efficiency.

Benefits

- **Increased Productivity:** Farmers can optimize inputs, leading to higher yields.
- **Resource Conservation:** Reduced overuse of fertilizers and water.
- **Sustainability:** Encourages eco-friendly farming practices.

Conclusion

Kishaan Seva demonstrates the potential of machine learning in modern agriculture, providing farmers with essential tools to make informed decisions. The project has laid the groundwork for future enhancements, including integration with IoT devices for real-time monitoring and analysis.

Future Work

- Expand the model to include more crop types and geographical regions.
- Incorporate user feedback for continuous improvement.
- Explore partnerships with agricultural organizations for broader outreach and impact.

About Research on Perfect Numbers

Objective: To explore the properties, historical significance, and mathematical implications of perfect numbers.

Overview

Perfect numbers are defined as positive integers that are equal to the sum of their proper divisors (excluding themselves). The smallest perfect number is 6, as its divisors (1, 2, 3) sum to 6. This research aims to delve into the characteristics, classifications, and applications of perfect numbers in number theory.

Historical Background

- **Ancient Origins:** The concept of perfect numbers dates back to ancient Greek mathematicians such as Euclid, who proved that if 2p−1(2p−1)2^{p-1}(2^p - 1)2p−1(2p−1) is a perfect number, then 2p−12^p - 12p−1 must be a prime number (Mersenne prime).
- **Notable Discoveries:** Throughout history, mathematicians like Niccolò Tartaglia and Leonhard Euler contributed significantly to the understanding of perfect numbers and their relationships with Mersenne primes.

Types of Perfect Numbers

1. **Even Perfect Numbers:** All known perfect numbers are even and can be expressed in the form 2p−1(2p−1)2^{p-1}(2^p - 1)2p−1(2p−1), where 2p−12^p - 12p−1 is a prime.
2. **Odd Perfect Numbers:** The existence of odd perfect numbers remains an open question in mathematics, with no known examples despite extensive research.

Properties and Theorems

- **Sum of Divisors:** Perfect numbers have a unique property where the sum of all divisors (including the number itself) equals twice the number.
- **Relation to Mersenne Primes:** Every even perfect number is associated with a Mersenne prime, emphasizing the connection between these two areas of number theory.

Applications

- **Cryptography:** The properties of perfect numbers and their relationship with prime numbers have implications in cryptographic algorithms.
- **Computer Science:** Efficient algorithms for identifying perfect numbers contribute to advancements in computational mathematics.

Current Research Directions

- Investigating the potential existence of odd perfect numbers.
- Analyzing the distribution of perfect numbers and their connection to other number-theoretic functions.
- Utilizing computational methods to search for new perfect numbers.

Conclusion

Research on perfect numbers continues to be a rich field within number theory, combining historical insights with modern mathematical techniques. The exploration of perfect numbers not only deepens our understanding of mathematics but also contributes to various applications in science and technology.

Future Work

- Expanding research on the potential properties of odd perfect numbers.
- Collaborating with computer scientists to develop new algorithms for perfect number identification.
- Investigating the implications of perfect numbers in advanced mathematical theories.

Ms. Meenu
Event Co-odinator

Prof.(Dr.) Archana Kumar
Head of Department

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Report on One-Day Workshop

on

"Effective Technical Writing for Research"

Date: 23rd January 2025

Venue: Auditorium, (ADGIPS)

Resource Person: Dr. Rajender Kumar, Associate Professor, Bhagat Phool Singh Mahila Vishwavidyalaya, Khanpur, Sonepat.

Beneficiaries: Students and faculties of Artificial Intelligence and Data Science

The Department of Artificial Intelligence & Data Science at ADGIPS organized a one-day workshop on "Effective Technical Writing for Research" on 23rd January 2025 for the B.Tech students of AI & DS. The workshop aimed to enhance students' skills in technical writing, an essential aspect of academic and research activities, equipping them to produce high-quality research papers, reports, and documentation.

Objectives of the Workshop:

- To familiarize students with the fundamentals of technical writing.
- To help students structure and format technical documents effectively.
- To provide guidance on citing references, avoiding plagiarism, and adhering to ethical standards.
- To introduce tools and techniques for efficient technical writing.

Workshop Details:

The workshop began at 10:00 AM in the auditorium, with a warm welcome by the Head of the Department, Dr. Archana Kumar, who emphasized the importance of technical writing in academic and professional domains.

The resource person for the workshop, Dr. Rajender Kumar, Associate Professor at Bhagat Phool Singh Women University, an expert in technical writing and academic research, provided invaluable insights into the nuances of writing research papers and technical documents.

Key Highlights of the Workshop:

1. Basics of Technical Writing:

The session started with an overview of technical writing, focusing on its purpose, importance, and audience-specific considerations. Dr. Rajender Kumar elaborated on the key components of a well-written research paper, such as the abstract, introduction, methodology, results, discussion, and conclusion.

2. Structuring and Formatting:

Students were taught how to structure a research paper logically and format it as per standard guidelines like IEEE and APA. The speaker also explained how to create tables, figures, and references to enhance readability and clarity.

3. Ethical Writing and Plagiarism:

A detailed discussion on ethical writing practices was held, highlighting the importance of originality, proper citation, and avoiding plagiarism. The use of plagiarism-detection tools like Turnitin was also demonstrated.

4. Hands-on Session:

The workshop included an interactive hands-on session where students practiced writing abstracts and introductions for technical topics. This activity allowed them to apply the principles discussed during the lecture.

5. Tools and Software:

The resource person introduced tools like LaTeX, Grammarly, and Mendeley to streamline technical writing and reference management, which students found particularly helpful.

6. Q&A Session:

The workshop concluded with a vibrant Q&A session, where students sought guidance on writing effective technical content, selecting appropriate journals for publishing research, and overcoming challenges in academic writing.

Feedback and Conclusion:

The workshop was highly appreciated by the participants, who found the session both informative and practical. The hands-on activities and exposure to writing tools were particularly impactful, helping students gain confidence in their technical writing abilities.

In his closing remarks, Dr. [Name], the event coordinator, thanked the resource person for the enlightening session and encouraged students to apply the knowledge gained in their academic and professional writing endeavors.

The workshop ended with a vote of thanks, marking yet another successful initiative by the Department of AI & DS to empower students with essential skills for their academic and research journeys.

Glimpse of Event


AGENDA FOR TODAY'S PRESENTATIO
Content of Research Paper


Department of Artificial Intelligence
"Effective Technical Writing for Research"
Resource Person:
Dr. Rajender Kumar
Associate Professor

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Department of Artificial Intelligence & Data

Report on: VLR VORTEX (Valorant Tournament)

Event Details:

Date: 20th February 2025 (11:00 a.m. – 5:00 p.m.)
Room No. : 2211
Organizers: Gaurav Ojha & Akshar Grover (AI & DS Department, 2nd Year, S12)
Coordinators: Divij Bareja, Piyush Thakur & Simran Rawat
(AI & DS Department, 2nd Year, S12)
Shubham Singh (AI & DS Department, 2nd Year, S13)

Event Overview:

Valorant Vortex 2025 was an intense esports tournament designed to test participants' skills, strategy, and teamwork in Valorant. The event attracted eight teams eager to compete and prove their dominance in a highly competitive environment. The tournament was structured into three stages, each designed to challenge different aspects of gameplay:

In the Group Stage, the eight teams were divided into two groups of four, competing in a Best of 1 (BO1) format. This stage tested their adaptability and quick decision-making, with the top two teams from each group advancing to the semi-finals.

The Semi-Finals featured the top four teams facing off in another Best of 1 (BO1) format. Precision, coordination, and composure under pressure were key to securing a spot in the finals.

The Finals were held in a Best of 3 (BO3) format, pushing both finalists to their limits. Teams had to showcase exceptional synergy, map control, and tactical execution to claim victory.

Results:

1st Position: Team Tesseract
2nd Position: Team H.A.S.

Conclusion:

Valorant Vortex 2025 was a resounding success, providing gamers with a platform to showcase their talent, strategy, and competitive spirit. The event highlighted the growing esports culture and the skills of participating teams. Congratulations to the winners, and a heartfelt thank you to all participants for their passion and dedication.

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Department of Artificial Intelligence & Data Science

Report on Free Fire Tournament

Event Details:

- **Date:** 19th February 2025 (10 a.m. – 11.30 a.m.)
- **Room No.:** 2208
- **Organizer:** Hitesh Jha (AI & DS Department, 2nd Year, S12)
- **Coordinators:** Abhishek Jain & Vishal Kumar (AI & DS Department, 2nd Year, S12)

Event Overview:

The **Free Fire Tournament – "BR Squad"**, organized by **DataZoic, Department of Artificial Intelligence & Data Science**, was successfully held on **19th February 2024** as part of *Utkarsh 2025*, the Annual Fest. The event aimed to provide a **competitive platform** for gaming enthusiasts, fostering **teamwork, strategic thinking, and quick decision-making**.

Event Highlights

- The tournament saw an enthusiastic participation of **50 players**, all eager to showcase their gaming skills.
- The event started at **10:00 AM**, with a briefing on the rules, match format, and fair play guidelines.
- Players engaged in **intense battle royale matches**, exhibiting impressive coordination and strategic gameplay.
- The competition progressed through **multiple elimination rounds**, with each match increasing in excitement and intensity.

The **final match** witnessed a thrilling showdown, with **Mr. Harsh (B.Tech 2nd Year)** emerging as the **winner**, demonstrating exceptional skill and strategy.

Conclusion: The **Free Fire Tournament "BR Squad"** was a **grand success**, adding a **dynamic and engaging** element to *Utkarsh 2025*. The event not only entertained but also reinforced **the importance of teamwork, adaptability, and strategic thinking** in esports.

The **DataZoic team** extends heartfelt thanks to all participants and supporters for making the tournament a memorable and competitive experience. The overwhelming response has encouraged the organizers to plan similar gaming events in the future, further promoting the **esports culture** among students.


UTKARSH-2025


UTKARSH-2025

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REPORT

DEPARTMENT OF ARTIFICIAL INTELLIGENCE & DATA SCIENCE

PRESENTS

UNMASK AI

Event Details:

- **Date**: 19th February 2025 (2 PM – 3 PM)
- **Room No.**: 2216
- **Organizer**: Farhan Manzer (AI & DS Department, 2nd Year, S13)
- **Coordinators**: Shreya Singh, Kavya Singh, Pallavi Verma, Yoshita Gandhi, Saksham Aggarwal, Aditya Jain, Manav Sukhija (AI&DS Department, 2nd Year, S13)

Event Overview:

Real VS AI challenge – "**Unmask AI**", organized by **DATAZOIC**, Department of Artificial Intelligence & Data Science, was successfully held on **19th February 2025** as part of **Utkarsh 2025**, the Annual Fest. The event aimed to provide a competitive platform for players against AI challengers to test their skills. It fostered teamwork, quick decision-making, and human intuition.

The students of **S-13** put together an exciting and well-structured event, Unmask AI, featuring three challenging rounds that kept participants engaged and the competition intense.

Event Highlights

- The challenge witnessed a turnout of **20+ participants**, all eager to demonstrate their intuitive skills and strategic prowess.
- The event started at 02:00 AM, with a briefing on the rules, round format, and fair play guidelines.
- The challenge progressed through multiple elimination rounds, with each stage escalating in excitement and intensity.
- The final round witnessed a thrilling showdown, with Mr. Rohit Sharma (B.Tech 2nd Year) emerging as the winner, showcasing outstanding skill, and strategic brilliance.

Conclusion:

The Real vs. AI Challenge – "Unmask AI" was an incredible success, adding excitement and energy to Utkarsh 2025. The event brought players into a thrilling challenge, showcasing the power of teamwork, adaptability, and strategic thinking in esports. It was a celebration of the ever-evolving relationship between technology and gaming.

The DataZoic team thanks all participants and supporters for making the tournament a memorable and competitive experience. The overwhelming response has encouraged the organizers to plan similar gaming events in the future, further promoting the esports culture among students.


DATAZOIC
UTKARSH
FUTURE TECH
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19 Feb, 2024
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AI & DS SMART CLASS


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Department of Artificial Intelligence and Data Science

Report on Industrial Visit to Indraprastha Institute of Information Technology, Delhi (IIIT-Delhi): Innovation and Incubation Centre & Drone Innovation Lab

Date of Visit: 23 October 2024
Venue: Indraprastha Institute of Information Technology, Delhi (IIIT-Delhi)
Departments Visited: Innovation and Incubation Centre, Drone Innovation Lab
Participants: B.Tech AI & DS Students
Faculty In-Charge: Ms. Dimpy Dixit, Mr. Ankur Jain.

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1. Introduction

An industrial visit was conducted to the Innovation and Incubation Centre, specifically the Drone Innovation Lab, at IIIT-Delhi. This visit aimed to provide students an insight into the development and innovation processes involved in emerging technologies, with a focus on drone applications. The Innovation and Incubation Centre at IIIT-Delhi is a cutting-edge facility dedicated to fostering creativity, nurturing entrepreneurial ventures, and encouraging research in technology.

2. Objective of the Visit

The objectives of the visit were:

- To gain a first-hand understanding of drone technology, its design, and operational challenges.
- To explore the process of transforming innovative ideas into market-ready products.
- To understand the incubation process, where technological research translates into real-world applications.
- To inspire students to think creatively about the potential of drone applications and entrepreneurial possibilities.

3. Overview of the Innovation and Incubation Centre

IIIT-Delhi's Innovation and Incubation Centre is established to support young entrepreneurs, researchers, and technologists in developing solutions to real-world problems. The centre focuses on technologies like Artificial Intelligence (AI), the Internet of Things (IoT), and drone technology. With funding and mentorship provided by

industry experts and faculty, the centre provides a platform for nurturing innovative ideas and advancing them into viable products or start-ups.

Key facilities at the Centre include:

- **Prototype Labs**: Equipped with advanced tools and technology for developing and testing prototypes.
- **Mentorship Programs**: Regular interaction with industry experts who guide the incubatees through technological and business challenges.
- **Resource Library**: Access to cutting-edge resources, publications, and software tools.
- **Networking Events**: Opportunities to connect with investors, industry leaders, and academic professionals.

4. Drone Innovation Lab

The Drone Innovation Lab is a specialized section within the Innovation Centre, focused on the research and development of drone technologies. Students were introduced to the lab's facilities, which include:

- **Flight Simulation Area**: A dedicated space for piloting drone models in controlled environments.
- **Design and Engineering Workstations**: Workstations where drones are designed and configured for different applications.
- **Testing Zone**: A section where prototypes undergo flight and operational testing to assess durability and functionality.
- **Drone Maintenance & Assembly Workshop**: Equipped with tools for building and repairing drones, including modular assembly stations for customizing drone parts.

5. Drone Applications Discussed

During the visit, researchers demonstrated several ongoing drone projects and discussed the vast potential of drone technology in various sectors. Key applications covered included:

- **Agricultural Drones**: Equipped with sensors to monitor crop health, analyse soil conditions, and aid in efficient irrigation.
- **Delivery Drones**: Being developed to expedite the delivery process in urban areas, especially for essential supplies.
- **Disaster Management**: Drones used for search and rescue operations, surveillance of disaster-prone areas, and relief distribution.
- **Environmental Monitoring**: Use of drones to gather data on air and water quality, wildlife tracking, and forest monitoring.

6. Key Learnings and Observations

The visit provided students with valuable insights into the following areas:

- The **engineering and design process** of drones, including challenges related to aerodynamics, energy consumption, and flight control.
- The **application of AI and machine learning** algorithms in drones for autonomous navigation and image recognition tasks.
- The **importance of multidisciplinary knowledge**, such as electronics, computer science, and mechanical engineering, in drone innovation.
- The **startup ecosystem** at the Innovation Centre, showing how an idea evolves from prototype to a commercially viable solution.

7. Interaction with Experts

Students had the chance to interact with engineers, researchers, and project leads at the Drone Innovation Lab. During a Q&A session, students explored topics such as:

- The **future of drone technology** in India and the regulatory challenges.
- The **integration of AI** in drones for autonomous decision-making and advanced data analysis.
- **Opportunities in entrepreneurship** for students aspiring to start ventures in drone technology and its applications.

8. Conclusion

The industrial visit to IIIT-Delhi's Innovation and Incubation Centre and Drone Innovation Lab was an inspiring and educational experience. It enabled students to witness the journey from research to real-world application and provided them with a clearer understanding of how innovation drives technological advancements. The students left motivated and more informed about potential career paths in drone technology, AI, and IoT, and expressed a strong interest in participating in future projects and entrepreneurial endeavors in this field.

Glimpse of Visit


IIITD


534

Prepared by:

Ms. Meenu Sharma,
Assistant professor
Event coordinator

Department of Artificial Intelligence and Data Science

Report on the Visit to AICTE Idea Lab Tech Fest 2025

Organized By: AICTE Idea Lab, AICTE, Delhi

Date of Visit: 7th March 2025

Participants: B.Tech (AIDS) 2nd Year and 3rd Year Students

Student Incharge: Mr. Ritesh Kumar, Assistant Professor, AI&DS Department

Introduction:

The students of B.Tech (Artificial Intelligence and Data Science) 2nd and 3rd year visited the **AICTE Idea Lab Tech Fest 2025 at AICTE, Delhi, on 7th March 2025**. The visit was aimed at providing students with hands-on exposure to innovative technologies, fostering creativity, and understanding real-world applications of AI and emerging technologies. Various colleges from all over the country participated in the event to showcase their innovative projects.

Objective of the Visit:

The primary objectives of the visit were:

- To enhance the understanding of AI-driven innovations.
- To explore various projects and research initiatives under the AICTE Idea Lab.
- To interact with experts and gain insights into industry-oriented problem-solving.
- To encourage students to participate in future innovation and startup programs.

Key Highlights of the Visit:

1. **Welcome Session:**
   - The visit began with a welcome address by the organizers, who provided an overview of the AICTE Idea Lab and its role in fostering innovation among students and researchers.
2. **Technical Demonstrations:**
   - Students witnessed live demonstrations of AI-based projects, including machine learning applications, robotics, IoT-integrated devices, and automation tools.
   - Hands-on sessions were conducted on 3D printing, rapid prototyping, and AI-based simulation models.
3. **Workshops & Expert Talks:**

- A session on "The Future of AI in Industry" was conducted by experts, discussing emerging trends in AI, ML, and Deep Learning.
- Another workshop covered "AI for Social Good," demonstrating how AI can solve real-world societal challenges.

4. **Project Exhibitions:**
   - Various student-led and faculty-led projects from different colleges across the country were exhibited, including:
     - AI-based healthcare monitoring systems.
     - Smart traffic management using computer vision.
     - Predictive analytics in financial markets.
     - Robotics and automation solutions for industrial applications.
5. **Networking & Interaction:**
   - Students engaged with innovators, startup founders, and faculty members, discussing project ideas and career prospects in AI and Data Science.
   - They also interacted with students from other institutions, exchanging ideas and experiences regarding AI-driven research and development.

Student Feedback:

The visit proved to be highly enriching for the students. Some of their reflections included:

- "The hands-on demonstrations were insightful and motivated us to work on AI projects."
- "Interacting with experts helped us understand real-world challenges and applications of AI."
- "The visit inspired us to explore AI-based startups and innovation challenges."
- "It was great to see projects from various colleges and learn from different perspectives."

Conclusion & Recommendations:

The visit to the AICTE Idea Lab Tech Fest 2025 was a valuable experience for the students of AIDS 2nd and 3rd year. It provided practical exposure to AI innovations and encouraged participation in research and development activities. The participation of various colleges added to the diversity and learning experience.

Glimpses of Visit:

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Department of Artificial Intelligence and Data Science

Report on Three-Day Training Workshop on "Indigenous 5G Testbed Project"

at IIT Delhi (March 19-21, 2025)

Venue: Indian institute of Technologies, New Delhi.
Date of Visit:19thMarch 2025 – 21st March
Participants: B.Tech (AIDS) 2nd Year Students

Introduction The three-day training workshop on the Indigenous 5G Testbed Project was held at the Indian Institute of Technology (IIT) Delhi from March 19 to March 21, 2025, specifically for the students of B.Tech 2nd year in Artificial Intelligence & Data Science (AI&DS). The workshop aimed to provide in-depth knowledge of 5G technologies, its applications in the Internet of Things (IoT), and the security challenges associated with 5G and IoT networks.

Day 1: 5G Physical Layer (March 19, 2025) The first day of the workshop focused on the fundamentals and advancements in the 5G physical layer. Key topics covered included:

- Overview of the 5G New Radio (NR) and its architecture.
- Waveform design and multiple access techniques such as OFDM and NOMA.
- Massive MIMO and beam forming techniques.
- Channel coding schemes like LDPC and Polar codes.
- Demonstration of 5G signal transmission using the Indigenous 5G Testbed.

Experts from IIT Delhi and industry professionals provided insights into real-world applications and performance improvements of the 5G physical layer in different scenarios. The sessions were tailored to help AI&DS students understand the computational aspects of 5G signal processing and its relevance to AI-driven optimizations.

Day 2: IoT Setup (March 20, 2025) The second day of the workshop was dedicated to setting up and integrating IoT devices with the 5G testbed. The sessions included:

- Introduction to IoT architecture and its synergy with 5G.
- IoT device connectivity and communication protocols such as MQTT and CoAP.
- Hands-on demonstration of IoT sensors and data acquisition.
- Edge computing and cloud integration for IoT applications.
- Practical implementation of IoT use cases using the 5G network.

Students engaged in hands-on exercises to configure and test IoT setups with 5G connectivity, gaining practical experience in deploying IoT solutions. The focus was also on the role of AI in analyzing IoT-generated data for smart decision-making.

Day 3: 5G and IoT Network Security (March 21, 2025) The final day addressed the crucial aspects of network security in 5G and IoT ecosystems. The sessions covered:

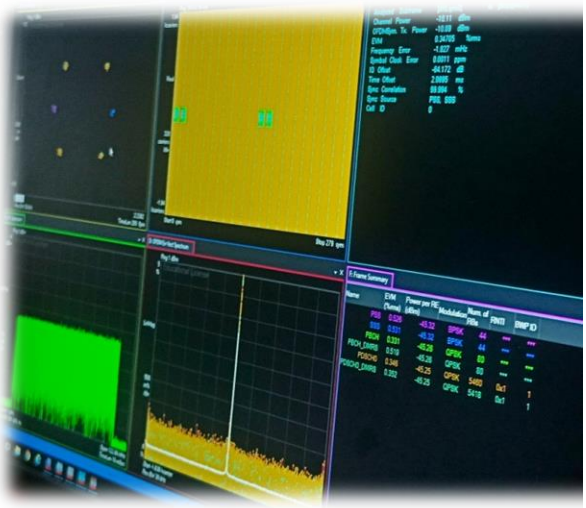
- Security challenges in 5G networks, including authentication and encryption techniques.
- Threats and vulnerabilities in IoT systems.
- Role of blockchain and AI-driven security solutions in safeguarding 5G and IoT networks.
- Hands-on demonstration of intrusion detection and mitigation strategies.
- Panel discussion on policy and regulatory frameworks for 5G security.

Industry experts and cybersecurity professionals shared best practices and future trends in securing next-generation communication networks. The discussions were structured to highlight AI's role in cybersecurity threat detection and prevention.

Conclusion The workshop successfully provided B.Tech 2nd-year AI&DS students with valuable theoretical and practical knowledge on the Indigenous 5G Testbed Project. The interactive sessions, hands-on demonstrations, and expert insights helped attendees understand the latest advancements in 5G, IoT integration, and network security, with a specific focus on AI applications in these domains.

The event concluded with a certificate distribution ceremony, followed by discussions on potential research collaborations and the future roadmap for indigenous 5G development in India.

Glimpses of 19th March 2025(5G physical layer)



Glimpses of 20th March 2025(IoT Setup)

Glimpses of 21st March 2025(5G and IoT Network Security)

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Co-ordinator

Prof. (Dr.) Archana Kumar
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Department of Artificial Intelligence and Data Science

Report on Expert Lecture "Plant Diseases Prediction Using AI and ML"

Topic: **Plant Diseases Prediction Using AI and ML**
Date: 7th April 2025
Audience: B.Tech AIDS Students
Venue: Auditorium
Organized by: Department of Artificial Intelligence and Data Science
Speaker: Dr. Anuradha Chug, USICT, GGSIPU.

1. Introduction

The expert lecture on "Plant Diseases Prediction Using AI and ML" was conducted to provide students with insights into the application of artificial intelligence and machine learning in agriculture. The session aimed to bridge the gap between theoretical knowledge and practical applications, enhancing students' understanding of how technology can revolutionize plant health monitoring.

2. Objectives of the Lecture

- To introduce the concepts of AI and ML in the context of agriculture.
- To understand various plant diseases and their impact on crop yield.
- To demonstrate practical techniques for predicting plant diseases using AI and ML algorithms.

3. Key Highlights of the Lecture

- **Introduction to AI and ML:** Basic concepts, types of algorithms, and their relevance to agriculture.
- **Understanding Plant Diseases:** Common plant diseases, symptoms, and traditional methods of detection.
- **Role of AI and ML in Agriculture:** How data-driven models improve disease prediction accuracy.
- **Machine Learning Models Used:** Overview of algorithms like Decision Trees, Random Forest, Neural Networks, and Convolution Neural Networks (CNNs) for image-based disease detection.

4. Practical Demonstration

- **Tools and Technologies Used:** Python, TensorFlow, OpenCV, and datasets from agricultural research databases.
- **Demonstration Steps:**
    1. Data collection and pre-processing.
    2. Training ML models with disease datasets.
    3. Model evaluation and accuracy assessment.
    4. Real-time demonstration of disease detection using plant images.

5. Student Interaction and Q&A

Students actively participated, asking questions about data sources, model training processes, and real-world applications of AI in agriculture.

6. Outcomes of the Lecture

- Enhanced understanding of AI and ML applications in plant disease prediction.
- Practical exposure to tools and techniques used in agricultural AI projects.
- Encouragement for students to explore research opportunities in agricultural technology.

7. Conclusion

The expert lecture was a significant step in integrating modern technological approaches into agricultural studies, providing students with valuable insights and practical skills for future research and development in the field of agricultural AI.

Glimpse of event

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Co-ordinator

Prof. (Dr.) Archana Kumar
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Department of Artificial Intelligence and Data Science

Report on Expert Lecture on "Opportunistic Networks: A Communication Framework for Remote Regions"

Topic: **"Opportunistic Networks: A Communication Framework for Remote Regions"**
Date: 17th April 2025
Audience: B.Tech AIDS Students
Venue: Auditorium
Organized by: Department of Artificial Intelligence and Data Science
Speaker: Dr. Seema Jangra, Assistant professor at Inderprastha college for Women, DU

Objective of the Lecture

The primary objective of the expert lecture was to introduce students and faculty to the emerging concept of ***Opportunistic Networks (OppNets)*** and to explore its role as a novel communication paradigm for environments with limited or no infrastructure, such as remote or disaster-affected regions.

About the Speaker

Dr. Seema Jangra is presently working as Assistant Professor in the Department of Computer Science, Indraprastha College for Women, Delhi University. She has worked as Assistant professor in Bhagwan Parshuram College of Engineering for 7 years. In 2016 she joined Indraprastha College for Women, Delhi university. She has more than 15 research publication and three patent publication in Indian Patent Journal. She has delivered lectures in various refresher courses, orientation courses and faculty development programs.

Session Highlights

1. **Introduction to Opportunistic Networks (OppNets):**
   - Definition and distinction from traditional MANETs and DTNs
   - Characteristics: intermittent connectivity, dynamic topology, no end-to-end path
2. **Communication Challenges in Remote Areas:**
   - Lack of infrastructure
   - High latency and data loss
   - Energy and storage constraints in edge devices

3. **How Opportunistic Networks Work:**
    - Store-carry-forward approach
    - Use of mobile agents (e.g., vehicles, drones, people) as data carriers
    - Application of routing protocols like Spray and Wait, PROPHET, and Epidemic Routing
4. **Real-World Applications:**
    - Rural health monitoring and emergency services
    - Wildlife tracking and environmental monitoring
    - Post-disaster communication recovery
5. **Relevance to AI and Data Science:**
    - Integration with edge AI for pre-processing and decision-making
    - Smart routing based on predictive models
    - Data collection and analytics in resource-constrained environments
6. **Interactive Q&A Session:**
    - Students asked insightful questions about real-world implementations, scalability, and ethical considerations
    - Discussions on ongoing research and potential career paths in this domain

Key Takeaways

- Deep understanding of the architecture and protocols behind Opportunistic Networks
- Insight into the role of these networks in achieving digital inclusion in underserved areas
- Appreciation for interdisciplinary applications of AI, data science, and networking
- Inspiration to explore further research and development opportunities in delay-tolerant communication

Feedback and Student Response

The lecture received an overwhelmingly positive response. Students appreciated the speaker's clarity and the relevance of the topic to global challenges in digital communication. The session sparked interest in exploring unconventional networking models for socially impactful applications.

Conclusion

The expert lecture on ***Opportunistic Networks*** was a highly enlightening session that broadened the participants' understanding of communication technologies beyond conventional infrastructure. It emphasized the importance of innovative, flexible, and intelligent solutions to connect the unconnected, resonating deeply with the department’s mission to blend technology with social relevance.

Glimpse of event

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Co-ordinator

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Department of Artificial Intelligence and Data Science

Report on One Day Industrial visit at "Network Bulls"

(21st April, 2025)

Date of Visit: 21st April 2025
Venue: Network Bulls, Gurugram, Haryana
Organized By: Department of Artificial Intelligence and Data Science
Faculty Coordinator: Ms. Meenu
Number of Students: 55

Objective of the Visit :

The objective of the industrial visit was to bridge the gap between theoretical knowledge and practical industry exposure. The visit aimed to familiarize students with real-world networking infrastructure, cloud computing environments, and their relevance to Artificial Intelligence and Data Science.

About Network Bulls :

Network Bulls is a leading Cisco training and networking solutions company headquartered in Gurugram. It is renowned for its advanced training labs and placement records in the field of networking. The company offers professional training in CCNA, CCNP, and CCIE certifications, making it a key learning hub for networking aspirants.

Visit Highlights :

1. **Welcome and Orientation Session**
   - The session began with a warm welcome and an introduction to Network Bulls by the training manager.
   - A brief overview of networking fundamentals and their role in modern AI and data infrastructures was presented.
2. **Lab Tour and Live Demonstrations**
   - Students were taken through one of India's largest Cisco labs.
   - Live setups of routers, switches, and firewalls were shown.

- Demonstrations on how networking supports cloud infrastructure, real-time data transfer, and security in AI models.

3. **Technical Workshop**
   - A hands-on session focusing on:
     - Basics of networking and IP addressing
     - Use of networking in AI applications like distributed computing and IoT
     - Real-time data streaming and its routing through networks
4. **Interaction with Industry Experts**
   - A Q&A session with certified network engineers
   - Discussions on career opportunities in networking for AI and Data Science students
   - Tips on combining networking knowledge with AI/ML for better performance in distributed systems

Learning Outcomes :

- Gained practical exposure to network infrastructure and configuration.
- Understood the relevance of networking in cloud computing, AI deployment, and data pipelines.
- Developed a broader perspective on interdisciplinary applications of AI and networking.
- Learned about emerging career paths that integrate AI, Data Science, and Network Engineering.

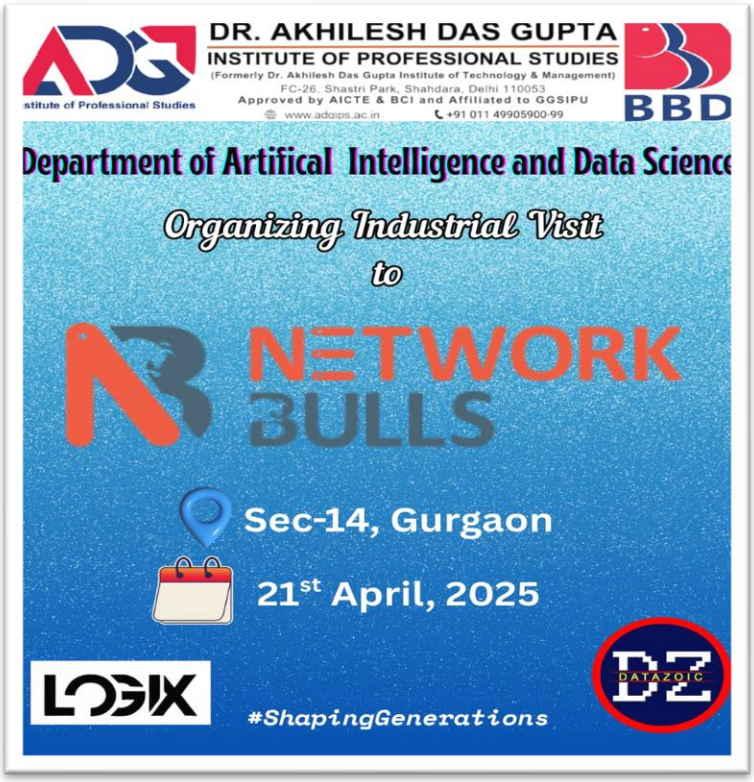
Feedback from Students :

Students found the visit highly informative and engaging. Many expressed interest in exploring certifications in networking to complement their AI and Data Science education.

Conclusion :

The industrial visit to Network Bulls provided an enriching learning experience, offering students a unique blend of theoretical understanding and practical exposure. It highlighted the importance of networking skills in the effective implementation and scaling of AI solutions in the real world.

Glimpses of visit



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