



# Bhoj Reddy Engineering College for Women

(Sponsored by Sangam Laxmibai Vidyapeet, approved by AICTE and affiliated to JNTUH)  
Vinaynagar, IS Sadan Crossroads, Saidabad, Hyderabad – 500 059, Telangana. [www.brecw.ac.in](http://www.brecw.ac.in)

## Department of Computer Science and Engineering

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**Report on Hackathon:** Five-day Workshop for II B Tech CSE A and B and CSM students during 02 to 06 January 2024 on “Data Analytics using R Programming”.

**Date:** 02 to 06 January 2024

**Participants:** II B Tech CSE A and B, and CSM students

**Event Venue:** Seminar Hall (WB 402) and CSE Labs (SB First Floor)

The CSE department has conducted Five-day Workshop for II B Tech CSE A and B and CSM students during 02 to 06 January 2024. A total of 206 students attended the Workshop. The Workshop was scheduled from 09:30 to 16:30 Hrs. The Workshop was conducted by Brainovision, Hyderabad. The primary objective of the workshop was to equip students with the essential skills required for data analysis using the R programming language.



Figure 1: Banner of Three-day Hackathon on “Web Development”

### Inaugural Session:

The schedule for the first day, January 2, 2024, unfolded Inaugural Session as follows:

### Welcome Address by II CSE Student

The workshop commenced with a warm welcome by a representative from the II B Tech CSE student, setting a positive tone for the event.



Figure 2: II B Tech CSE student, setting a positive tone on the Event.

### Address by Vice-Principal, Mr G Dayakar Reddy

Mr. G Dayakar Reddy, the Vice-Principal, shared his thoughts on the significance of workshops like shaping the future of our students.



Figure 3: Mr. G Dayakar Reddy, the Vice-Principal, shared his thoughts.

## Address by HoD-CSE&CSM, Dr B Raveendranadh Singh

Dr. B Raveendranadh Singh, the Head of the Department of CSE&CSM, provided insights into the relevance of data analytics and programming in the current technological landscape.



Figure 4: Dr. B Raveendranadh Singh, the Head of the Department of CSE&CSM, provided his insights.

## Keynote Address by Resource Person

The workshop's keynote address was delivered by an esteemed resource person, Mr Sai Pavan, shedding light on the importance of data analytics and the role of R programming in the field.





Figure 5: Resource person, Mr Sai Pavan is addressing the gathering



Figure 6: Resource person, Mr. Sai Pavan shedding light on the importance of data analytics.



**Figure 7: Mr. G Dayakar Reddy, the Vice-Principal; Mr. Sai Pavan, Resource person; Dr. B Raveendranadh Singh, Professor & Head; on the dais.**





Figure 8: II CSE & CSM students along with Braiovision Team



Figure 9: II CSE & CSM students attending Inaugural Session

The inaugural session concluded with the official commencement of the workshop's first session, marking the beginning of five days filled with valuable insights and hands-on learning.

### **Day 1: Introduction to R and Basics of Data Handling**

- **Overview of R and RStudio:**
  - Introduction to the R programming language and its applications.
  - Setting up R and RStudio for effective data analysis.



Figure 10: II CSE & CSM students performing tasks on Day-1

- **RStudio Interface and Basic Operations:**
  - Familiarization with the RStudio environment.
  - Basic operations in RStudio for efficient coding.
- **Introduction to R Scripts and Data Types:**
  - Understanding the structure of R scripts.
  - Exploring various data types in R (numeric, character, factor, etc.).



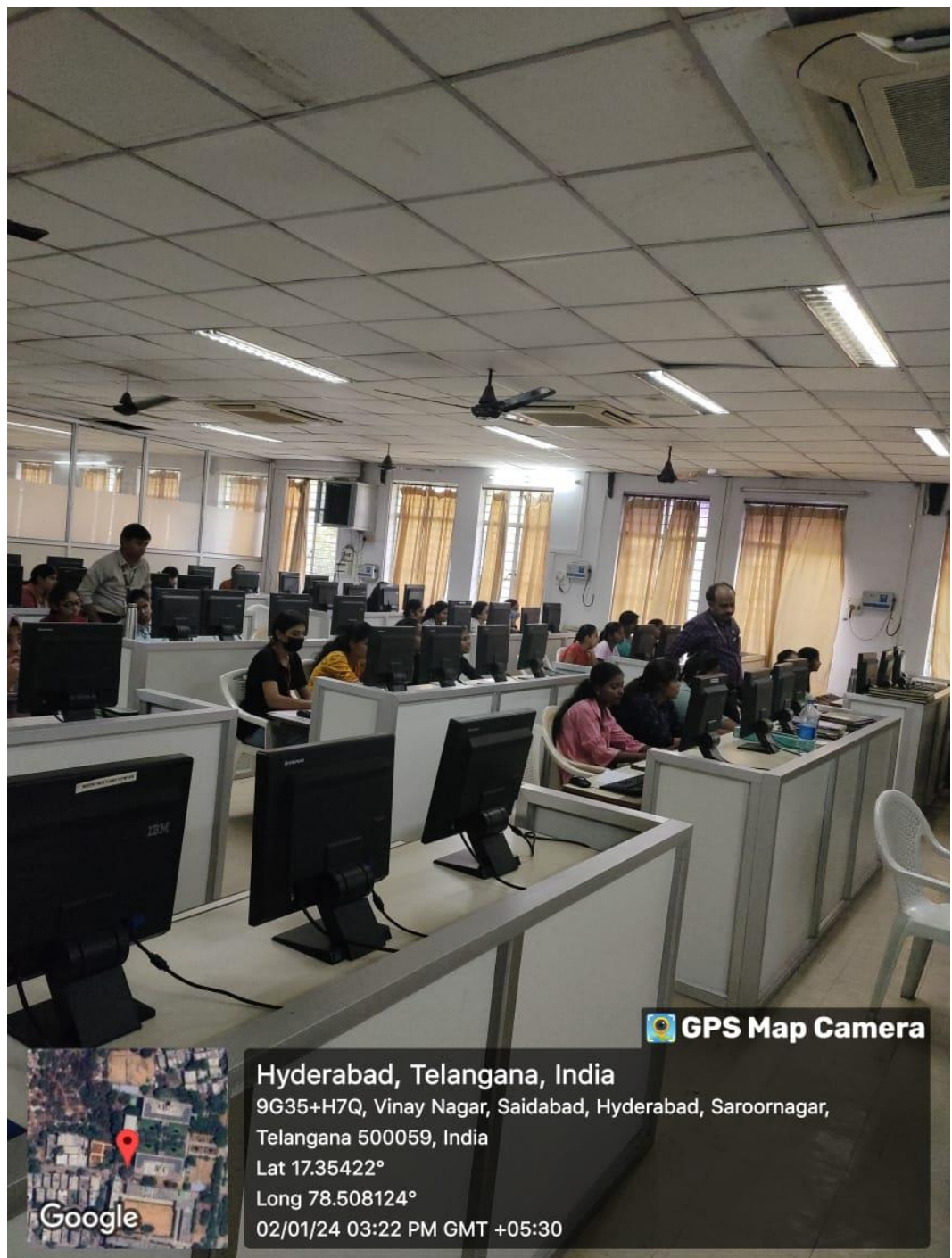


Figure 11: II CSE & CSM students performing tasks on Day-1

- **Data Structures in R:**
  - Overview of essential data structures - vectors, matrices, data frames, and lists.
  - Reading and writing data in R.
- **Basic Data Manipulation and Exploration:**
  - Hands-on exercises for basic data manipulation.
  - Introduction to data exploration techniques.



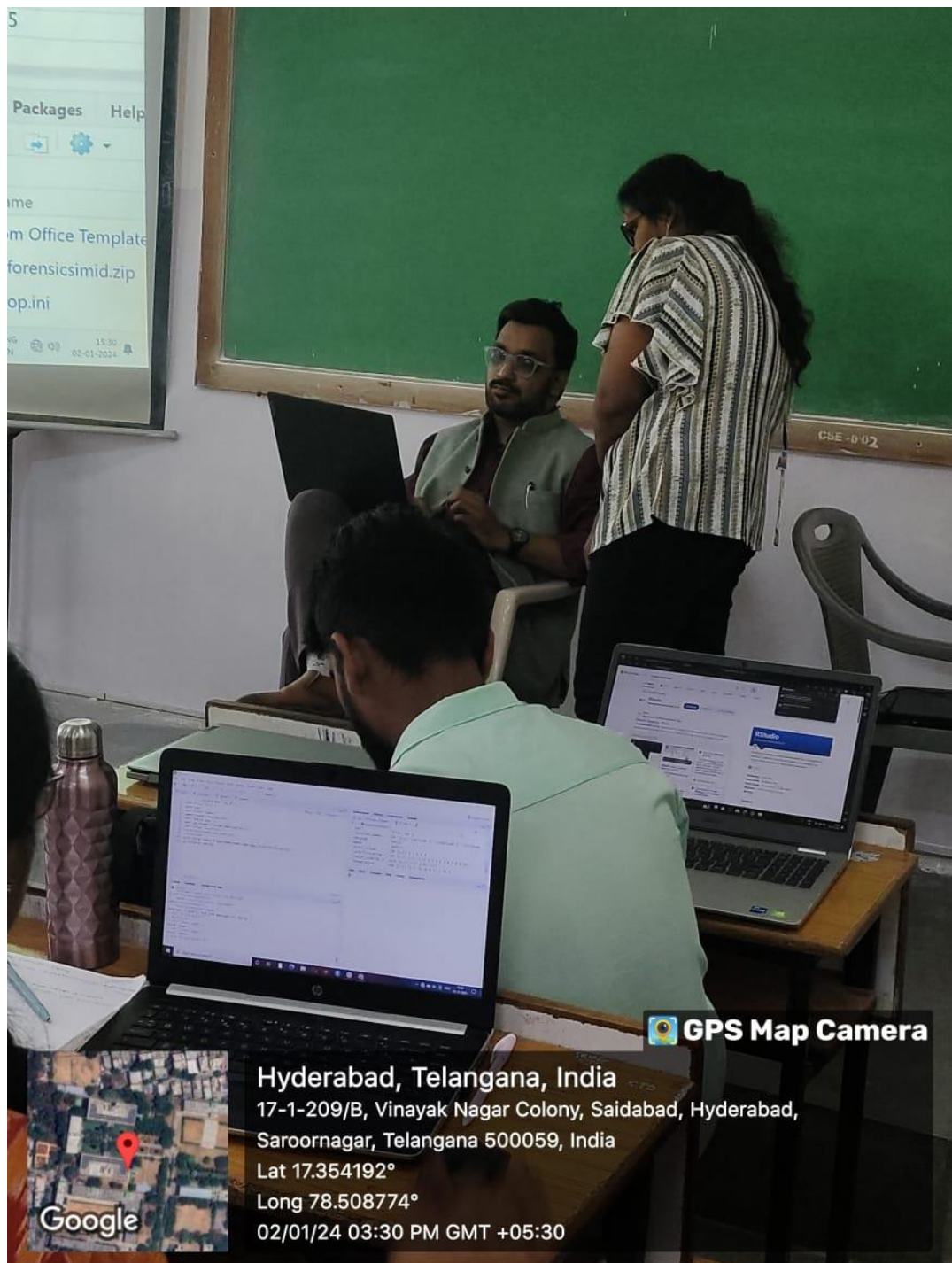


Figure 12: II CSE & CSM students performing tasks on Day-1

## Day 2: Data Visualization with ggplot2

- **Introduction to ggplot2:**
  - Overview of the ggplot2 package for data visualization.



Figure 13: Mr Sai Pavan giving overview of Overview of the ggplot2



Figure 14: Mr Sai Pavan explaining Customizing Plots





Figure 15: II CSE & CSM students performing tasks on Day-2

- **Creating Basic Plots:**
  - Practical sessions on creating scatter plots, bar plots, and histograms.
- **Customizing Plots:**
  - Exploring advanced features of ggplot2 for customization.
  - Adding titles, labels, and colors to enhance visualization.
- **Advanced ggplot2 Features:**
  - Faceting, themes, and annotations for sophisticated visualizations.
  - Working with multiple plots in a single display.



Figure 16: II CSE & CSM students performing tasks on Day-2

- **Exporting Plots:**
  - Techniques for exporting plots for presentations and reports.

### **Day 3: Statistical Analysis and Packages**

- **Introduction to Statistical Analysis:**
  - Basics of descriptive statistics.
  - Overview of inferential statistics, including t-tests and ANOVA.



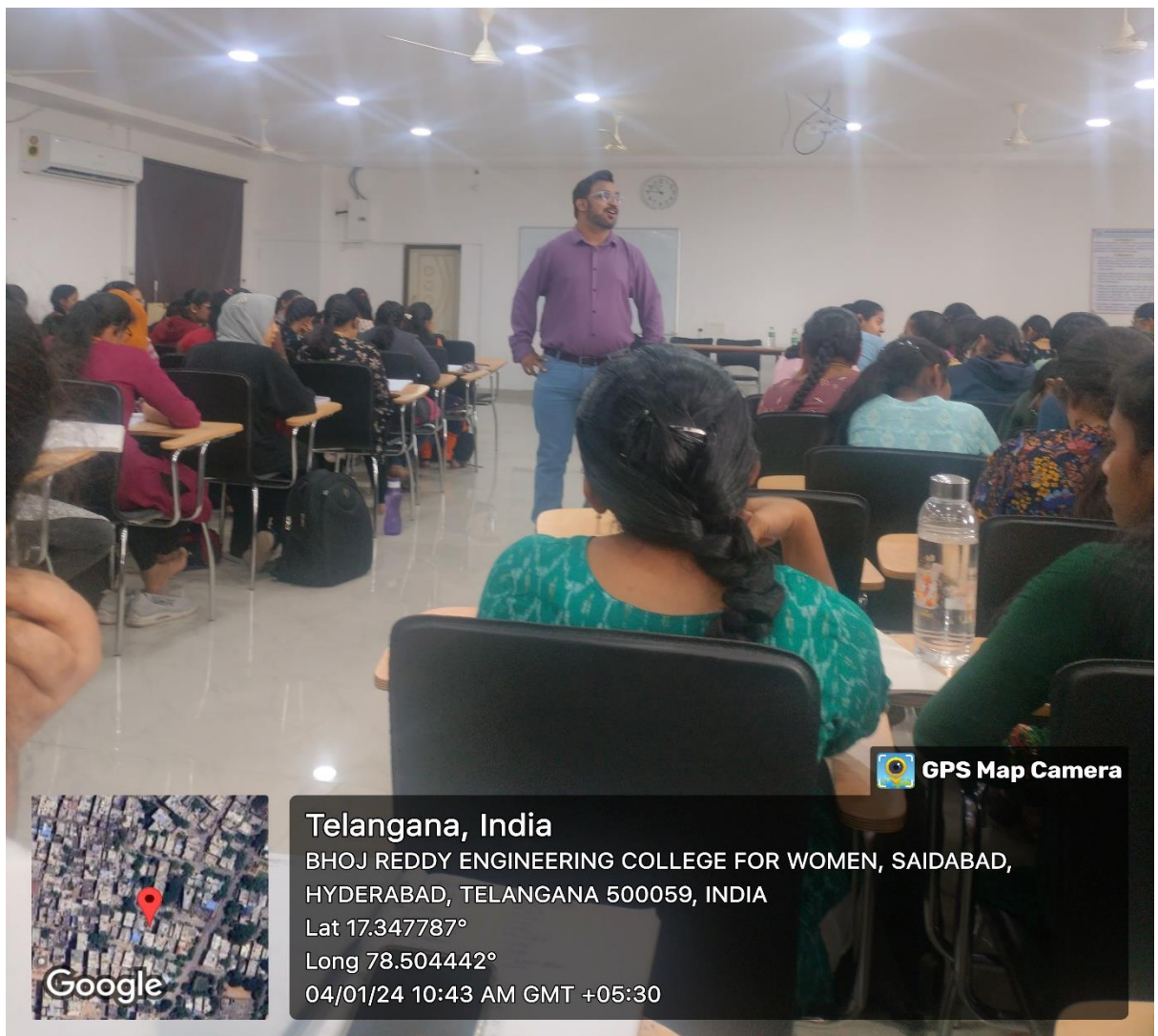


Figure 17: Mr Sai Pavan is giving Introduction on Statistical Analysis on Day-3

- **Popular R Packages for Data Analysis:**
  - Introduction to dplyr and tidyr packages for efficient data manipulation.
  - Hands-on practice with data manipulation using dplyr.



Figure 18: Students participated in the task assigned by the team.

- **Exploratory Data Analysis (EDA):**
  - Practical sessions on EDA techniques.
  - Applying statistical concepts to real-world data.



Figure 19: Students participated in the task assigned by the team.





**Figure 20: II Year Students in the Seminar Hall**



**Figure 21: II Year Students clarifying doubts with the Resource Person**

## **Day 4-5: Real-world Project and Hackathon**

The last two days of the "Data Analytics using R Programming" workshop delved into real-world application through a comprehensive project and an exhilarating hackathon. Students were provided with practical insights into problem-solving, data cleaning, exploratory data analysis, and the application of statistical methods.

## Day 4: Real-world Project

### Introduction to the Project:

Students were introduced to a real-world project, a hands-on application of the skills they had acquired throughout the workshop. The project aimed to simulate a practical scenario, allowing students to integrate theoretical knowledge into a real-world context.



Figure 22: II CSE Students participating in Hackathon.

### Planning and Defining the Problem:

Guidance was provided on problem definition and project planning. Students learned how to articulate project goals, identify potential challenges, and plan the necessary steps for effective execution. This phase emphasized the importance of a structured approach to problem-solving.

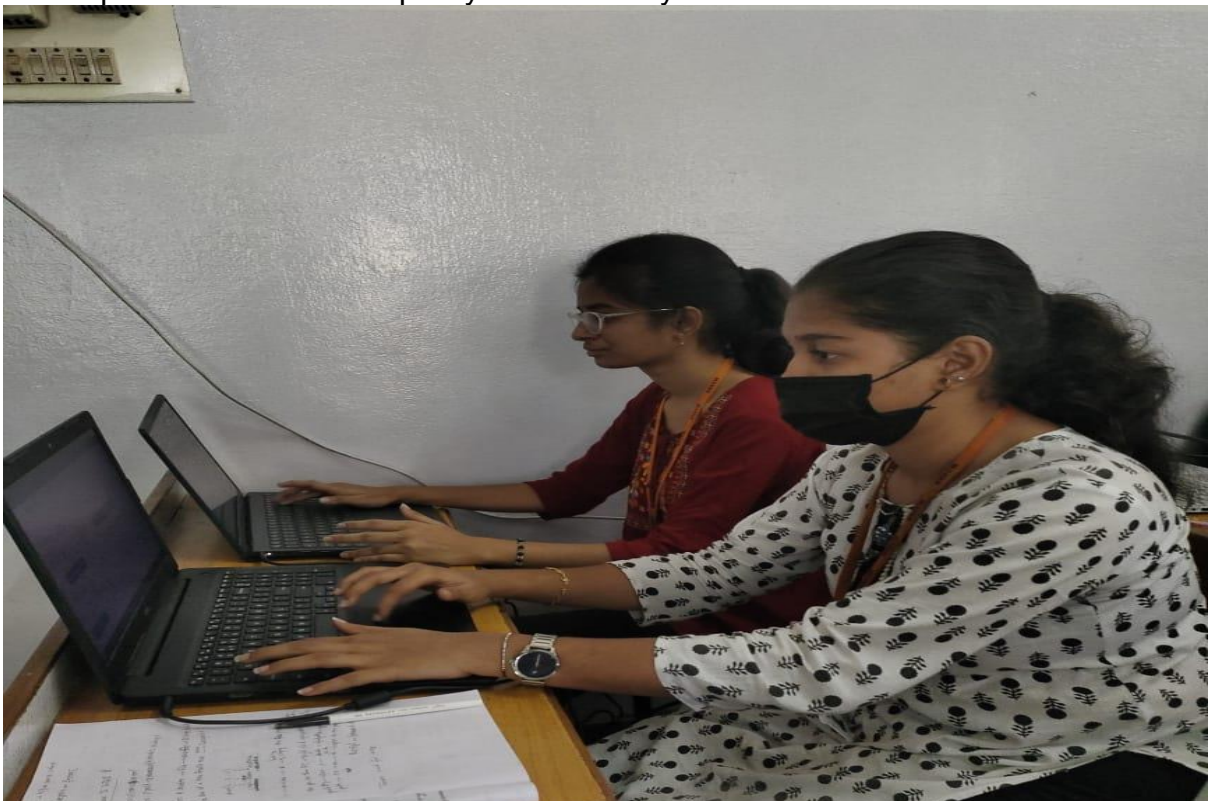




**Figure 23: II CSE Students participating in Hackathon.**

### **Data Cleaning and Preparation:**

Practical sessions focused on cleaning and preparing data for analysis. Participants gained hands-on experience in dealing with real-world data complexities, learning techniques to enhance the quality and reliability of their datasets.



**Figure 24: II CSE Students participating in Hackathon.**

**Exploratory Data Analysis:**

The in-depth analysis of project-specific data continued, with a focus on uncovering patterns, trends, and outliers. Statistical analysis and visualization techniques were employed to derive meaningful insights from the data, enhancing students' proficiency in interpreting complex datasets.



Figure 25: II CSE Students participating in Hackathon.

**Drawing Conclusions and Making Recommendations:**

Students were guided through the process of presenting findings, drawing conclusions, and making data-driven recommendations. This phase emphasized effective communication of analytical results, an essential skill in real-world applications.





**Figure 26: II CSE Students participating in Hackathon.**

## **Day 5: Hackathon**

### **Hackathon Overview:**

The culminating event of the workshop was a two-day hackathon, providing students with a platform to apply their skills in a competitive environment. Challenges were carefully crafted to mirror real-world data scenarios, testing students' ability to solve problems under time constraints.

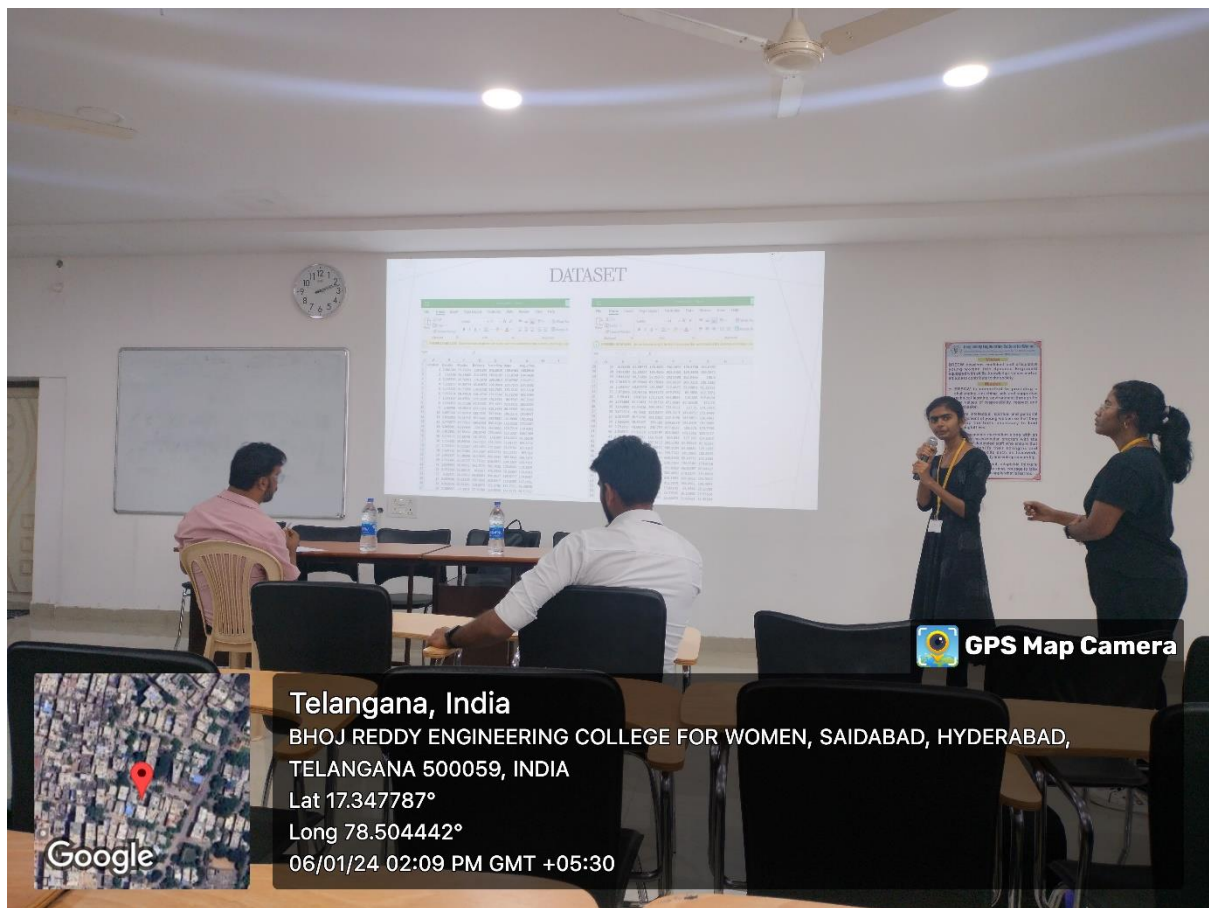


Figure 27: II CSE Students presenting the work done by them in Hackathon.

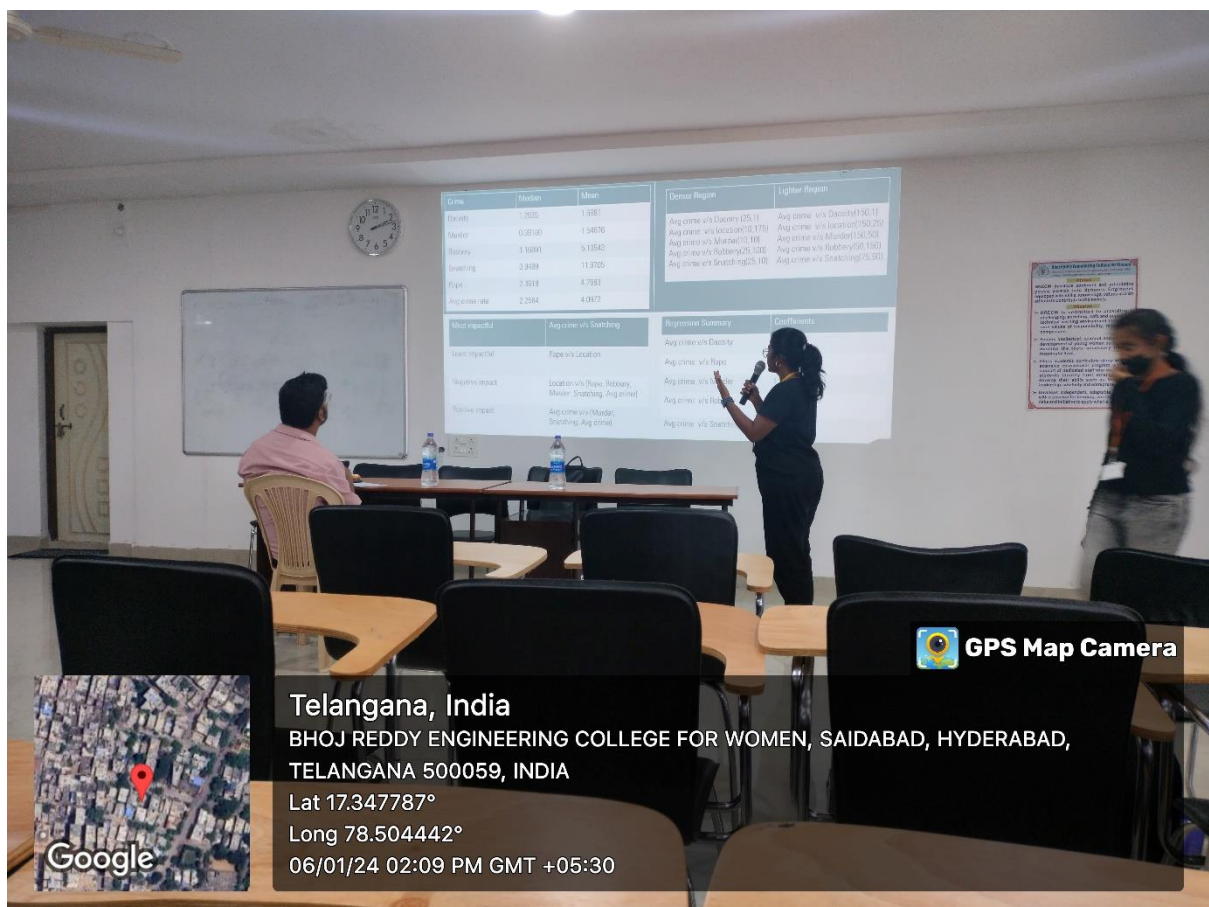


Figure 28: II CSE Students presenting the work done by them in Hackathon.





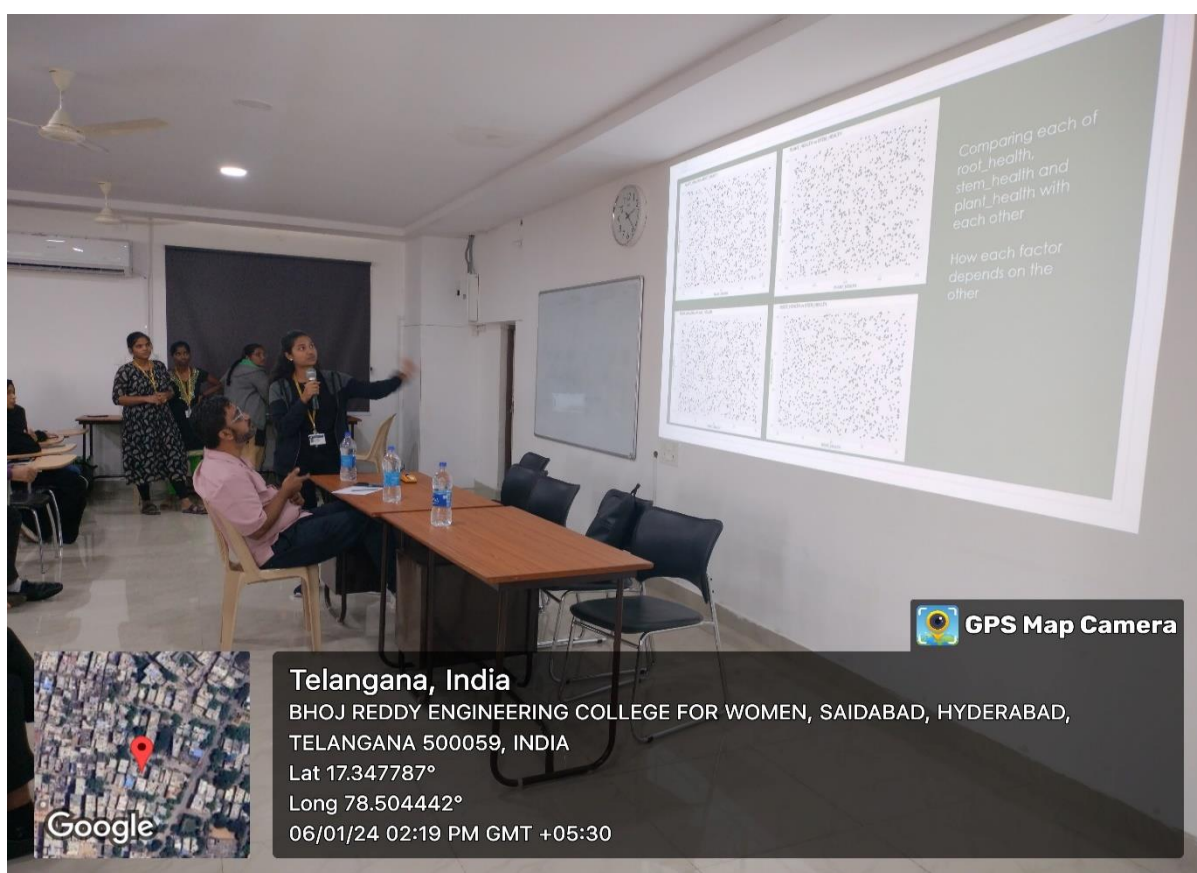
**Figure 29: II CSE Students listening to the presentations in Hackathon.**



**Figure 30: II CSE Students presenting the work done by them in Hackathon.**



**Figure 31: II CSE Students listening to the presentations in Hackathon.**

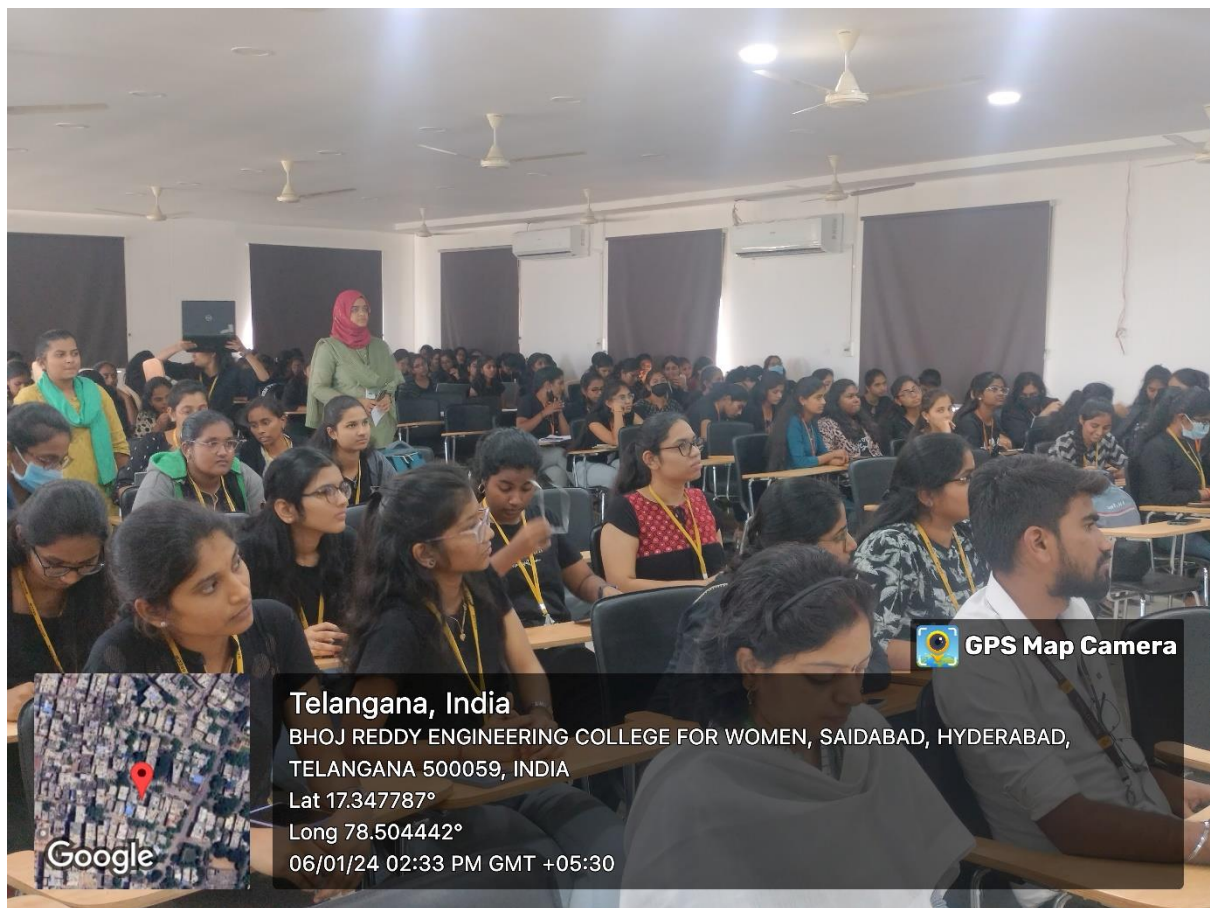


**Figure 32: II CSE Students presenting the work done by them in Hackathon.**

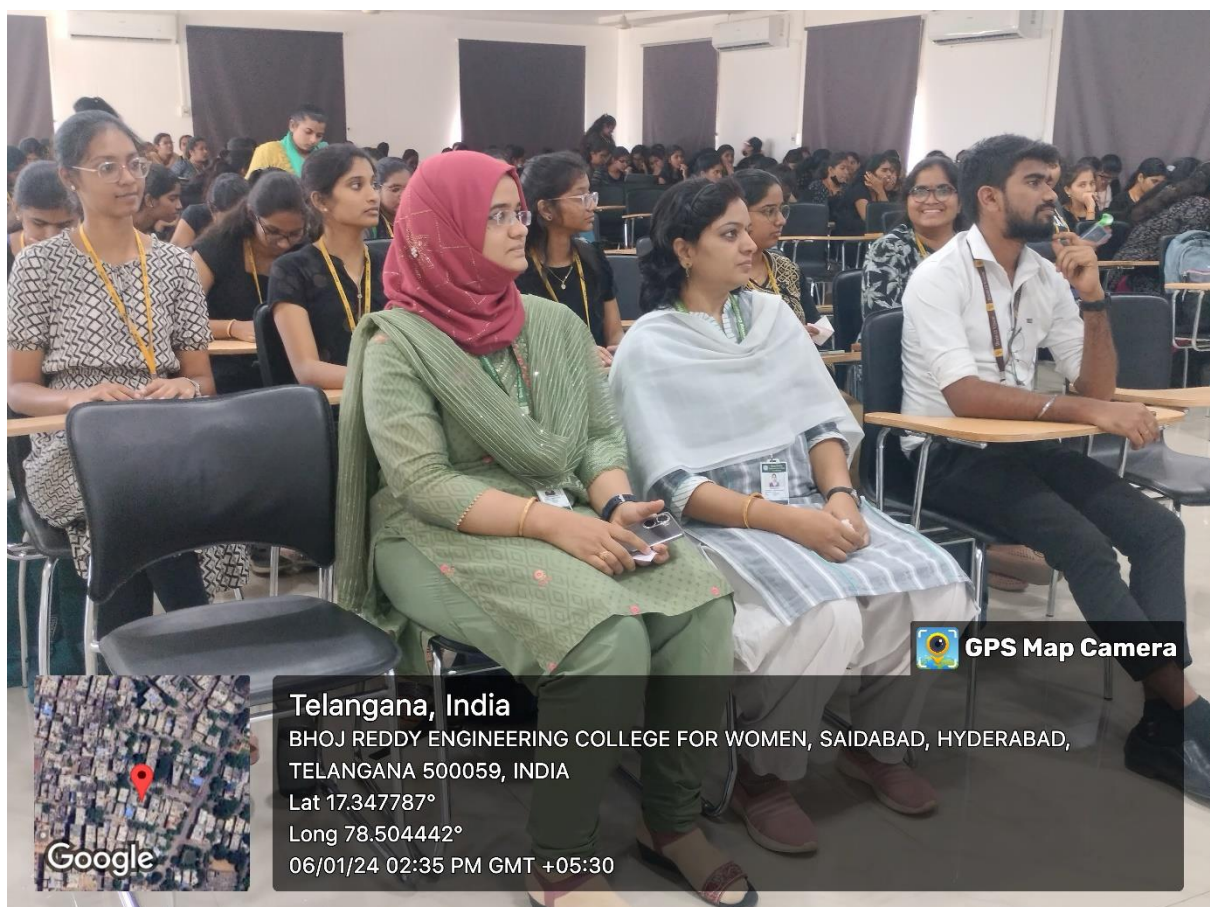
### **Real-world Data Scenarios:**

The hackathon challenges were designed to replicate scenarios encountered in the professional realm. Students faced tasks requiring them to analyze, interpret, and derive insights from datasets, mirroring the complexities of data analytics in various industries.

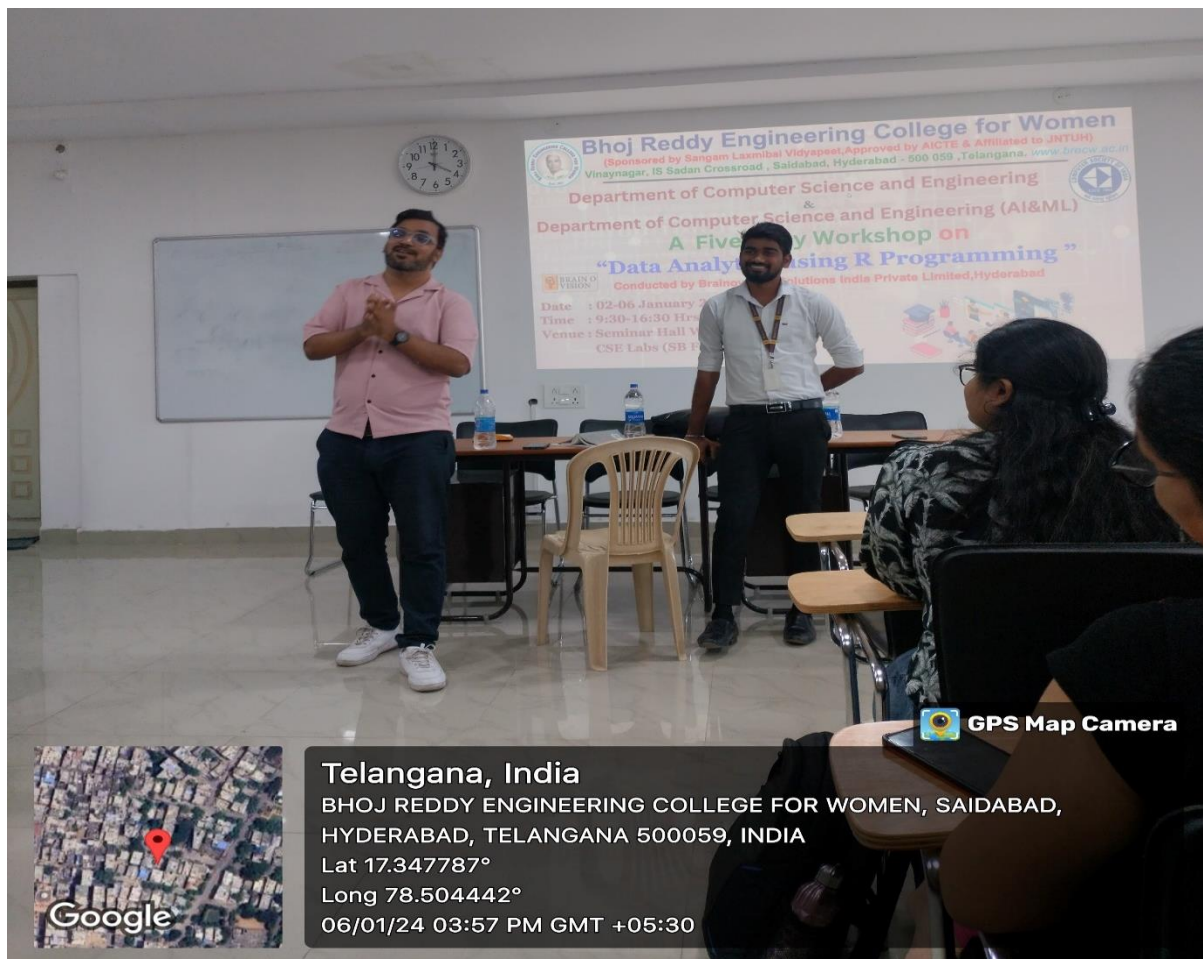




**Figure 33: II CSE Students in Seminar Hall on Day-5**



**Figure 34: II CSE Students and Staff in Seminar Hall on Day-5**



**Figure 35: Mr Sai Pavan discussing with students after the Hackathon in Seminar Hall on Day-5**

The workshop's closing days offered students a practical and competitive environment to showcase their newly acquired skills. It provided a bridge between theoretical learning and real-world application, ensuring that the knowledge gained during the workshop could be effectively applied in professional settings.

## **Valedictory Session Overview:**

### **Welcome Address by II CSE Student:**

The valedictory session commenced with a warm welcome address by a representative from the II B Tech CSE student. The student expressed gratitude and enthusiasm for the valuable learning experiences gained during the workshop.

### **Address by Dignitaries:**

#### **Address by Principal, Dr J Madhavan:**

Dr. J Madhavan, the Principal, shared encouraging words, acknowledging the significance of the workshop in enhancing students' skills and preparing them for the dynamic field of data analytics.



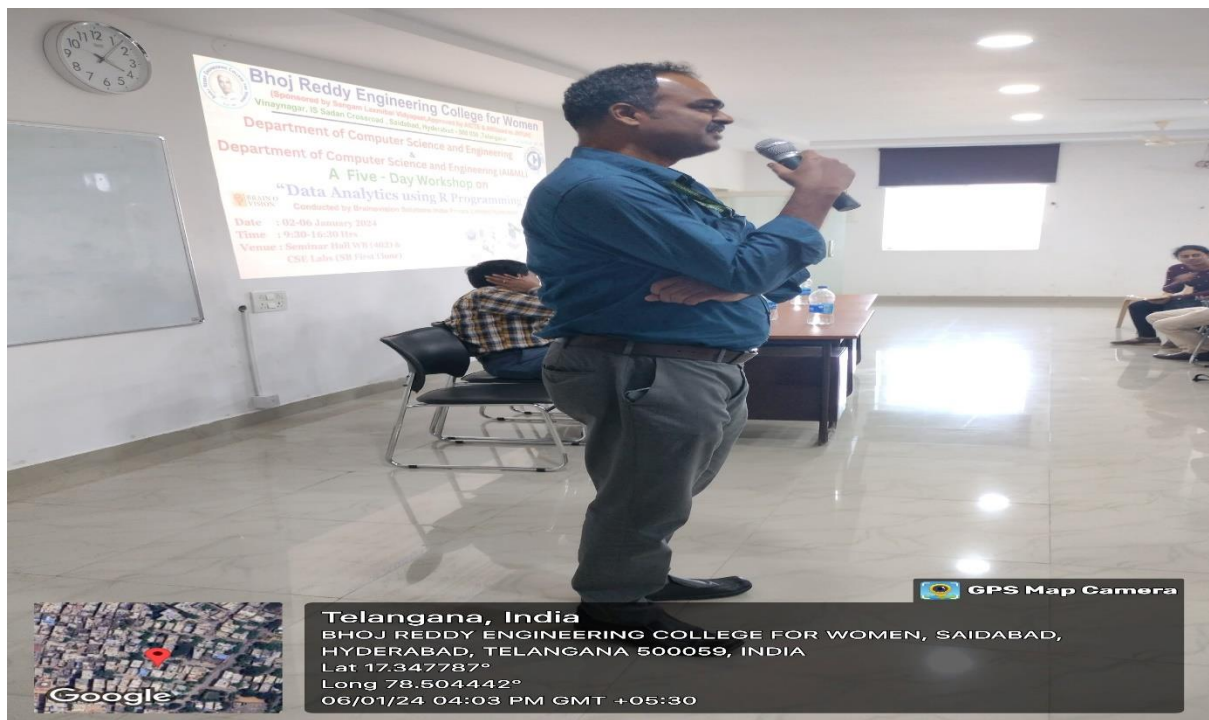


Figure 36: Dr. J Madhavan, the Principal, shared encouraging words.

#### Address by HoD-CSE&CSM, Dr B Raveendranadh Singh:

Dr. B Raveendranadh Singh, the Head of the Department of CSE&CSM, highlighted the success of the workshop and its role in fostering a culture of continuous learning and innovation.



Figure 37: Dr. B Raveendranadh Singh, the Head of the Department of CSE&CSM, highlighted the success of the workshop.

### Special Address by Mr Ganesh Nag, Brainovision Director:

Mr. Ganesh Nag, Director of Brainovision, provided valuable insights into the practical applications of data analytics in the industry. His address inspired students to envision the real-world impact of their acquired skills.

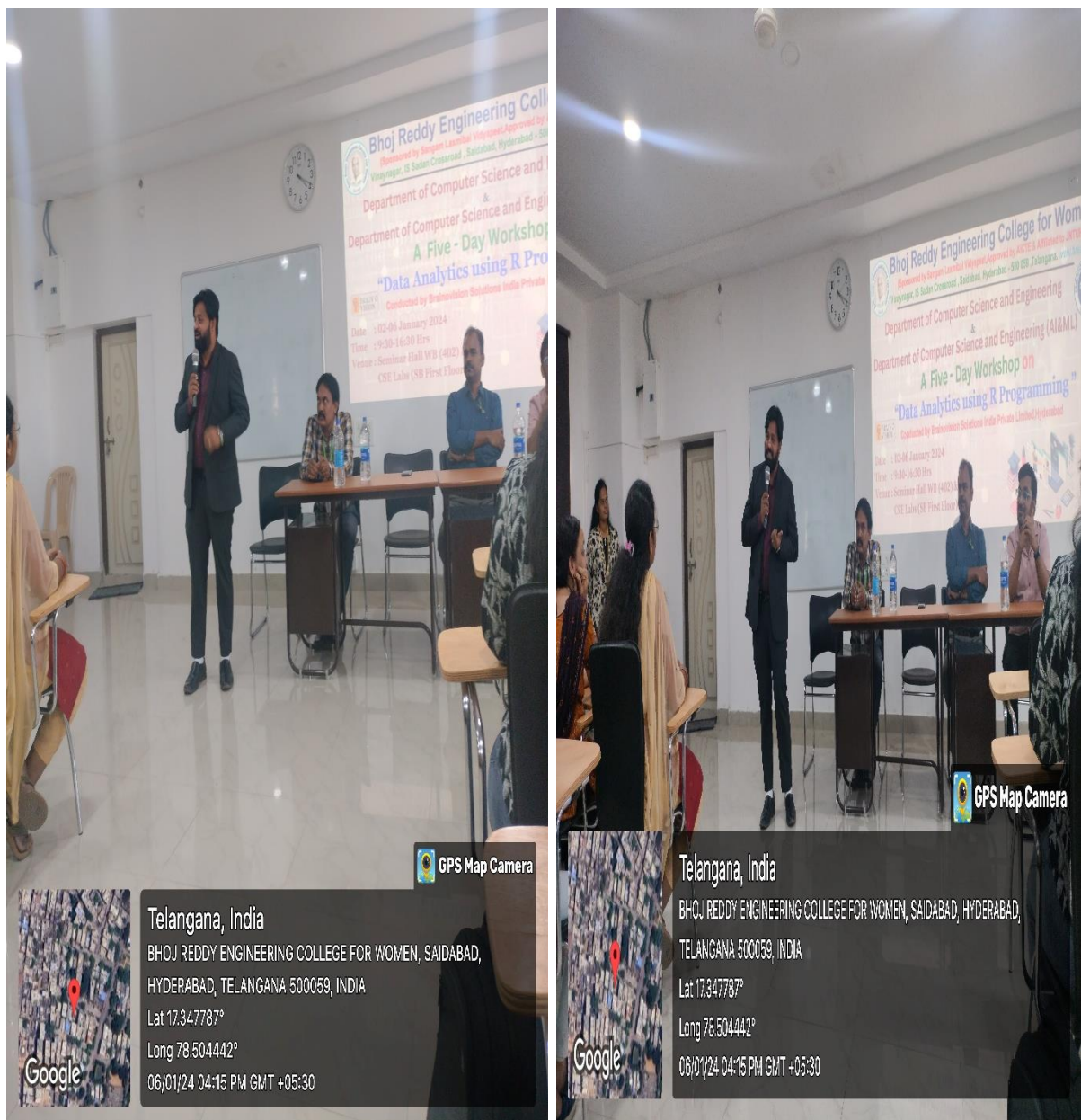


Figure 38: Mr. Ganesh Nag, Director of Brainovision, provided valuable insights on data analytics.

### Address by Resource Person, Mr Sai Pavan:

Mr. Sai Pavan, the workshop's resource person, delivered a keynote address, summarizing the key takeaways and encouraging students to apply their knowledge in real-world scenarios.





**Figure 39: Mr. Sai Pavan, the workshop's resource person, summarized the key takeaways and encouraging students.**



**Figure 40: Students and Staff at Valedictory Session.**

## **Hackathon Winners Announcement:**

The climactic conclusion of the Five-Day Workshop on “Data Analytics using R Programming” for II CSE A & B and CSM brought forth an atmosphere of excitement and anticipation as the participants eagerly awaited the announcement of the winning teams. The judging criteria were based on creativity, functionality and innovation.

### **Winning Team and Their Project:**

#### **First Place: HackHive**

Team HackHive emerged as the first-place winner with their exceptional project, "Handloom." This talented team showcased a remarkable blend of skills and innovation, earning them the top spot in the competition.

The following are the winning team members:

1	22321A0569	Kondour Praharsha	Handloom
2	22321A0584	Korvi Sai Sharanya	
3	22321A0596	Mokthala Shravani	
4	22321A05A5	NV Sriraga Sathvika	
5	22321A05A8	Kotra Srimythri Gupta	

#### **Project Name: Handloom**

**Description:** The project "Handloom" undoubtedly captivated the judges and the audience alike, standing out for its unique approach, functionality, and impact. The team's success can be attributed to a combination of factors, including technical expertise, creativity, collaboration, and a deep understanding of the challenges within the domain they addressed.





Figure 41: I Prize Winners of Hackathon



Figure 42: I Prize Winners of Hackathon



**Figure 43: I Prize Winners of Hackathon with Brainovision and BRECW Team.**

**Prize:** The winning team received merit certificates of excellence and prizes.

### **Second Place: Data Dazzlers**

Team Data Dazzlers emerged as the Second-place winner with their exceptional project, "Sanitary Pads." In a field teeming with innovation and competition, their success underscores their ability to address important issues and create impactful solutions.

The following are the Second-Place team members:

1	22321A05A6	B.Sridevi	Sanitary Pads
2	22321A05B8	T.Vaishnavi	
3	22321A0516	M.Charanya	
4	23325A0507	B.Poonam	
5	23325A0510	K.Sneha	



## Project Name: Sanitary Pads

**Description:** As the second-place winners, Team Data Dazzlers stands as a beacon of inspiration for their peers, proving that meaningful innovation can come from a well-rounded approach that considers both technological excellence and societal impact.



Figure 44: II Prize Winners of Hackathon



Figure 45: II Prize Winners of Hackathon

**Prize:** The Second-place team received merit certificates of excellence and prizes.

### Third Place: Ruby

Team Ruby emerged as the Third-place winner with their exceptional project, "AQI." In a competitive landscape of technological solutions, Team Ruby's success underscores their proficiency in addressing environmental concerns and leveraging technology for the betterment of society.

The following are the Third-Place team members:

1	22321A6655	N.Tareni	AQI
2	22321A6648	M. Sravani	
3	22321A6628	I. Meghana	
4	22321A6604	T.Aksahya	
5	22321A6602	S. Abhinaya	

### Project Name: AQI

**Description:** Their project likely involves the use of sensors, data analysis, or other technological solutions to measure and possibly mitigate air pollution, contributing to the broader conversation on sustainable living.



Figure 46: III Prize Winners of Hackathon





**Figure 47: III Prize Winners of Hackathon**

**Prize:** The Third-place team received merit certificates of excellence and prizes.

### Feedback and Recognition:

A segment was dedicated to gathering feedback from the students, providing insights into their learning experience. Three outstanding participants were acknowledged and awarded prizes and merit certificates for their exceptional performance during the workshop.



**Figure 48: Mr Ganesh Nag has given Appreciation to Principal Dr J Madhavan**



Figure 49: Mr Sai Pavan has given Appreciation to HoD CSE

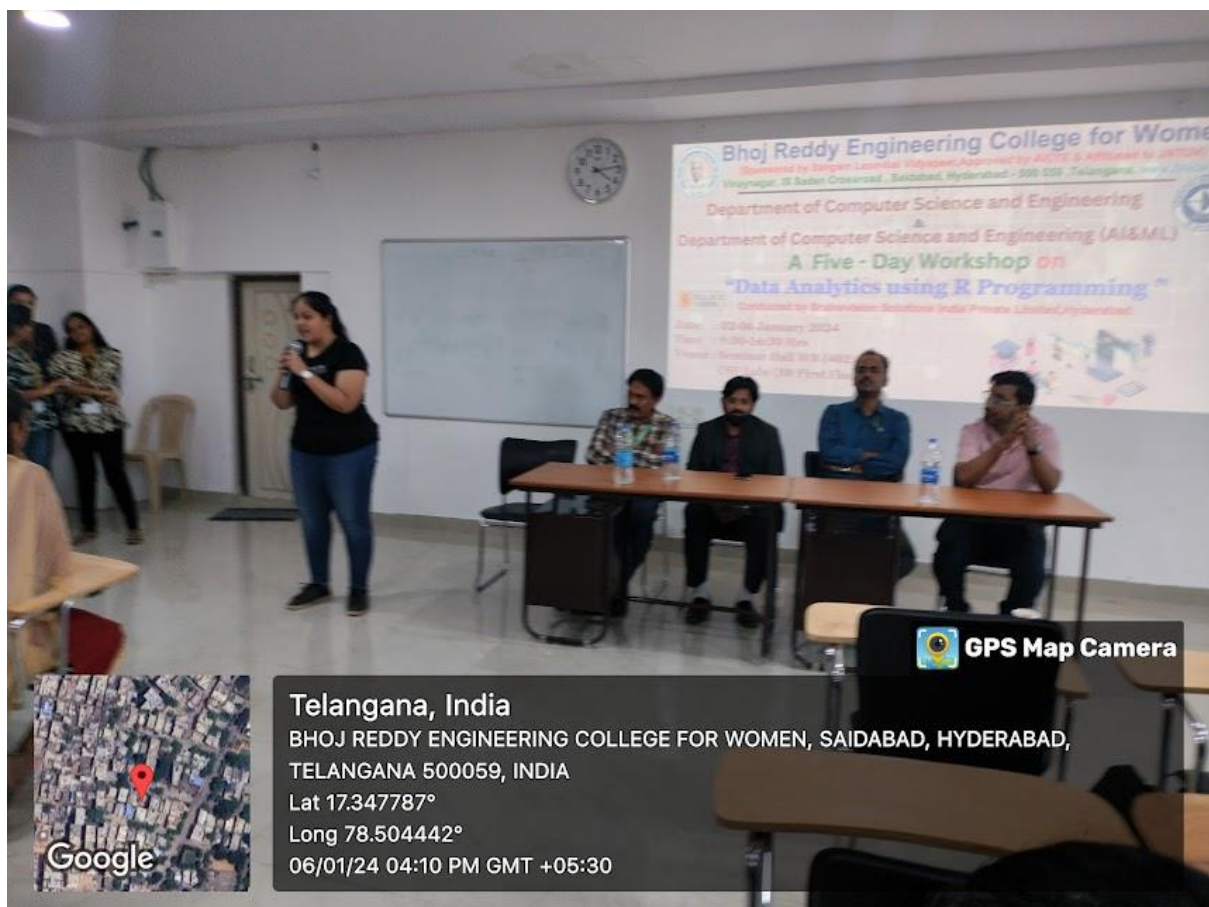


Figure 50: Feedback from Students





Figure 51: Feedback from Students

### Vote of Thanks and Conclusion:

The valedictory session concluded with a heartfelt vote of thanks expressing gratitude to all the speakers, participants, sponsors, and organizers who contributed to the success of the workshop. The students were encouraged to continue their journey in the field of data analytics with zeal and determination.

The Five-day Workshop on "Data Analytics using R Programming" and the subsequent hackathon proved to be a valuable learning experience, equipping students with practical skills and industry insights. The valedictory session marked the successful conclusion of an enriching and knowledge-packed event.

We look forward to future endeavors that continue to empower our students in the ever-evolving field of technology and data analytics.



**Figure 52: II CSE A Students with CSE Staff and Brainovision Team**



**Figure 53: II CSE B Students with CSE Staff and Brainovision Team**





**Figure 54: II CSM Students with CSE Staff and Brainovision Team**

### **Conclusion:**

The five-day workshop successfully provided students with a comprehensive understanding of R programming for data analytics. Through hands-on exercises and a real-world project, students gained practical experience, and the hackathon allowed them to apply their skills in a competitive setting. The workshop aimed to prepare students for future endeavors in data analysis and related fields.

Dr P Deepthi  
Seminars &  
Workshops In-charge

Dr B Raveendranadh Singh  
HoD-CSE