



IEEE
SMC
Systems, Man, and Cybernetics Society
MJCET

IEEE SMC MJCET ANNUAL REPORT 2023-2024

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1	IMAGIFY	11:30 a.m to 4:30 p.m (24th July, 2023)	1-10
2	IEEE Day	10:00 a.m to 4:00 p.m (18th November, 2023)	11-18
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IEEE SYSTEMS, MAN, AND CYBERNETICS SOCIETY MJCET

PRESENTS

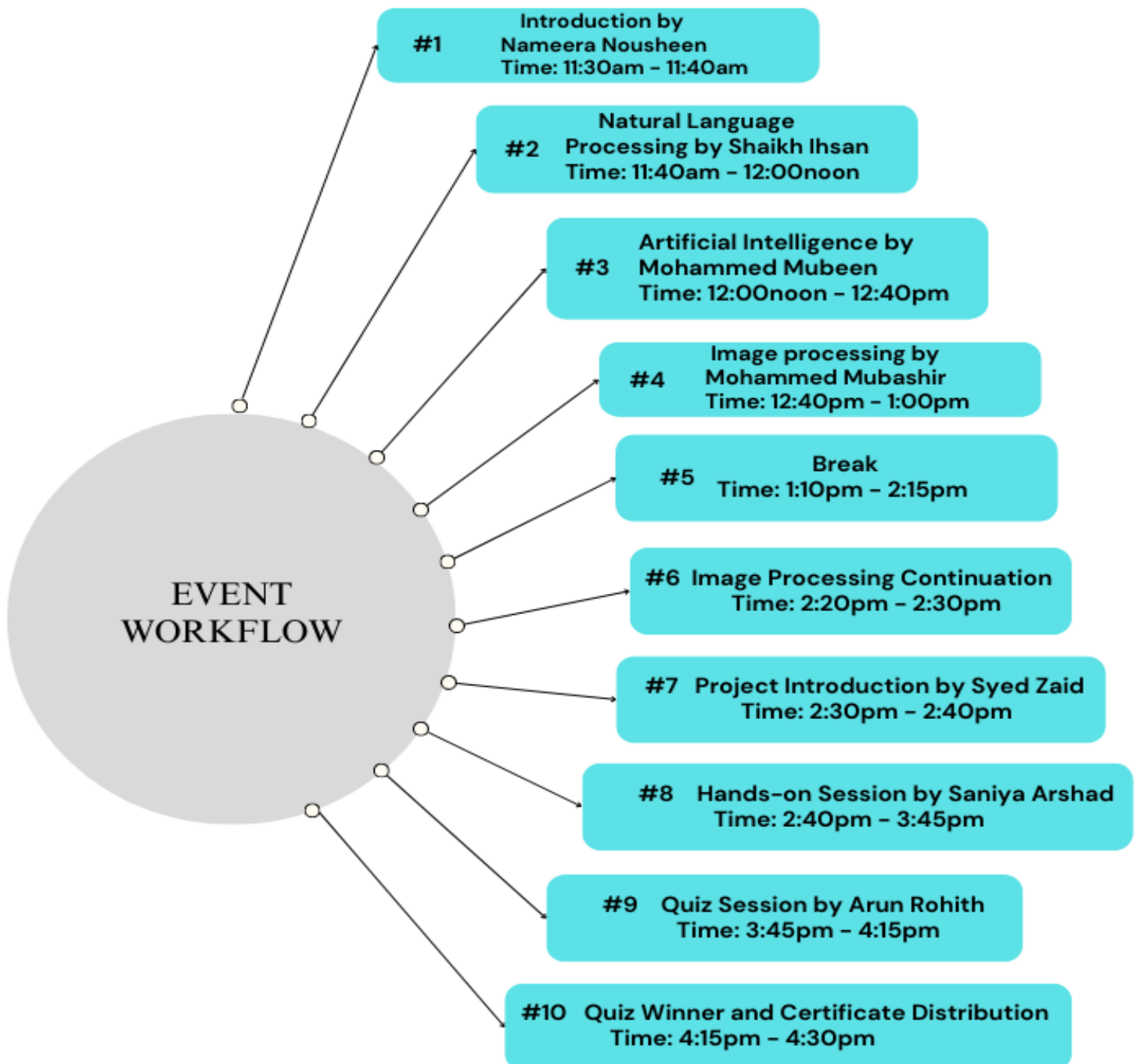
IMAGIFY

BY

TEAM SMC

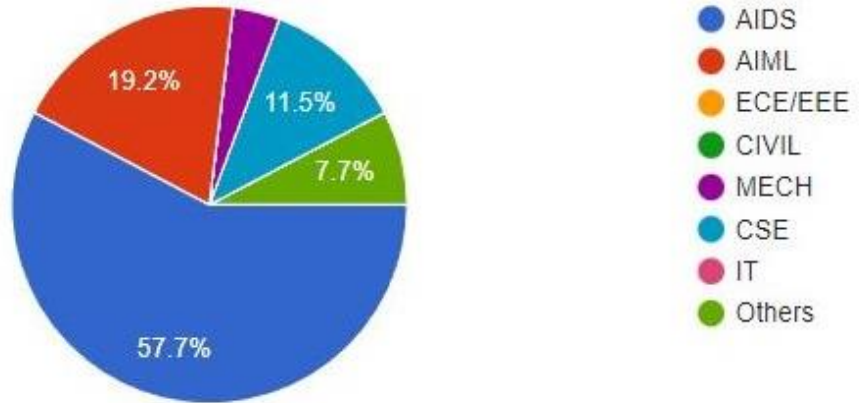
EVENT DETAILS :

- **Date of the Event:** 24th July, 2023.
- **Venue:** Room no. 5209 Block 5.
- **Number of attendees:** 70
- **Timings:** 11:30am - 4:30pm

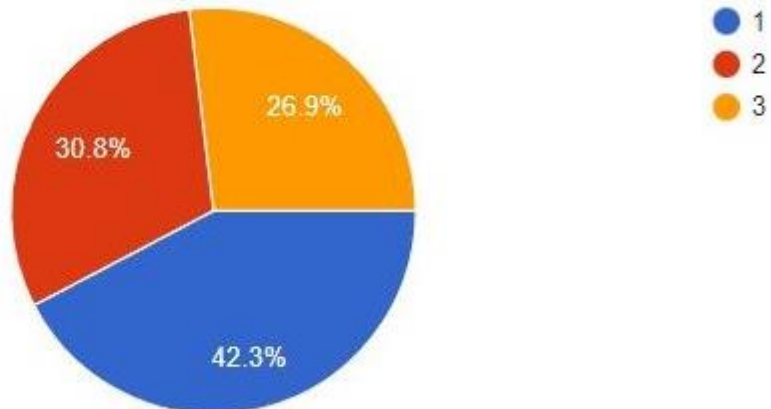


ATTENDANCE STATISTICS:

Branch



Year



Attendance link: [Attendance of Imagify Event](#)



PREFACE OF THE EVENT:

On 24th July, 2023, the IEEE SMC MJCET organized a technical event named "IMAGIFY." The primary focus of this event was to explore the potential of a latent text-to-image stable diffusion model, which aimed to generate images from textual descriptions (prompts). Beyond just technology, the event also emphasized promoting creativity and imagination among the participants. The event started by welcoming the attendees by our host Nameera Nousheen.

CONTENTS OF THE EVENT:

Natural Language Processing –

The event kicked off with a theory session by Shaikh Ihsan, who provided valuable insights into Natural Language Processing (NLP). The topics covered included the definition and goals of NLP, subfields of AI, the workings of NLP, and the distinction between NLU (Natural Language Understanding) and NLG (Natural Language Generation). The speaker further elaborated on the various phases and steps involved in NLP, shedding light on its applications in real-world scenarios.

Artificial Intelligence –

Next, Mohammed Mubeen took the stage and introduced the audience to Artificial Intelligence (AI). His presentation covered the basics of AI, its objectives, and the rise of AI in various industries. He debunked the myth of AI being a job killer and discussed the latest AI trends. Additionally, he analyzed the reasons for India lagging in AI adoption. An intriguing question, "Can AI imagine like a human mind?" was explored, along with an introduction to Generative AI and Large Language Models (LLMs). The limitations of Generative AI were also discussed to provide a well-rounded perspective on the topic.

Image Processing –

Following that, Mohammed Mubashir delivered a comprehensive theory session on Image Processing. He explained the concept of pixels and images, introducing the audience to the world of digital visuals. Various types of images and the essential concepts related to image processing were explored. Mubashir also outlined the phases involved in Image Processing and highlighted the impact of AI and ML in this domain, demonstrating its real-world applications.

Project –

The theory sessions concluded with Syed Zaid presenting the project introduction. He delved into the complexities of stable diffusion, schedulers, and libraries such as diffusers, transformers, and better-profanity. Zaid's explanation set the stage for the hands-on session, where Saniya Arshad guided the participants through the code of the latent text-to-image stable diffusion model, offering a practical understanding of the theoretical foundation given to them earlier.

Quiz –

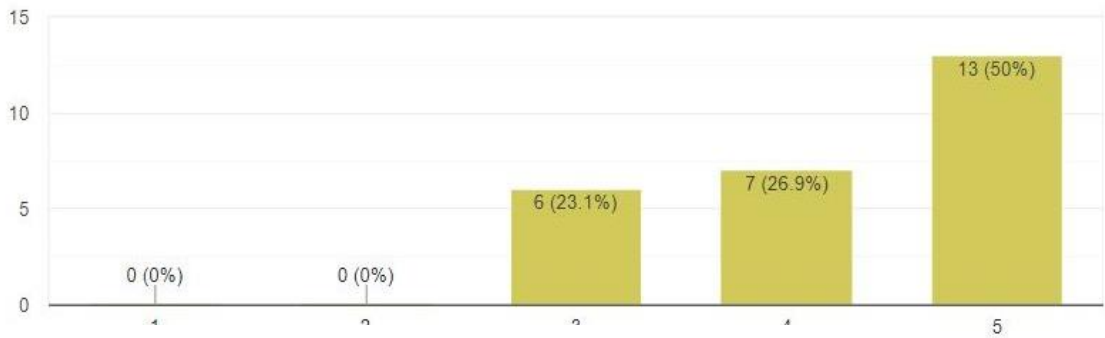
The event concluded with an engaging quiz hosted by Arun Rohith, focusing on the contents covered during the sessions. Participants showcased their knowledge, and winners were rewarded with prizes to recognize their achievements. Certificates were distributed to all participants as a token of appreciation for their active involvement and coordination throughout the event.

CLOSURE OF THE EVENT:

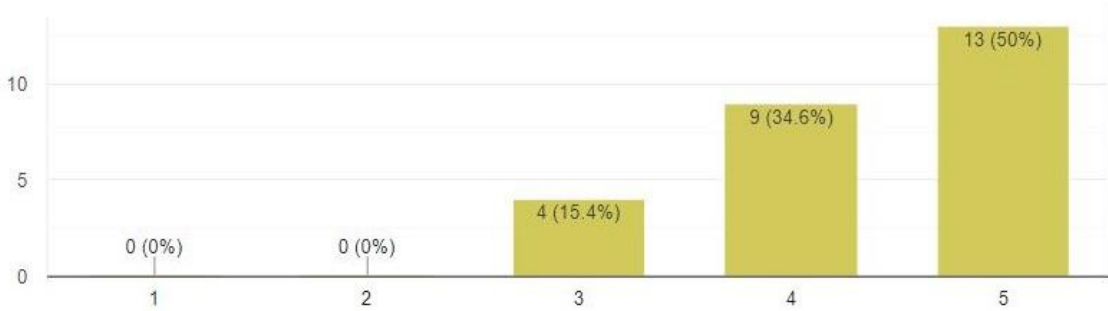
This event proved to be an intellectually stimulating and rewarding experience for all participants. Combining the theory sessions, hands-on learning, and a quiz, the attendees gained valuable insights into the latent text-to-image stable diffusion model, NLP, AI, Generative AI, and Image Processing. The event successfully fulfilled its goal of promoting creativity, imagination, and learning about cutting-edge technologies, leaving all attendees inspired and motivated to explore further horizons in the world of Artificial Intelligence.

FEEDBACK STATISTICS:

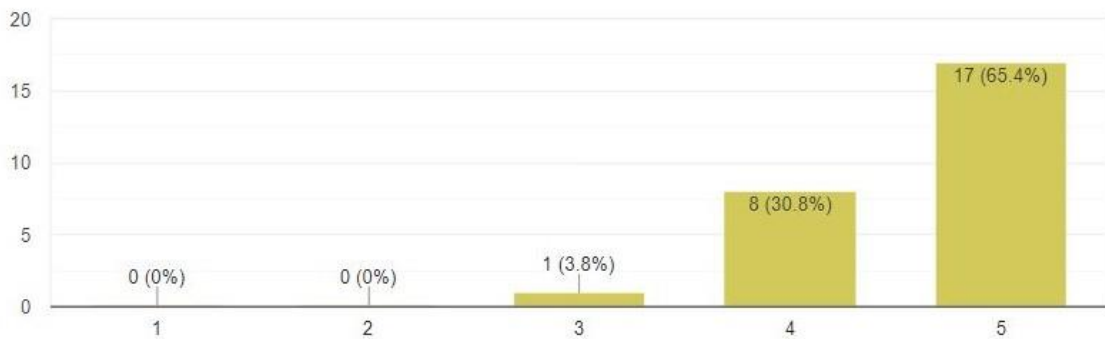
Rate Theory Session



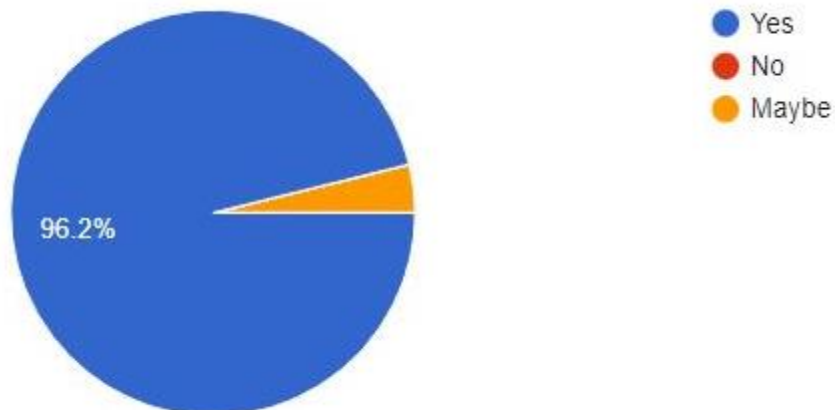
Rate Hands on Session

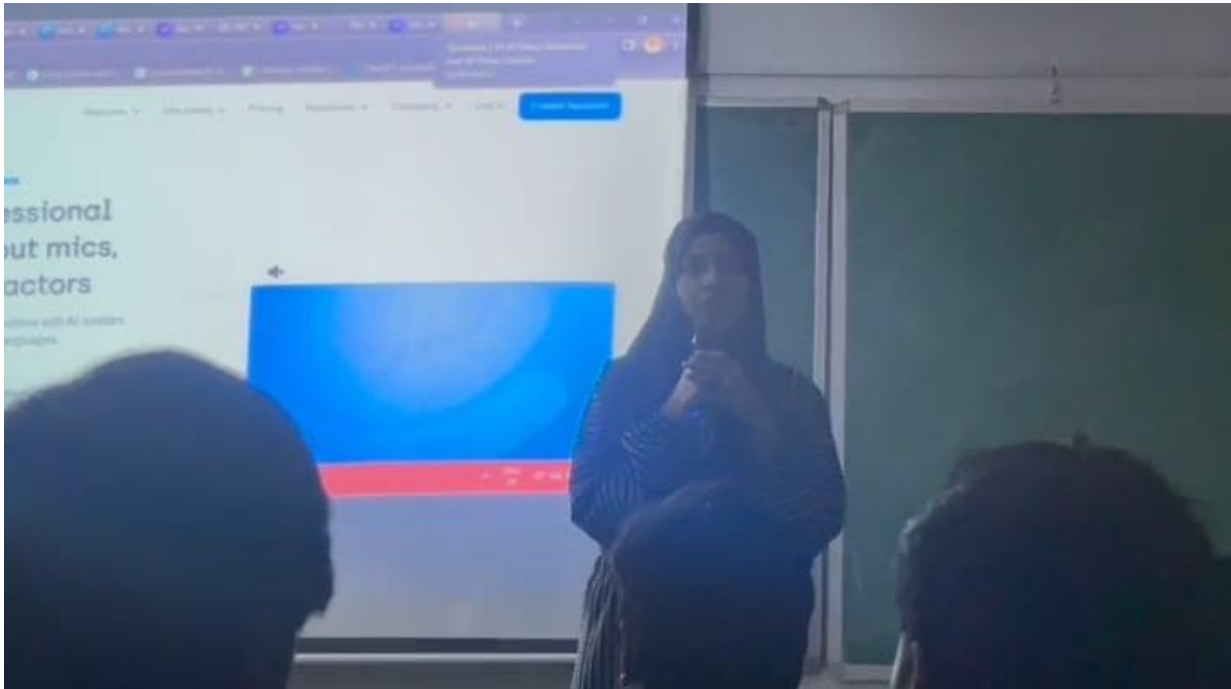


Overall Ratings



Did the event meet your expectation?





Host Nameera Nousheen interacting with the audience



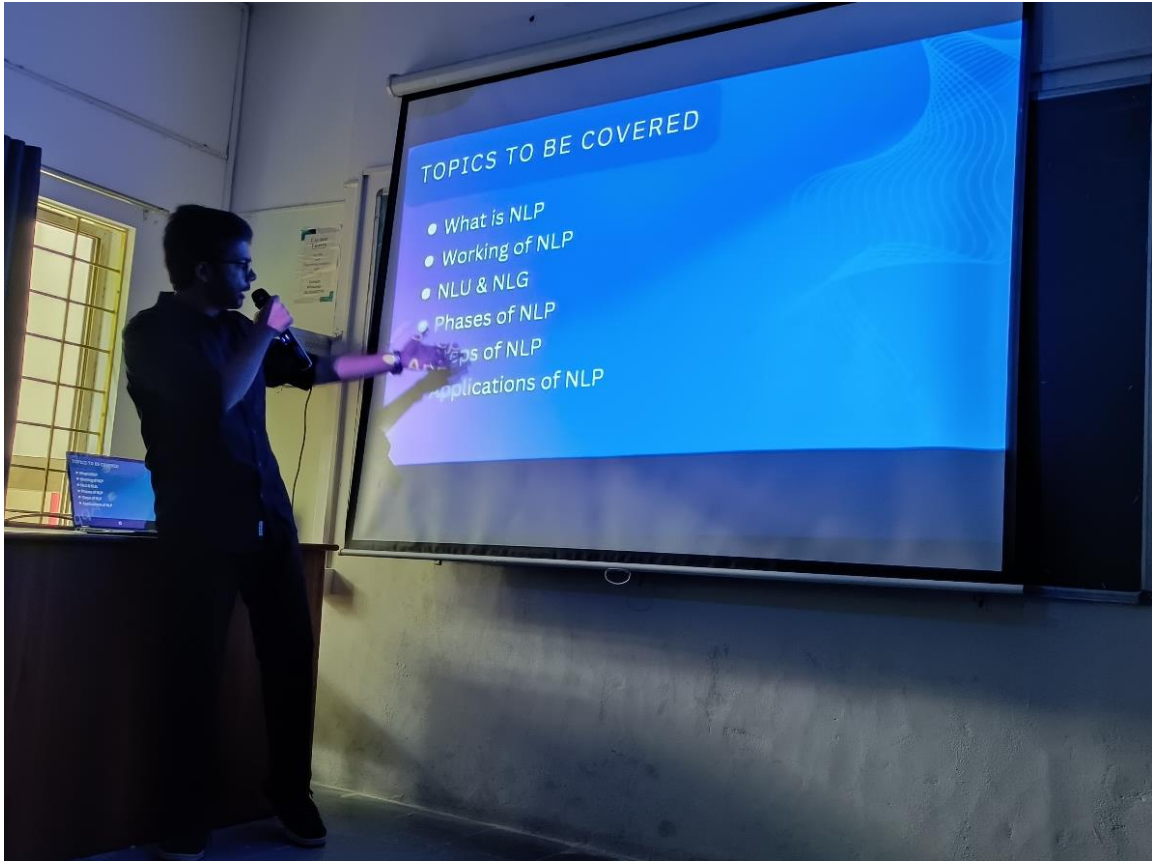
Audience at the event



Mohammed Mubeen delivering speech on AI



Mohammed Mubashir explaining Image Processing



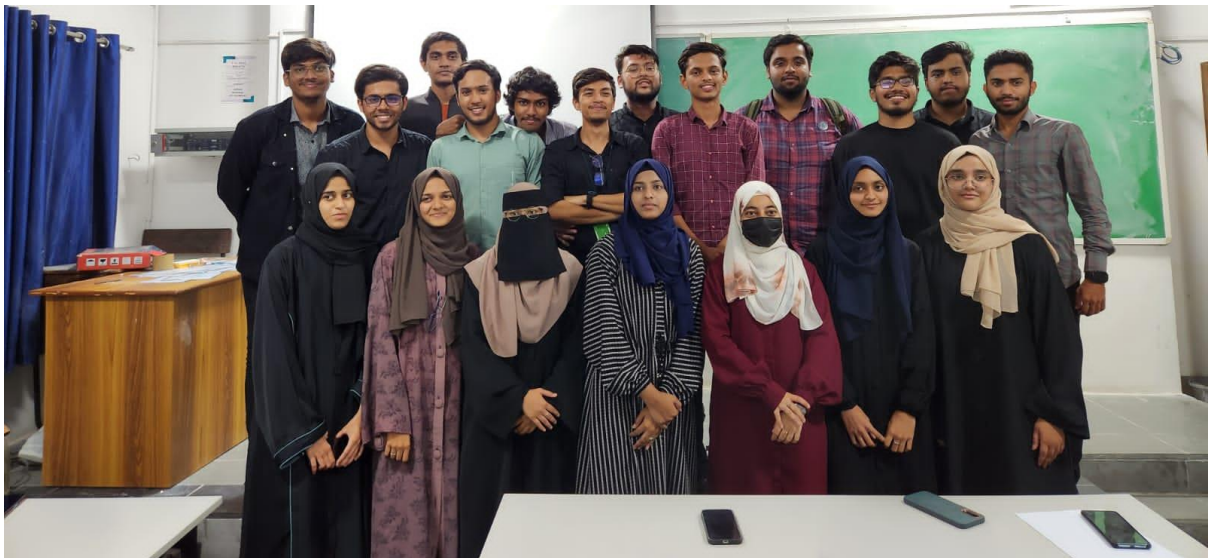
Shaikh Ihsan giving insights on NLP



Syed Zaid giving Project Introduction



Winners of the Quiz



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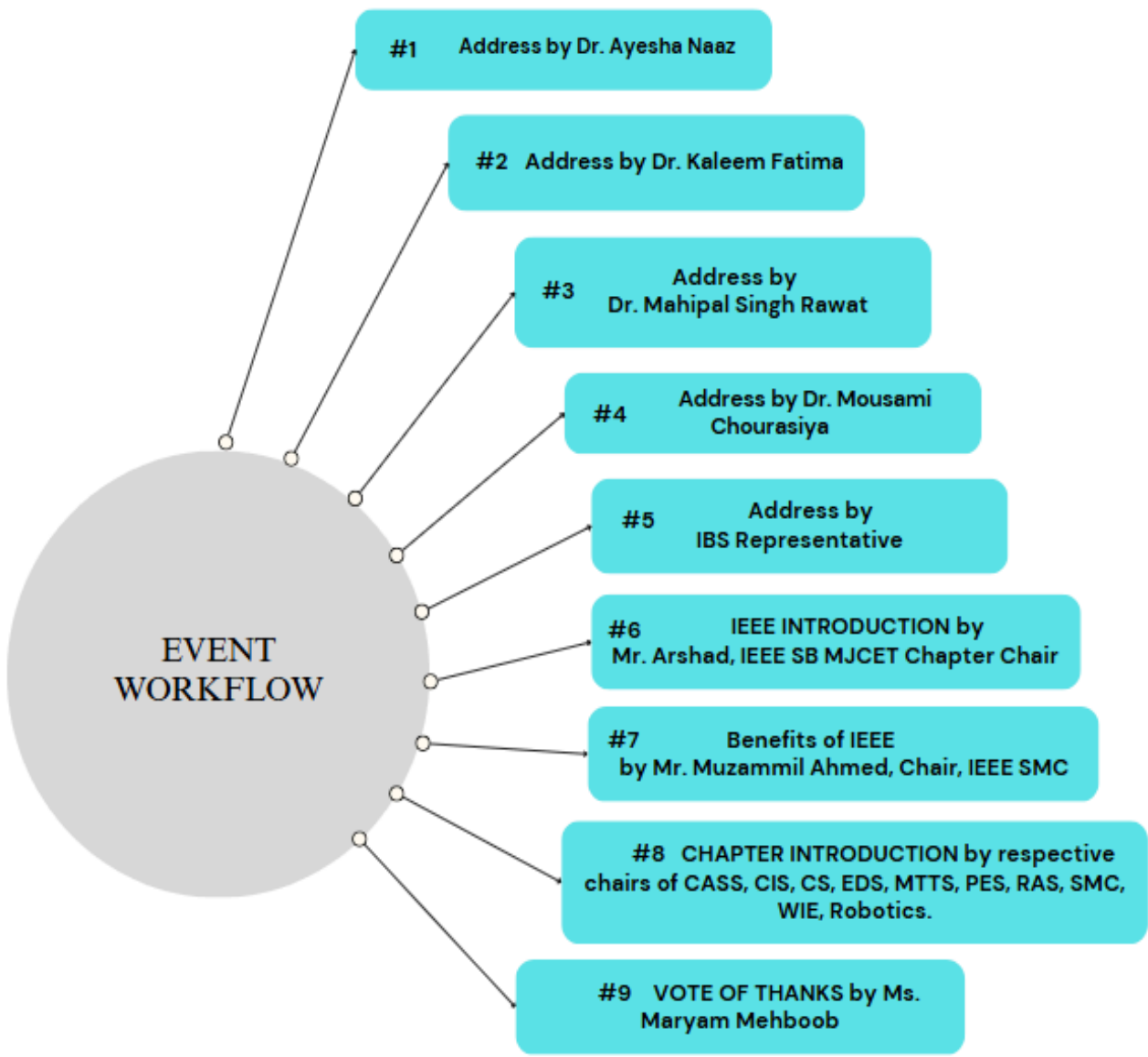
IEEE DAY

BY

IEEE SMC MJCET

EVENT DETAILS

- **Date of the Event:** November 18th, 2023
- **Venue:** Ghulam Ahmed Hall, MJCET
- **Number of Students Attended:** 480
- **Guest Speaker:**
- **Timings:** 10:00am - 4:00pm





PREFACE OF THE EVENT:

On 18th November, 2023, the IEEE Day celebration at MJCET took place, which was an event that blended technical excellence with creativity, showcasing our team's unwavering dedication and collaborative spirit. Through an impressive lineup of innovative projects and interactive activities, the event enabled active learning engagement and fun for all attendees.

CONTENTS OF THE EVENT

The combination of innovative technical projects and engaging activities proved to be a brilliant strategy, capturing the interests of a diverse audience. Our team's hard work, from designing creatively displayed stalls to implementing effective marketing strategies, was truly commendable. Various technical projects, ranging from robotics to software applications, were showcased, providing attendees with insights into the latest technological advancements and encouraging them to delve deeper into their areas of interest.

In addition to the technical displays, a series of engaging activities were organized to ensure the event was both informative and entertaining. These activities included hands-on workshops, interactive games, and competitions that fostered a spirit of learning and collaboration among participants. The event not only highlighted our technical skills but also emphasized the importance of teamwork. Despite the challenges, including missing classes and late-night sessions, our collective efforts resulted in a memorable and enjoyable experience for all attendees.



CLOSURE OF THE EVENT:

By offering a variety of engaging elements, we successfully attracted a significant audience and provided them with a fun-filled day. The fusion of technical displays and entertaining activities created an exciting atmosphere, encouraging enthusiasm for innovation and learning among the participants. Overall, the event was a resounding success, offering a complete and engaging experience for everyone involved.

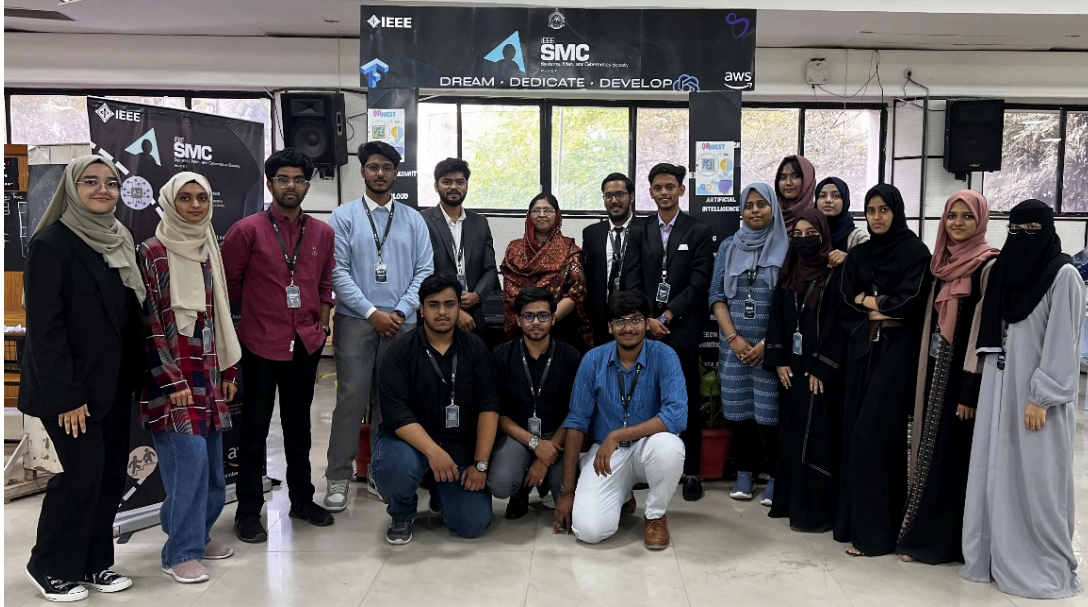
We express our appreciation to each member for their tireless contributions and dedication to making this celebration a victory. Enthusiastically looking ahead to more such enriching experiences in the future, we are confident that our team will continue to inspire and engage the community with their innovative spirit and collaborative efforts.



Students engage with interactive displays at the IEEE SMC stall, guided by Team IEEE SMC members.



Audience interacting with SMC team.



Team SMC with Dr. Ayesha Naaz, Branch Counsellor IEEE student branch MJCET.



The chairperson of IEEE SMC addressing the gathered audience about the club.



Engaged in gameplay – Visitors trying out an OpenCV-based snake game at SMC stall.



Visitors at the IEEE SMC stall on IEEE Day, trying out a virtual steering car game with hand coordinate detection.



IEEE SMC treasurer attending the audience.



SMC members with Dr. Mohd. Abdul Muqet, CEO SUKHF.



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PRESENTS

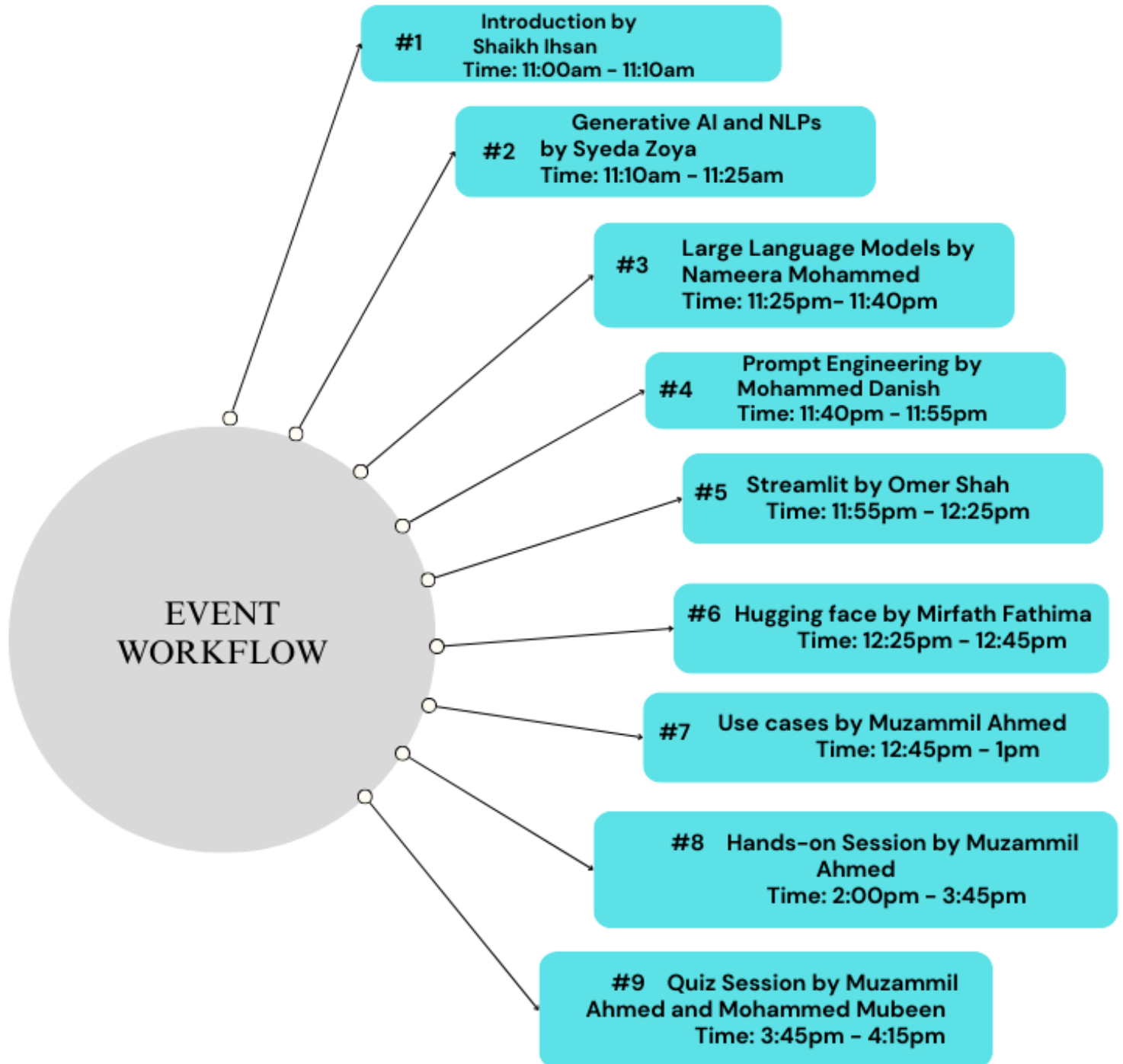
TalkingDocs

BY

TEAM IEEE SMC

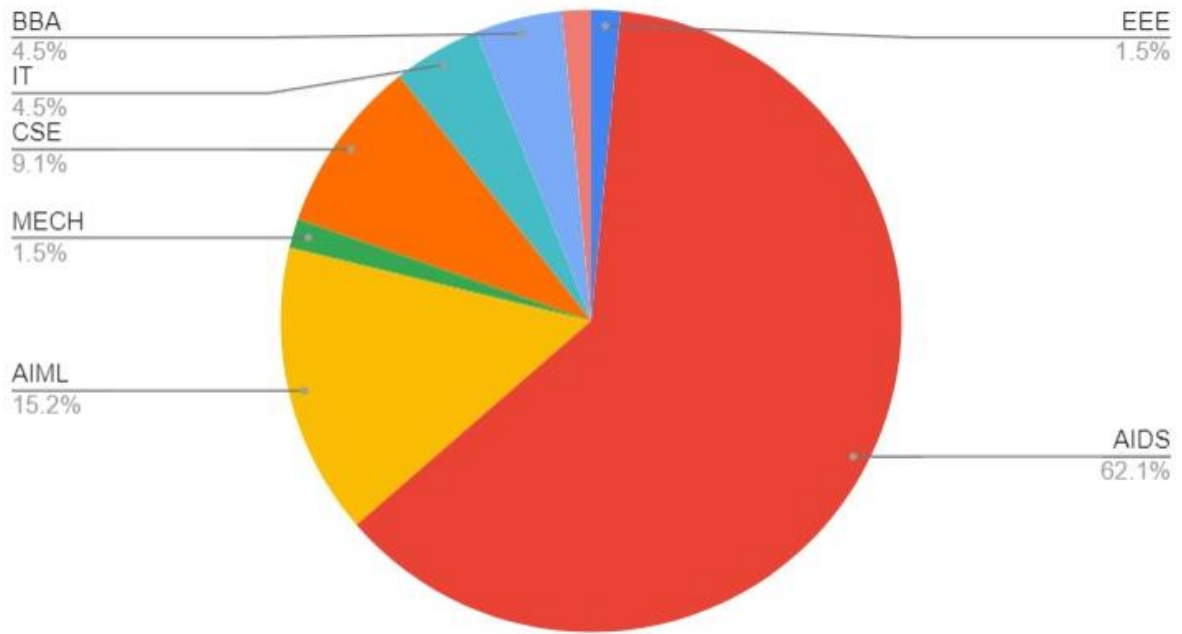
EVENT DETAILS :

- **Date of the Event:** 25th November, 2023.
- **Venue:** Student Activity Center (Room number 1409).
- **Number of attendees:** 60
- **Timings:** 11am - 4pm.

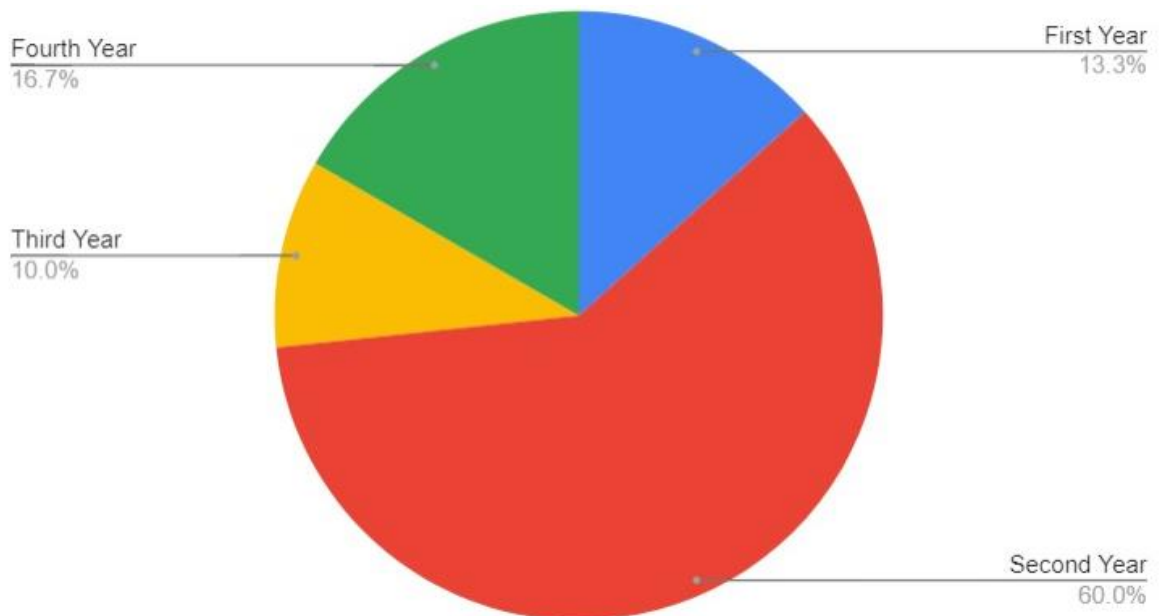


ATTENDANCE STATISTICS:

Branch



Year



[ATTENDANCE link](#)

PREFACE OF THE EVENT:

The TalkingDocs event, held on November 25, 2023, was more than just a gathering; it served as an immersion into the transformative world of Natural Language Processing (NLP) and Generative Artificial Intelligence (GenAI).

In an era where communication transcends traditional boundaries, NLP and GenAI emerge as the forefronts of innovation. These technologies, intricately woven into the fabric of digital lives, offer new possibilities for knowledge, expression, and problem-solving. As attendees entered the workshop, they were promised not just glimpses but an in-depth understanding of the latest advancements guiding them into the next phase of linguistic capabilities.

Ihsan, the host, played a pivotal role in transforming TalkingDocs into an experiential journey. His infectious enthusiasm created an environment where technical complexities were translated into accessible insights. Throughout the event, Ihsan's insightful commentaries served as a lighthouse, guiding the audience through the vast landscape of technologies. TalkingDocs evolved into more than an event; it became an invitation for attendees to unravel the mysteries of NLP and GenAI.

CONTENTS OF THE EVENT:

Generative Artificial Intelligence -

Syeda Zoya's opening address set the tone for the event, delving into the intricacies of NLP and GenAI. Her exploration covered the fundamental steps in NLP, revealing the inner workings of this transformative technology. Zoya effectively guided through numerous GenAI models, offering details about their processing mechanisms and showing the breadth of their applications. The insights into the potential of NLP and GenAI hooked the audience and set a solid foundation for the sessions that followed.

Large Language Models (LLM's) -

During a recent TalkingDocs session, Nameera Mohammed provided an insightful exploration of Large Language Models (LLMs). These cutting-edge deep learning algorithms represent a major advancement in natural language processing capabilities.



As Nameera explained, LLMs exhibit context and memory retention that enables more fluid, coherent conversations. The presentation overviewed notable LLMs like Google's PaLM and OpenAI's GPT models, highlighting their advanced text generation and comprehension strengths. We learned how these systems can analyze textual data to perform translation, summarization, classification, sentiment analysis, and more.

Nameera shared real-world examples that showcase the adaptability of LLMs in addressing multifaceted language-processing challenges across domains. From these practical applications, attendees grasped how LLMs may transform ways we leverage AI to extract insights from natural language data.

Prompt Engineering –

Mohammed Danish's session significantly elevated the event by incorporating a strategic element, centered around the concept of prompt engineering. He skillfully introduced the audience to the six essential building blocks - context, task, exemplars, format, persona, and tone. These components play a pivotal role in crafting prompts that yield optimal results when engaging with language models like ChatGPT.

Through compelling real-world examples, Danish illustrated a systematic approach, showcasing how the structured use of these building blocks consistently generates high-quality outputs. Attendees gained an understanding of how to use these building blocks effectively, providing them with valuable insights to enhance the overall effectiveness of language models. Danish's session laid a solid foundation for more deliberate and nuanced interactions with these powerful language technologies, leaving the audience equipped with actionable knowledge for future engagements.

Hugging Face –

In a compelling TalkingDocs presentation, Mirfath explored the capabilities of Hugging Face, a leading platform for natural language processing (NLP) and AI development. As she explained, Hugging Face serves as a dynamic hub that empowers and connects NLP researchers and developers. Through the presentation, the audience gained an in-depth look at core platform features that enhance and simplify the model building process. Mirfath showcased the user-friendly interface and robust toolset that equips users to create, train, and deploy NLP models with ease.

Additionally, Hugging Face grants access to an extensive model database, providing pre-trained starting points to boost development. Importantly, Mirfath highlighted the collaborative community Hugging Face facilitates. The platform enables seamless sharing of models, methodologies, and insights among global contributors.

Her insights offered a roadmap for using the platform's capabilities and engaging with pioneering progress in NLP and AI. By championing collaboration and knowledge sharing, Hugging Face empowers developers to remain at the forefront of innovation.

Streamlit –

Syed Omer's comprehensive exploration of Streamlit, an open-source web framework in Python, provided a captivating insight into its transformative capabilities. Omer showcased how Streamlit can effortlessly convert data scripts into shareable web applications in a matter of minutes. The audience gained a profound understanding of the platform's user-friendly interface and its remarkable simplicity, which effectively eliminates the steep learning curve associated with traditional Python web frameworks like Django and Flask.

Omer emphasized Streamlit's unique ability to empower developers by allowing them to concentrate on data and model implementation, streamlining the entire web app development process. Attendees departed with a heightened appreciation for the efficiency and accessibility that Streamlit introduces to the realm of web app development, recognizing it as a powerful tool for rapid and effective application creation.

The project -

A comprehensive document querying model was successfully developed from the ground up. This meticulously crafted model showcases its prowess in furnishing answers to user queries for both PDF and image files. The frontend of the web application was meticulously constructed using Streamlit, with seamless integration achieved through Hugging Face transformer models, including the esteemed Hugging Face Impira DocQuery model.

The coding process unfolded on the collaborative platform of Google Colab, leveraging the computational prowess of a T4 GPU to enhance processing capabilities. Following the coding phase, the model was adeptly deployed using Ngrok tunneling, ensuring an efficient and accessible deployment for end-users.

Hands-on Session -

Muzammil's TalkingDocs session offered attendees both theoretical and practical engagement with document querying capabilities. Prior to the hands-on workshop, he spotlit real-world applications across sectors. This showcased the versatility of integrating Streamlit and Hugging Face models to extract answers from PDFs and images.

Glimpsing the vast potential impact of these technologies, participants were primed for an interactive afternoon. Muzammil guided the audience through building a document querier from the ground up, putting concepts explored earlier into action.

Using Google Colab's computational power, attendees coded alongside Muzammil step-by-step. They worked to tie together the Streamlit interface and Hugging Face's sophisticated NLP in an end-to-end solution. Throughout the process, Muzammil offered insights both on the code itself and on best practices for deployment. By session's close, participants had directly engaged with and implemented the key capabilities spotlighted across the event.

Quiz -

Mubeen and Muzammil, the hosts of the quiz session, added an element of fun and interactivity to TalkingDocs. The quiz session not only served as an engaging way to test the audience's knowledge but also encouraged active participation and retention of the presented information. Covering topics from each speaker's presentation, the quiz highlighted key concepts and provided a lively atmosphere for the attendees to show their understanding. The session was not just an assessment but a celebration of the collective learning experience shared by all participants.

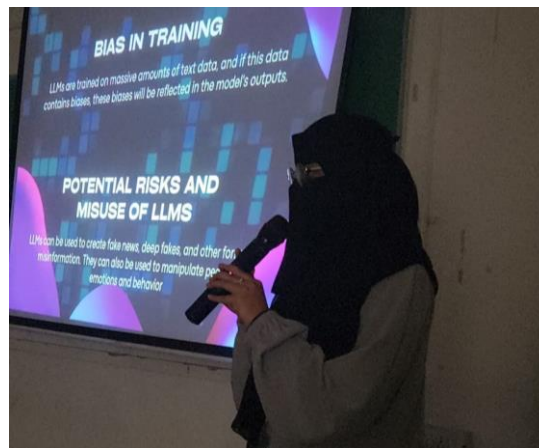
Prizes and Certificate Distribution –

The closing of TalkingDocs was marked by distribution of prizes and certificates. Participants were recognized for their active engagement, insightful questions, and contributions during the event. This final session created a sense of accomplishment and celebration, as attendees departed with rewards for their participation. The gathering of like-minded people who are enthusiastic about the developments in NLP, GenAI, and related technologies not only promoted transferring knowledge but also helped to build a sense of community.

CLOSURE OF THE EVENT:

To conclude, the TalkingDocs event was an opportunity that combined interactive workshops with insightful talks from a variety of speakers. After seeing actual use cases and hands-on demos, attendees gained an in-depth knowledge of NLP, GenAI, and related technologies.

As certificates were distributed and awards were eagerly received, the significance of TalkingDocs grew beyond the event itself, becoming an important stage in the participants' collective journey. The TalkingDocs by IEEE SMC MJCET successfully fulfilled its promise to be a platform for learning, collaboration, and celebration within the dynamic landscape of Language Models and Artificial Intelligence.



Nameera Mohammed Explaining LLMs



Danish Mohiuddin delivering Speech on Prompt Engineering



Mirfath Fathima interacting with audience



Syed Omer shedding light on Streamlit



Muzammil taking Hands-on Session



Team IEEE SMC MJCET



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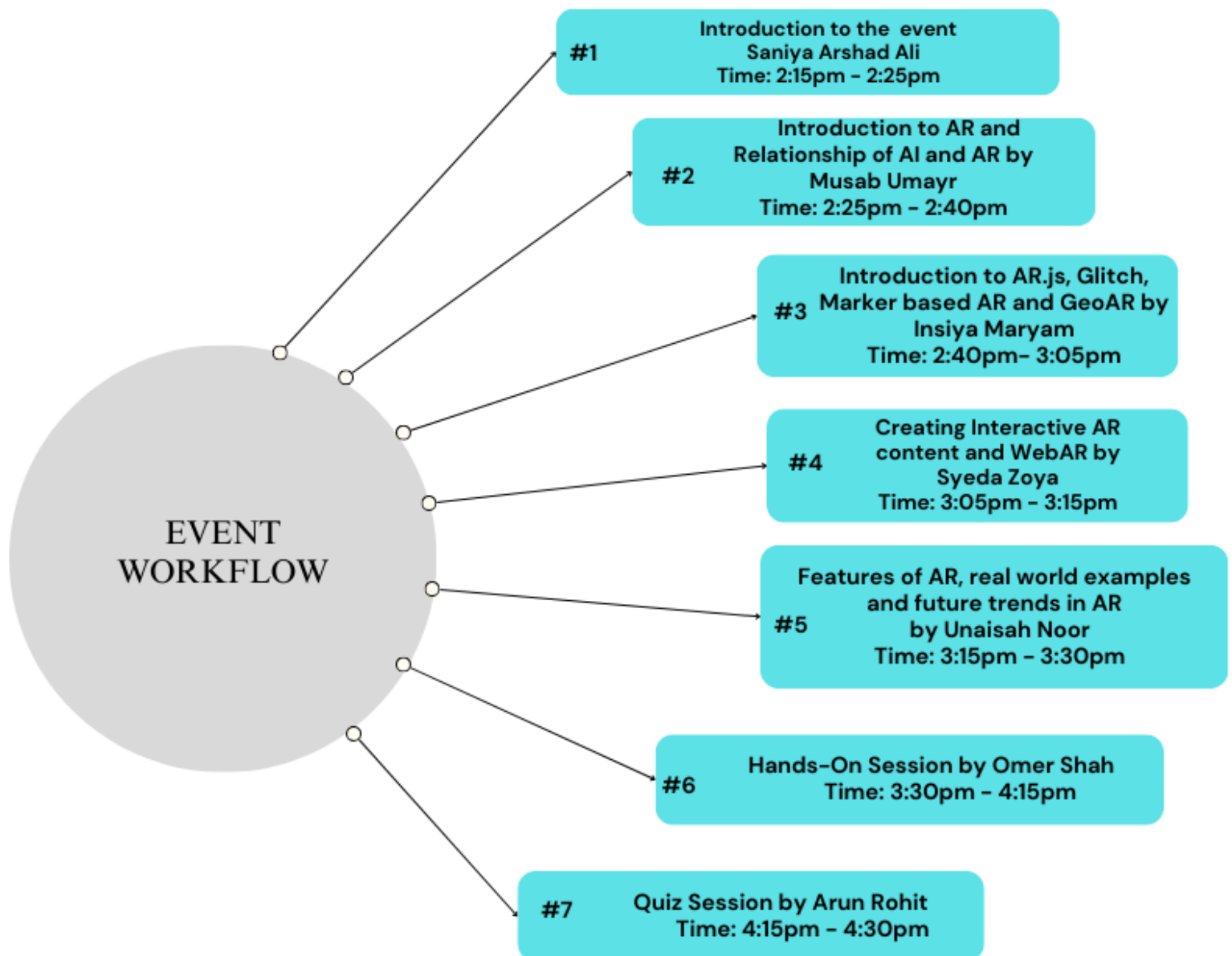
AR. VERSE

BY

TEAM IEEE SMC

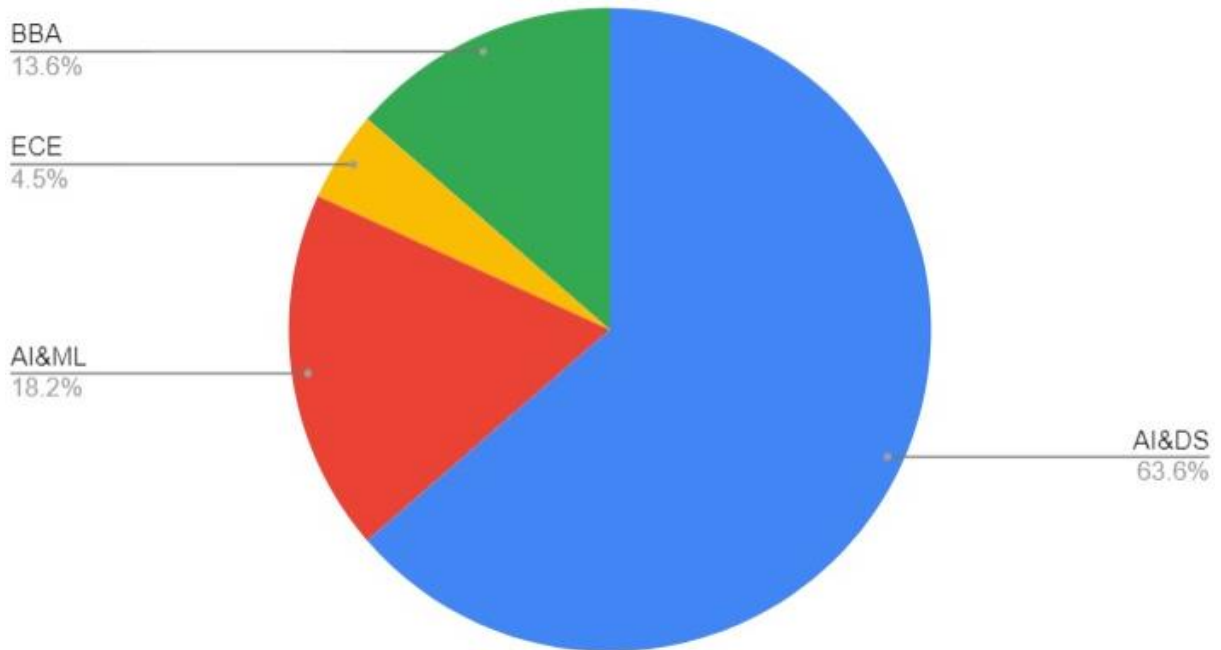
EVENT DETAILS :

- **Date of the Event:** 19th January, 2024.
- **Venue:** Student Activity Center (Room number 1409).
- **Number of attendees:** 20
- **Timings:** 1:45pm – 4:30pm.

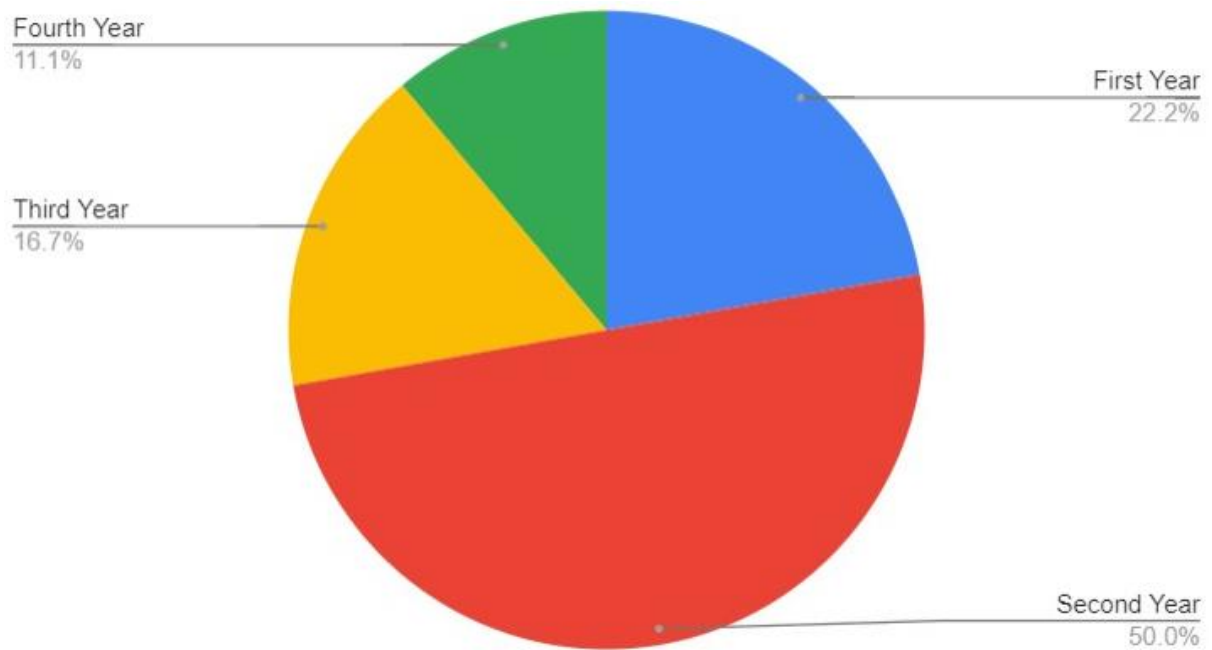


ATTENDANCE STATISTICS:

Branch



Year



[ATTENDANCE link](#)



PREFACE OF THE EVENT:

On January 19, 2024, IEEE SMC delved into the expansive realm of Augmented Reality, with a dedicated focus on AR.js during the AR. Verse event, expertly hosted by Saniya Arshad Ali. The exploration spanned a variety of intriguing subjects, encompassing the creation of interactive AR content, the implementation of WebAR, a detailed examination of AR.js features, instances, future trends in Augmented Reality, the role of AI in AR, and a comprehensive exploration of the fundamentals underlying AR.js. The sessions provided attendees with a rich and multifaceted understanding of the intricate landscape of Augmented Reality, showcasing the dynamic interplay between technology and creativity.

CONTENTS OF THE EVENT:

Introduction to AR and the Relationship of AI and AR –

Musab Umayr started off with an overview of the core concepts of Augmented Reality (AR), explaining how it overlays and integrates digital content onto the real-world environment, providing a very interactive and exciting experience for first time users. He highlighted the diverse applications of AR in fields such as gaming, healthcare, education, and marketing. Musab delved into the hand in hand relationship between Artificial Intelligence (AI) and AR. He discussed how AI technologies, such as computer vision and machine learning, enhance AR experiences by enabling real-time object recognition, tracking, and intelligent interactions within the augmented space. This introductory session helped the participants of AR.js to get familiar with the basic concepts of AR and how AI is and can potentially be used in many ways in the world of AR.

AR.js and Marker Based AR –

Our next speaker, Insiya Maryam provided a detailed introduction to AR.js, a popular JavaScript library for creating AR experiences. She covered the basic syntax, key features, and how AR.js simplifies the development of AR applications. She elucidated the fundamental building blocks of AR.js, walking attendees through the essential syntax required for creating AR experiences and the library's marker-based tracking capabilities, support for image recognition, and other functionalities that set AR.js apart.

She explained how markers serve as visual cues for AR applications, allowing digital content to be anchored to specific physical objects. In discussing how AR.js simplifies development, she provided practical examples and demonstrations to help with better understanding. She also explored the everyday concept of GeoAR, showcasing how AR.js can integrate geographical elements into AR experiences. Attendees learned how location-based AR enhances user engagement by overlaying digital information based on real-world geographic coordinates, with examples of Google maps, GPS etc.

Creating Interactive AR Content and WebAR -

Syeda Zoya offered insights into making AR experiences more engaging by creating interactive content. She discussed techniques for incorporating user interactions, such as gestures, touch, and voice commands, into AR applications, by using devices such as tablets and smartphones, haptic feedback techniques, etc. She also shed light on the concept of WebAR, and demonstrated the implementation of AR experiences directly within web browsers using AR.js.

She discussed the advantages of WebAR, including accessibility and widespread distribution, and shared best practices for developing WebAR applications. This segment gave the attendees a very informative idea on how AR is made interactive and also a start on how to create their own WebAR apps with just a few steps.

Features, Real-World Examples and Future Trends of AR.js –

The next segment of the event was delivered by Unaisah Noor, where she delved into the features and capabilities of AR.js, exploring its marker-based tracking, image recognition, and multi-marker support. The Audience gained a deeper understanding of how to leverage the library's many versatile functionalities for diverse AR projects.

Unaisah presented compelling case studies and real-world examples of successful AR.js projects. This included applications in education, marketing, i.e virtual marketplace, and entertainment such as video games, etc, showcasing the practical impact of AR.js in various industries for better development and more convenient user experience.



Unaisah concluded by providing insights into the future trends of AR development. She discussed emerging technologies, such as AR glasses and wearables, spatial computing, AR in E-Commerce and content creation, AR Cloud, etc. and how they might shape the future of AR experiences. This gave the audience a clear idea and vision into the future of AR and how it might eventually become essential in the coming years.

Project and Hands-on Session -

The practical segment, Syed Omer Shah orchestrated an immersive hands-on experience, guiding participants through a captivating marker-based project using AR.js. This interactive session encouraged attendees to implement theoretical concepts acquired earlier.

The project involved utilizing markers, such as physical images or patterns, to activate augmented reality experiences. By overlaying virtual content onto the real world, participants could engage with augmented reality using intuitive hand gestures. Notably, the use of WebAR eliminated the need for any pre-installed applications, ensuring compatibility across all web browsers.

Quiz -

Arun Rohith concluded the session with an engaging and interactive quiz, infusing a sense of competitiveness and enjoyment into the learning process. Participants showcased their depth of understanding on the workshop topics, adding an exciting dimension to the wrap-up. As a token of appreciation for their enthusiastic involvement, winners were rewarded with prizes.

CLOSURE OF THE EVENT:

Every participant found the AR. Verse event to be an engaging and educational experience. Through a blend of theory sessions, experiential learning, and an exciting quiz, participants acquired significant knowledge about AR.js, AR development, and the way it works with AI. The event's objectives of encouraging imagination, creativity, and knowledge of innovative ideas were well met. After the event, everyone was encouraged and inspired to explore new areas in the rapidly developing field of augmented reality. Furthermore, the vibrant exchange of ideas and networking left participants to embark on collaborative ventures in the dynamic realm of augmented reality.



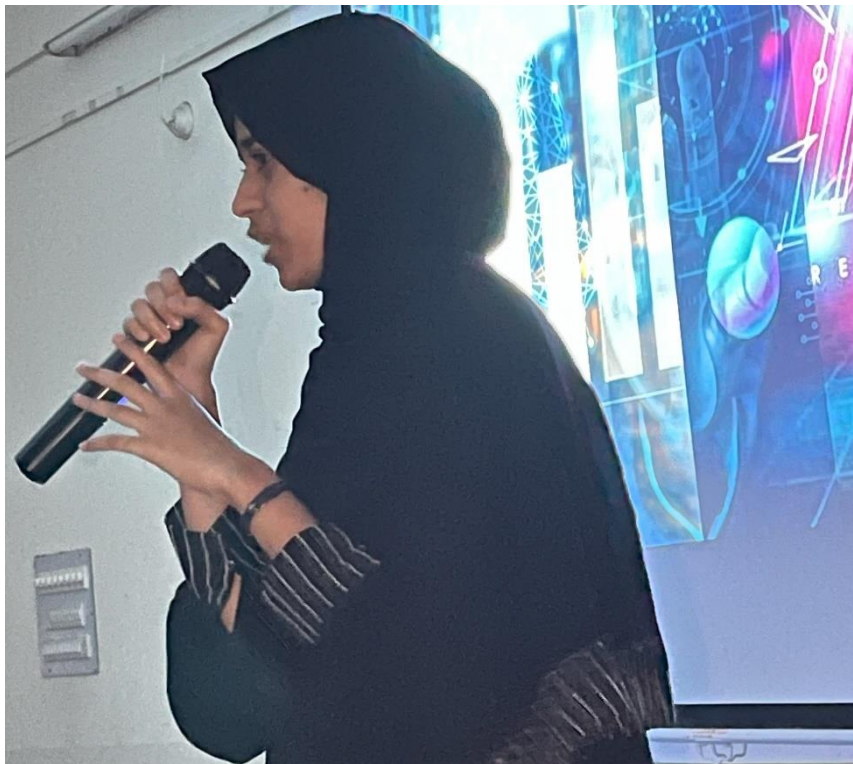
Saniya Arshad welcoming the audience to the event



Musab interacting with audience



Insiya introducing AR.js to the audience



Zoya explaining interaction with AR.js



Noor explaining the applications of AR.js in real world



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PRESENTS

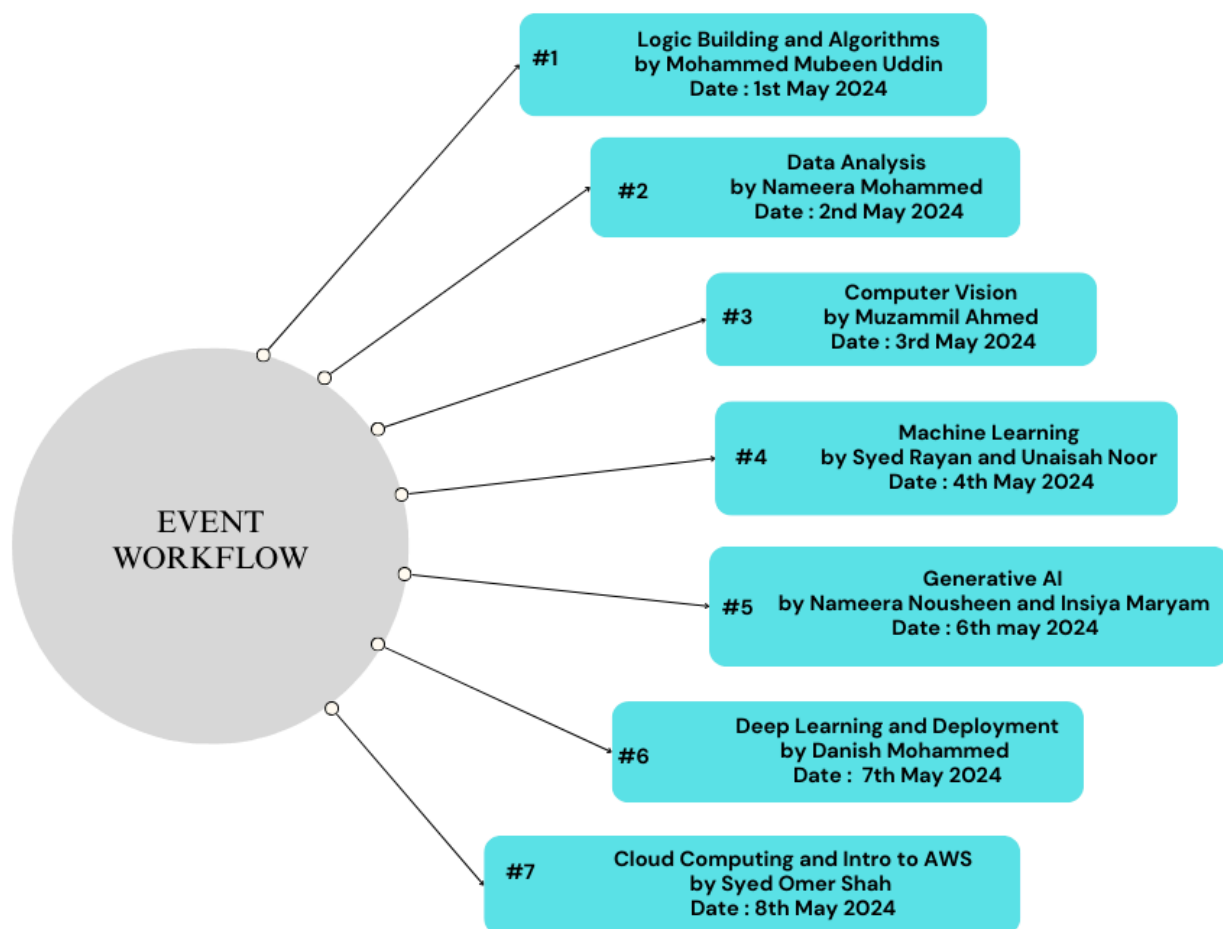
Student Development Program

BY

TEAM IEEE SMC

EVENT DETAILS:

- **Period:** 1st May - 8th May 2024
- **Mode:** Online/Offline





PREFACE OF THE EVENT:

IEEE SMC MJCET organized a comprehensive Student Development Program (SDP) with the objective of enhancing the skills and knowledge of newly recruited students in the core team. The program aimed to equip students with essential technical competencies and practical experience in various domains of computer science and engineering. The SDP spanned seven days, from May 1st to May 8th, 2024, covering a range of topics from basic programming and algorithms to advanced concepts in machine learning, deep learning, and cloud computing.

CONTENTS OF THE EVENT:

Day 1: Logic Building and Algorithm (1st May 2024)

The first day focused on building a strong foundation in programming and algorithmic thinking. Key topics included:

- **Programming Basics:** Choosing a programming language, understanding syntax, familiarizing with Data Structures and Algorithms (DSA), and practicing through competitive programming.
- **Algorithm Concepts:** Explanation of ASCII values, series and mathematical values, memory storage, and pseudo code.
- **Core Programming Concepts:** Detailed discussion on variables, operators, loops, data types, user-defined and derived data types.

Day 2: Data Analysis (2nd May 2024)

The second day introduced students to data analysis, covering the complete life cycle:

- **Data Analysis Lifecycle:** Data collection, preprocessing, cleaning, model building, evaluation, and deployment.
- **Data Types:** Differentiation between qualitative (categorical) and quantitative (numerical) data.
- **Practical Sessions:** Hands-on activities including basic data operations, label encoding, data visualization using Looker Studio, and web scraping.



Day 3: Computer Vision (3rd May 2024)

The third day delved into computer vision (CV):

- **CV Basics:** Introduction to the roadmap, components, and problem types in CV.
- **Image Processing:** Basic image processing implementation.
- **Deep Learning in CV:** Concepts of neural networks, TensorFlow, and the importance of CUDA GPUs.
- **Hands-on Session:** Practical implementation using YOLO for region counting.

Day 4: Machine Learning (4th May 2024)

The fourth day was dedicated to machine learning (ML):

- **ML Fundamentals:** Definition and types of ML (supervised, unsupervised, reinforcement learning) with examples.
- **Supervised Learning:** Classification (decision trees, SVM, k-nearest neighbors) and regression (linear and logistic regression).
- **Data Issues:** Discussion on overfitting, underfitting, bias, and variance.
- **Ensemble Techniques:** Bagging, boosting, and clustering (DBSCAN).

Day 5: Generative AI and Pre-trained Language Models (6th May 2024)

The fifth day focused on generative AI:

- **Generative AI Concepts:** Overview of generative AI, ChatGPT, prompt engineering, and transformers.
- **Pre-trained Models:** Exploration of Hugging Face models hub, PyTorch hub, and the difference between open-source and closed-source models.
- **Practical Session:** Hands-on activities including audio to text sentiment analysis and text to image/video conversion using HugChat.



Day 6: Deep Learning and Deployment (7th May 2024)

The sixth day covered deep learning and its deployment:

- **Deep Learning Basics:** Difference between ML, DL, and AI.
- **Neural Networks:** Introduction to neural networks, perceptron, ANN, DNN, and propagation techniques (forward and backward propagation).
- **Advanced Concepts:** Convolutional Neural Networks (CNN) and applications of DL.

Day 7: Cloud Computing & AWS (8th May 2024)

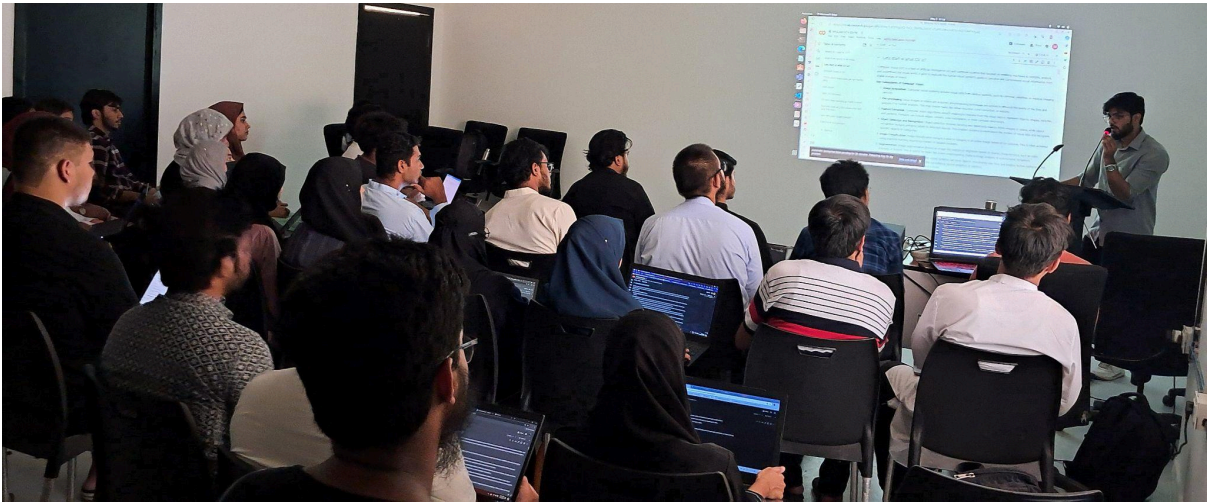
The final day introduced cloud computing and AWS:

- **Fundamentals:** Overview of computer components, VPNs, operating systems, virtualization, and containerization (Docker).
- **Web Technologies:** Understanding web servers, frameworks, and basics of cloud computing.
- **AWS Specifics:** Detailed exploration of AWS services including EC2, S3, RDBMS, IAM, SDKs, and load balancing.

CONCLUSION OF THE EVENT:

The SDP by IEEE SMC MJCET provided a well-rounded and intensive training for students, covering essential topics in modern computing and technology. Each day was designed to build upon the previous one, ensuring a comprehensive understanding of each subject. The hands-on sessions were particularly valuable, providing practical experience alongside theoretical knowledge.

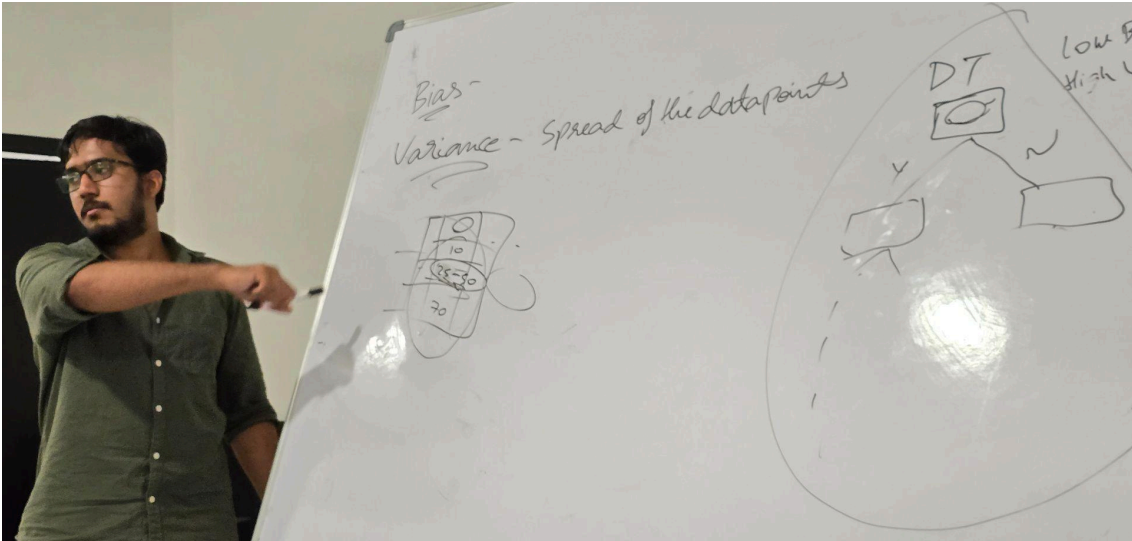
Additionally, assignments were given after each day's session, reinforcing the learning objectives and enabling students to apply their new skills in practical scenarios. This continuous practice helped to consolidate their understanding and prepared them for real-world applications. This program is expected to significantly enhance the capabilities of the newly recruited core team members, preparing them for future challenges in their academic and professional careers.



Muzammil Ahmed taking the Computer Vision session



The Team during the Data Analysis session



Syed Rayan taking the Machine Learning session



Mohammed Mubeen addressing the crowd for Logic Building session



Audience during the Generative Artificial Intelligence session



Nameera Nousheen explaining Prompt Engineering concepts



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MJCET

IEEE SYSTEMS, MAN, AND CYBERNETICS SOCIETY MJCET

PRESENTS

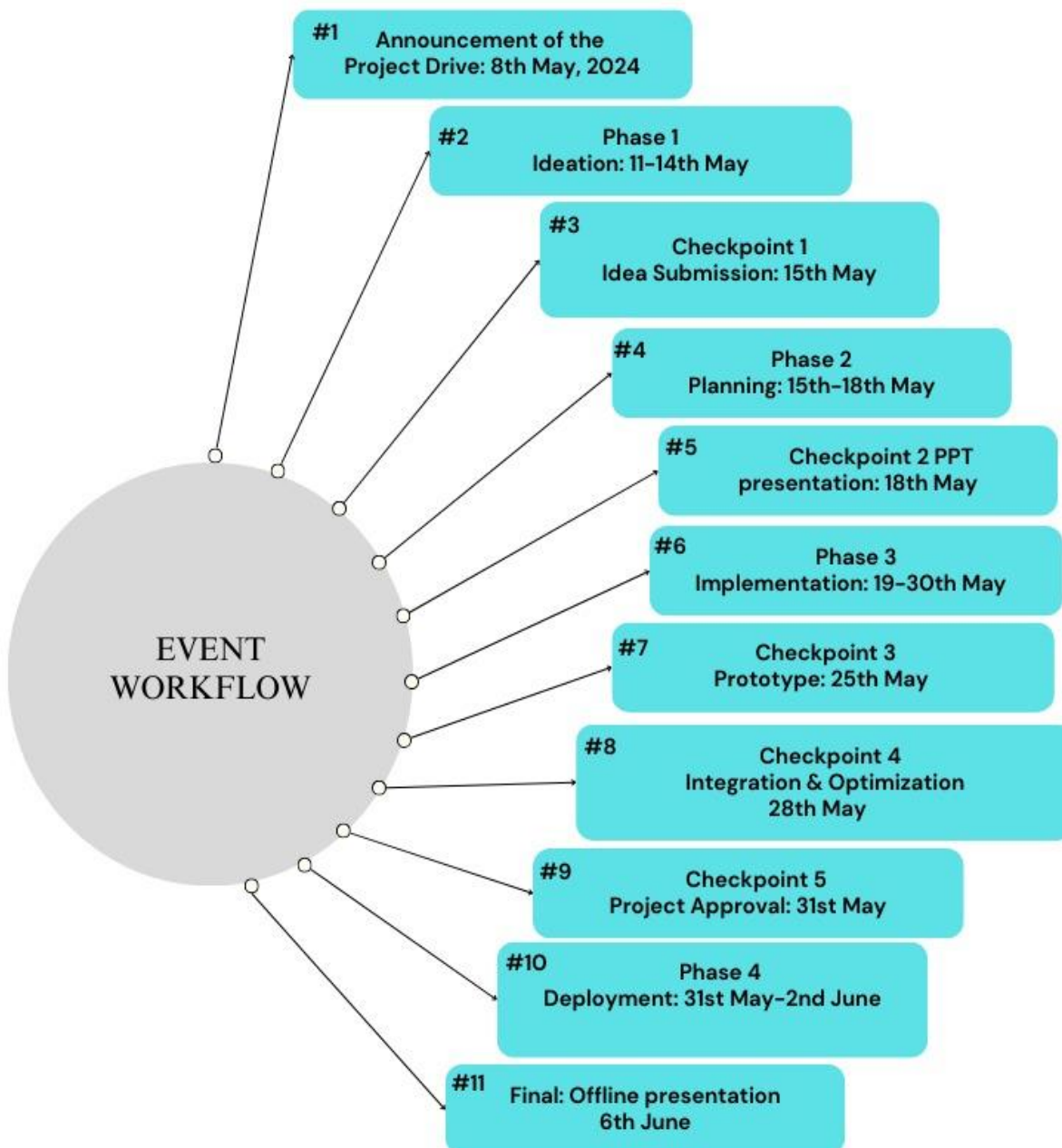
PROJECT DRIVE`24

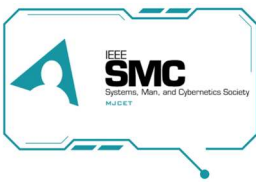
BY

TEAM IEEE SMC

EVENT DETAILS

- **Period:** 8th May 2024 to 6th June 2024
- **Period:** Online/Offline





PREFACE OF THE EVENT

Project Drive was an immersive skill-building initiative led by Team IEEE SMC, dedicated to advancing the technical capabilities of its members. Running from May 8th to June 6th, this program offered participants the opportunity to engage in project-based learning, explore emerging technologies, and hone their technical skills. This report highlights the aims, activities, results, and future recommendations of Project Drive.

COMMENCEMENT OF THE EVENT

Objectives

Project Drive strived to:

- a) Create a collaborative environment for team members to work on practical projects.
- b) Enhance learning and skill development through experiential learning.
- c) Stimulate innovation and creativity in applying technical knowledge.
- d) Foster networking and knowledge exchange within the IEEE SMC community.

Activities

Several key activities took place during Project Drive:

- a) **Project brainstorming:** Team members proposed project ideas that matched their interests and technical expertise.
- b) **Project selection and team formation:** Teams were created based on the proposed ideas, ensuring a variety of skills and knowledge.
- c) **Project execution:** Teams developed their selected projects, utilizing different technologies, tools, and methodologies to realize their concepts.
- d) **Weekly updates:** Regular meetings were held to monitor progress, discuss challenges, and provide guidance and support.
- e) **Knowledge sharing sessions:** Participants shared their insights, learnings, and project experiences with the broader IEEE SMC community.

Key Outcomes

Project Drive resulted in several notable achievements:

- a) **Successful project delivery:** Teams brought their projects to fruition, demonstrating their technical skills and problem-solving capabilities.
- b) **Skill development:** Participants gained practical experience in various technical fields, enhancing their abilities in project management, programming, prototyping, and other relevant areas.
- c) **Teamwork and collaboration:** Team members improved their collaboration skills by working together, exchanging ideas, and overcoming challenges as a united group.
- d) **Knowledge dissemination:** The knowledge-sharing sessions promoted the exchange of ideas and the dissemination of expertise.
- e) **Networking growth:** Team members expanded their professional networks and connected with like-minded individuals.

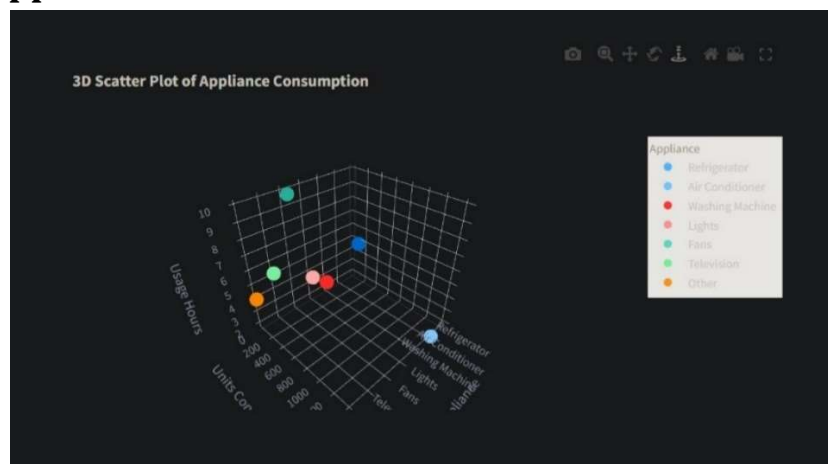
PROJECTS MADE IN THIS PROJECT DRIVE

Team 1

Title: AI-Enabled Energy Efficiency Platform

Description: This platform revolutionizes building energy management using AI and real-time data analytics. It predicts energy needs, identifies inefficiencies, and offers actionable insights to optimize power usage. By providing personalized tips, it ensures cost savings, reduces carbon footprint, and boosts user engagement with proactive energy management strategies.

Project Snippet:

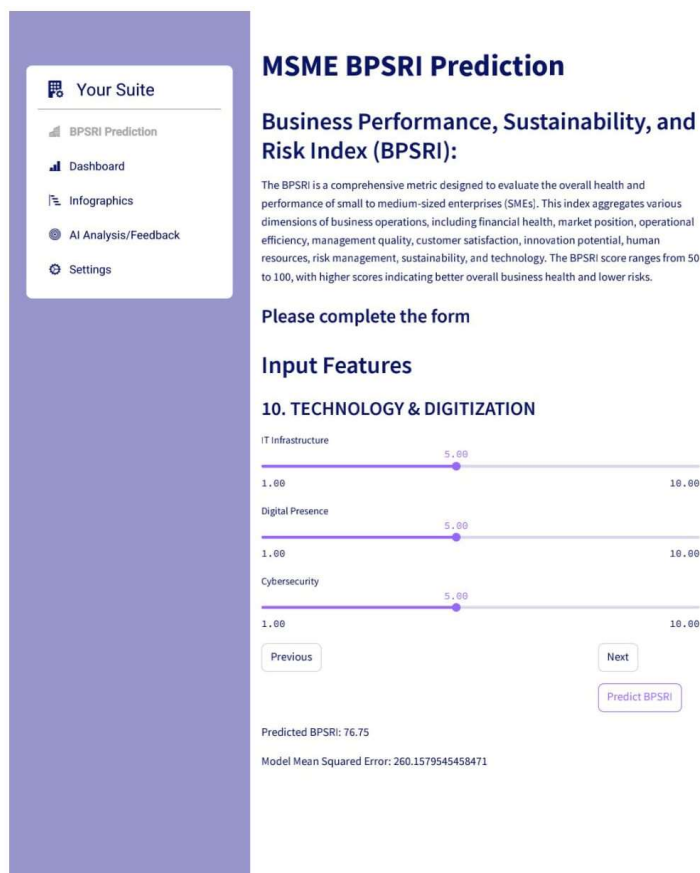


Team 2

Title: Financial Data Management Platform

Description: This platform automates the entire lifecycle of financial data management, from collection to analysis. It integrates advanced AI and machine learning algorithms to deliver real-time visualizations of key financial metrics. By forecasting future financial outcomes and offering customized actionable plans, it enables businesses to optimize profits, ensure regulatory compliance, and make informed investment decisions, thereby enhancing operational efficiency and competitiveness.

Project Snippet:



Team 3

Title: AR Indoor Navigation

Description: NavigateAR is an innovative augmented reality application developed using Unity, designed specifically for indoor navigation at MJCEET. It addresses the challenges faced by students in navigating the campus efficiently. By providing intuitive and user-friendly navigation features, NavigateAR enhances campus accessibility and improves the overall student experience.

Project Snippet:

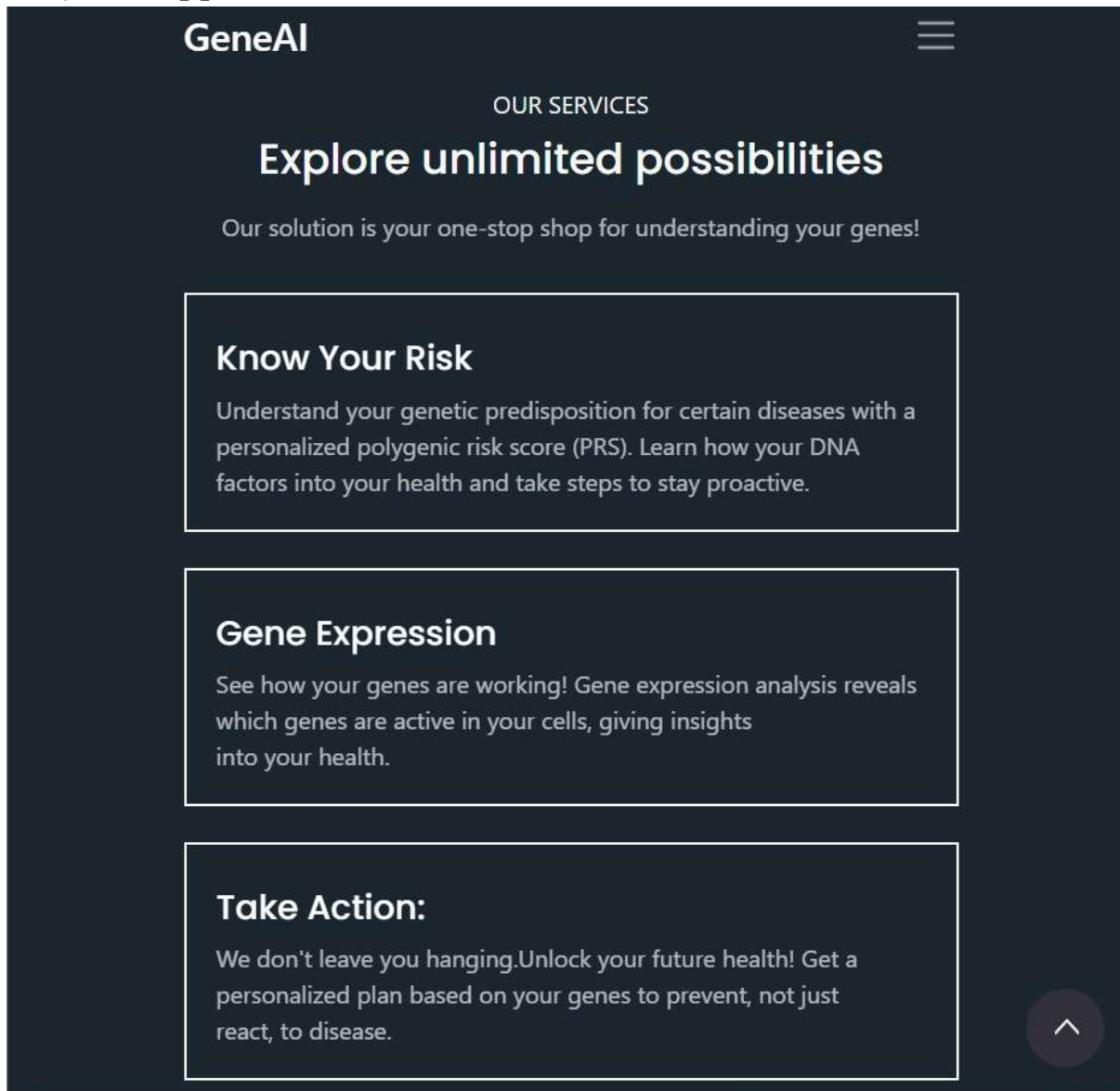


Team 4

Title: GeneAI

Description: This tool offers a comprehensive genetic risk assessment for various diseases, including heart disease, based on personalized genetic data analysis. It empowers users to understand their health risks better and provides actionable insights to mitigate these risks through tailored lifestyle changes and preventive measures. By leveraging genetic insights, the tool promotes proactive healthcare management and personalized wellness strategies.

Project Snippet:



Team 5

Title: AI-Integrated Legal Platform

Description: This platform transforms legal service delivery with AI-driven features such as Intelligent Case Management, real-time Courtroom Transcription and Summarization, a Minor Case Handler Bot, and an AI Legal Advisor. It streamlines case prioritization, enhances courtroom efficiency, and improves access to justice by providing automated legal guidance and support. By leveraging AI technologies, it empowers legal professionals and individuals alike to navigate legal processes more efficiently and effectively.



Project Snippet:

EMPOWERINDIA
YOUR VIRTUAL LEGAL PARTNER

Home About Features Contact **Our Services**

WHY SELECT US?

Our Services

We, at EmpowerIndia, offer advanced AI-driven tools for personalized legal guidance, making legal support reliable and accessible anytime, anywhere.

CHECK OUT OUR PETTY CASE HANDLER!

- AI-POWERED LEGAL ADVISOR**
Get personalized legal guidance by providing details of your legal issue. Receive a detailed solution and a legal plan instantly.
- COURTROOM SESSION TRANSCRIPTOR AND SUMMARIZER**
Efficiently transcribe and summarize courtroom sessions from audio files, simplifying legal proceedings with precision and clarity.
- LEGAL DOCUMENT ANALYSER**
Easily summarize lengthy legal documents and access summaries in multiple languages for enhanced comprehension and accessibility.

Team 6

Title: Exam Preparation LLM

Description: Designed for MJ College students, this application employs a Retrieval Augmented Generation (RAG) approach with Claude 3 to enhance exam preparation. It integrates past question papers and subject data to provide personalized study assistance, making last-minute revision more effective and targeted. By leveraging AI and educational data, the application supports students in achieving better academic outcomes and exam performance.

Project Snippet:

Concept Explanation Using Hooks

Enter the topic:

what is data science

Generate Story Hook

```
// Logging into HugChat
// Logged into HugChat
// Using web search to fetch real-time data
// Generating hook...
// Generated Hook
```

As the sun set over the bustling city, a young and ambitious data scientist named Alex prepared for a night of exploration and discovery. With a backpack filled with cutting-edge technology and a curious mind, Alex set out on a journey to uncover the secrets hidden within the vast and complex world of data. Little did they know that their life was about to change forever.

As Alex ventured into the heart of the city, they found themselves drawn to a mysterious building, its windows glowing with an otherworldly light. Stepping inside, they were greeted by an enigmatic figure, a master of data science who had been waiting for a student like Alex to appear.

"Welcome, young data scientist," the figure said, their voice echoing in the dimly lit room. "You have been chosen to embark on a quest that will test your skills, challenge your mind, and reveal the true power of data science."

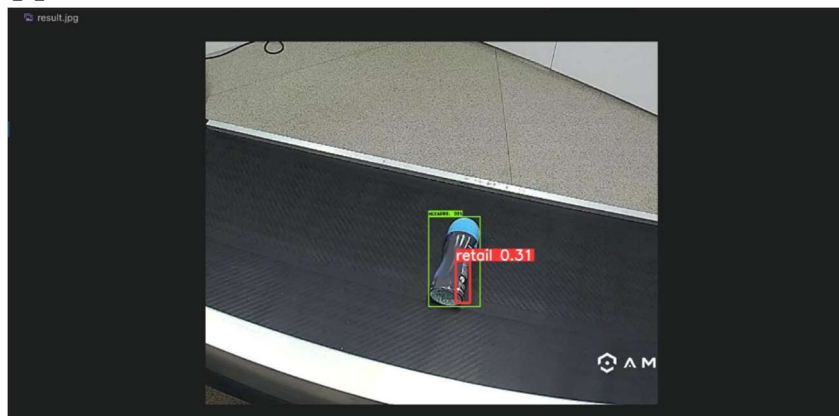
Intrigued and excited, Alex listened intently as the figure explained the task at hand. They were to delve into the depths of data, unraveling its mysteries and unlocking its potential to solve some of the world's most pressing problems. From predicting future trends to uncovering hidden patterns and making life-

Team 7

Title: Seamless Shopping

Description: This system redefines the retail experience with advanced machine learning and computer vision capabilities for product identification and automatic checkout. It offers real-time pricing updates, seamless inventory management integration, and customer behavior insights. By reducing checkout times and enhancing accuracy, it enhances customer satisfaction and operational efficiency for retailers, ensuring a frictionless shopping experience.

Project Snippet:

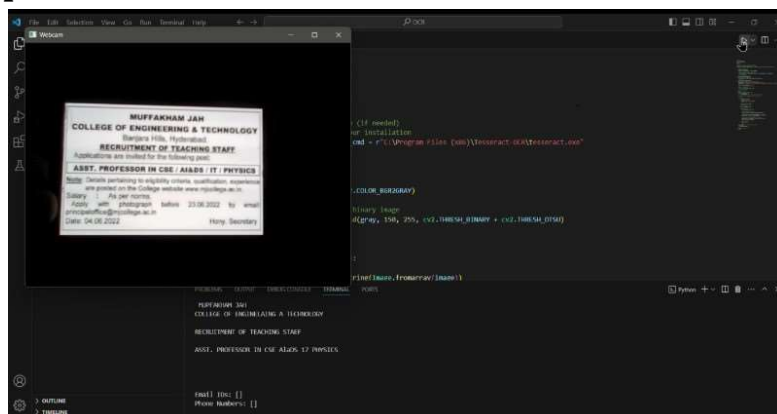


Team 8

Title: Smart Vision Assistance System

Description: This wearable camera system caters to the needs of the visually impaired community by providing real-time situational awareness and assistance. It utilizes cutting-edge computer vision technology for obstacle avoidance, object recognition, safety alerts, and facial recognition. By empowering users with greater independence and safety, the system enhances daily living and mobility for visually impaired individuals.

Project Snippet:

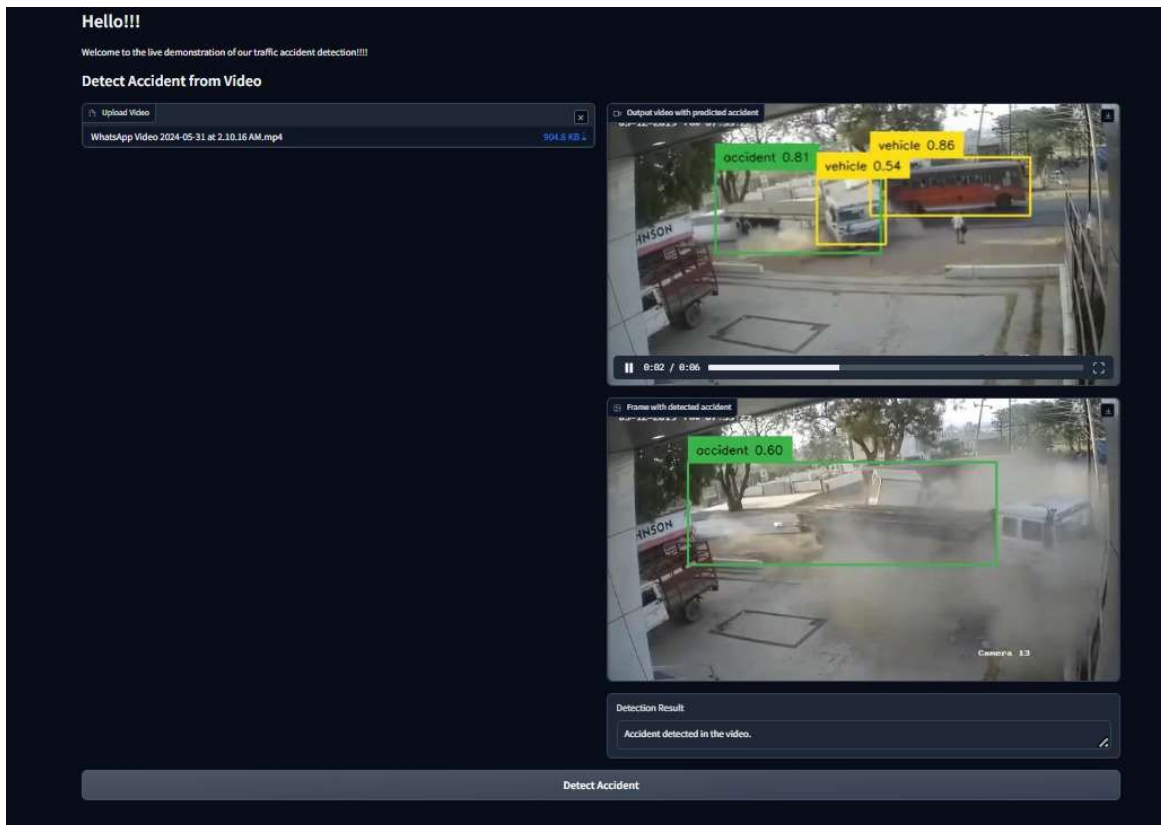


Team 9

Title: Collision Detection System

Description: An AI-powered system designed to detect road accidents and traffic congestion using real-time CCTV footage analysis. It promptly alerts authorities and emergency services, facilitating quick response times and potentially saving lives. By improving road safety monitoring on national highways and less-traveled roads, the system contributes to reducing accidents and enhancing overall transportation safety.

Project Snippet:

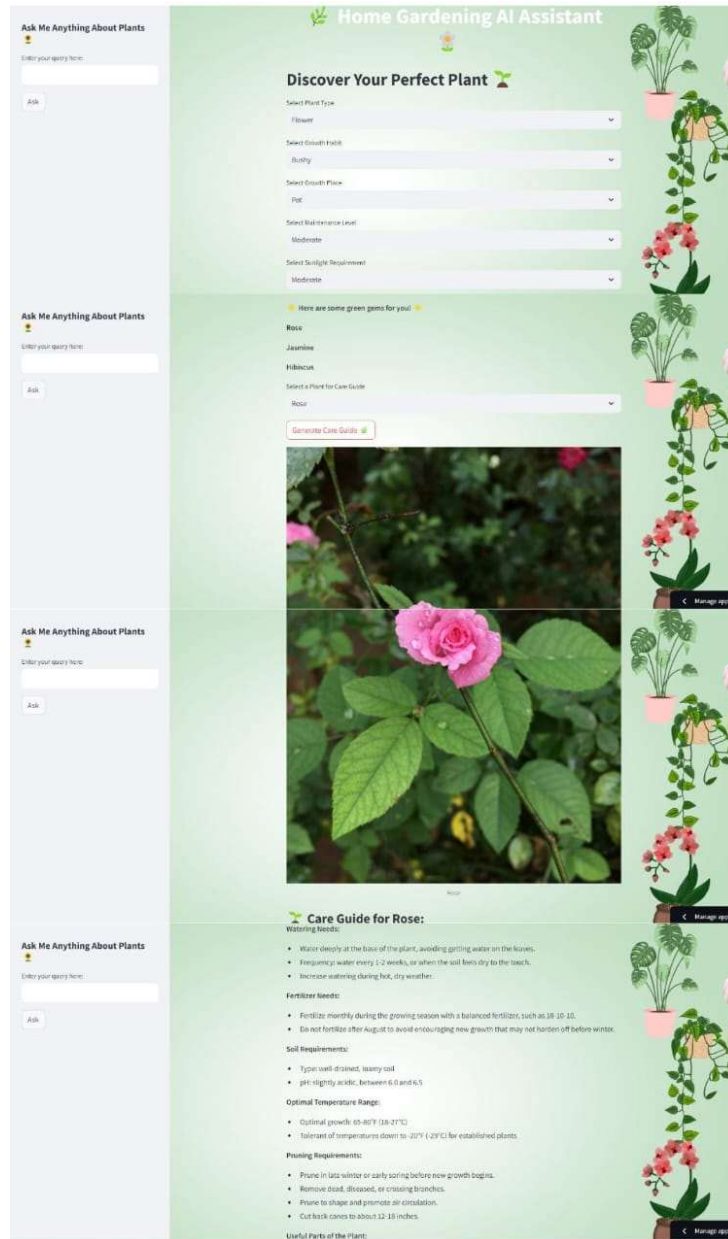


Team 10

Title: Home Gardening Assistant

Description: This AI-driven platform analyzes user preferences, local climate data, and gardening needs to provide personalized plant recommendations and seasonal gardening guidance. It simplifies the process of selecting suitable plants for home gardens, offering tips for care and maintenance. By promoting sustainable gardening practices and enhancing gardening success rates, it encourages individuals to cultivate thriving gardens tailored to their preferences and environmental conditions.

Project Snippet:

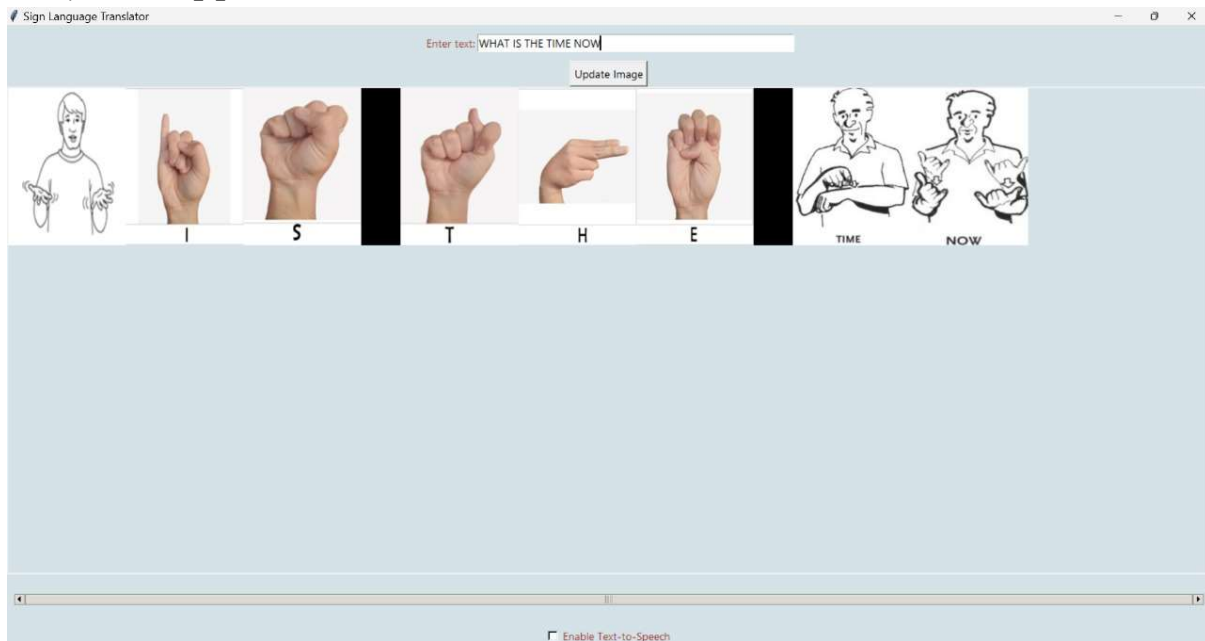


Team 11

Title: Sign Talk

Description: Sign Talk is a groundbreaking project that facilitates real-time communication between impaired individuals and the general population using computer vision, natural language processing (NLP), and machine learning. It interprets sign language gestures into spoken language and vice versa, promoting inclusivity and effective interaction. By bridging communication barriers, Sign Talk empowers impaired individuals to engage more fully in social and professional settings, fostering a more inclusive society.

Project Snippet:



FUTURE RECOMMENDATIONS

Based on the experiences and outcomes of Project Drive, the following recommendations are proposed for future iterations:

- a) **User-Centric Design:** Prioritize projects that prioritize user experience (UX) and human-centered design principles. This ensures that solutions are not only technologically advanced but also intuitive and user-friendly.
- b) **Industry Partnership and Real-World Applications:** Facilitate partnerships with industry stakeholders to provide real-world problem statements and opportunities for project deployment. This enhances the relevance of projects and prepares students for industry challenges.
- c) **Entrepreneurial Mindset:** Foster an entrepreneurial mindset among participants by providing resources and mentorship to explore commercialization opportunities for their projects.
- d) **Continuous Learning and Post-Project Support:** Develop a framework for continuous learning beyond the project duration, offering post-project support such as access to workshops, resources, and networking opportunities.



EVENT CONCLUSION

Project Drive achieved its goals of fostering project development, enhancing technical expertise, and promoting collaborative learning among Team IEEE SMC members. Through hands-on projects, workshops, and knowledge sharing, participants gained valuable practical experience and nurtured an innovative mindset. The outcomes not only empowered individual team members but also contributed significantly to the growth and cohesion of the IEEE SMC community. Moving forward, these recommendations will serve to refine and elevate future iterations of Project Drive, ensuring continued excellence and innovation among participants.