



REPORT

Introduction to Python Libraries and Github

Event date: 22nd October 2023

Organized by:

AI Club, SCET

Team Behind the Event:

Faculty Coordinator: Prof. Mukesh Patel

President: Vinay Aditya

Student Coordinator: Sakhi Rotliwala(Technical Lead)

Ratish Jain(Technical Lead)

Event Details:

Event Type: University / Institute Level Program

Event Platform: Sarvajanik College of Engineering & Technology, SCET

Category: Technical Workshop Series

Schedule: 21 October, 2023; 10:00 AM to 12:00 PM, IT Lab III, SCET

Host: Technical Leads - Sakhi Rotliwala and Ratish Jain

Aspirants: UG students of Sarvajanik College of Engineering & Technology, SCET

Accessibility: Open to club members

Introduction:

The technical workshop series aimed to provide participants with an in-depth understanding of powerful Python libraries such as NumPy, Pandas, Matplotlib, and Seaborn, along with the utilization of GitHub for version control and collaborative coding. These libraries are indispensable tools for data manipulation, analysis, and visualization in AI projects. By delving into these resources, attendees were equipped with essential skills to enhance their coding efficiency and productivity in AI-related endeavors..

Workshop Overview:

Python Libraries Introduction:

- Ratish Jain and Sakhi Rotliwala provided an overview of the key Python libraries used in data science and AI.
- The functionalities and applications of NumPy, Pandas, Matplotlib, and Seaborn were explained, emphasizing their roles in data manipulation, analysis, and visualization.

GitHub Usage:

- Participants received comprehensive training on GitHub usage for version control and collaborative coding.
- Ratish Jain and Sakhi Rotliwala demonstrated repository creation, branch management, committing changes, and merging pull requests, enabling seamless teamwork and project management.

Data Manipulation and Analysis:

- Attendees engaged in practical exercises focusing on data manipulation and analysis using Python libraries.
- Through guided sessions, participants learned to handle datasets efficiently

using NumPy and Pandas, performing operations such as cleaning, filtering, and aggregation.

Data Visualization:

- The workshop highlighted the importance of data visualization in conveying insights effectively.
 - Using Matplotlib and Seaborn, participants learned to create various types of plots and visualizations to represent data intuitively, enhancing their presentation and interpretation skills.
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Workshop Highlights:

NumPy:

- Participants gained insight into the fundamentals of NumPy, including arrays, indexing, and broadcasting.
- Advanced functionalities such as array manipulation, mathematical operations, and linear algebra were explored.
- Practical exercises allowed attendees to grasp NumPy's capabilities in handling large datasets efficiently.

Pandas:

- The workshop elucidated the versatility of Pandas for data manipulation and analysis through DataFrame and Series structures.
- Topics covered included data cleaning, transformation, merging, and aggregation.
- Hands-on sessions facilitated attendees in applying Pandas for real-world data processing tasks, ensuring proficiency in data wrangling.

Matplotlib and Seaborn:

- Matplotlib's capabilities in generating customizable plots and visualizations were demonstrated, enabling participants to represent data effectively.
- Seaborn's higher-level interface for statistical visualization complemented Matplotlib by simplifying complex plotting tasks.
- Practical examples illustrated how to create various types of plots, histograms, scatter plots, and heatmaps for data exploration and presentation.

GitHub:

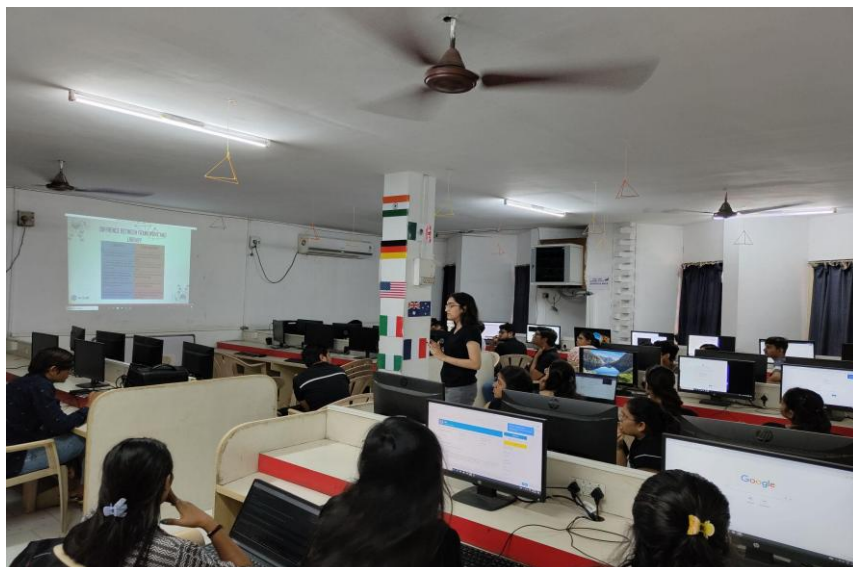
- The workshop introduced the importance of version control and collaborative coding using GitHub.
- Attendees learned essential GitHub functionalities such as repository creation, branching, committing changes, and merging pull requests.
- Best practices for managing projects, resolving conflicts, and collaborating with peers

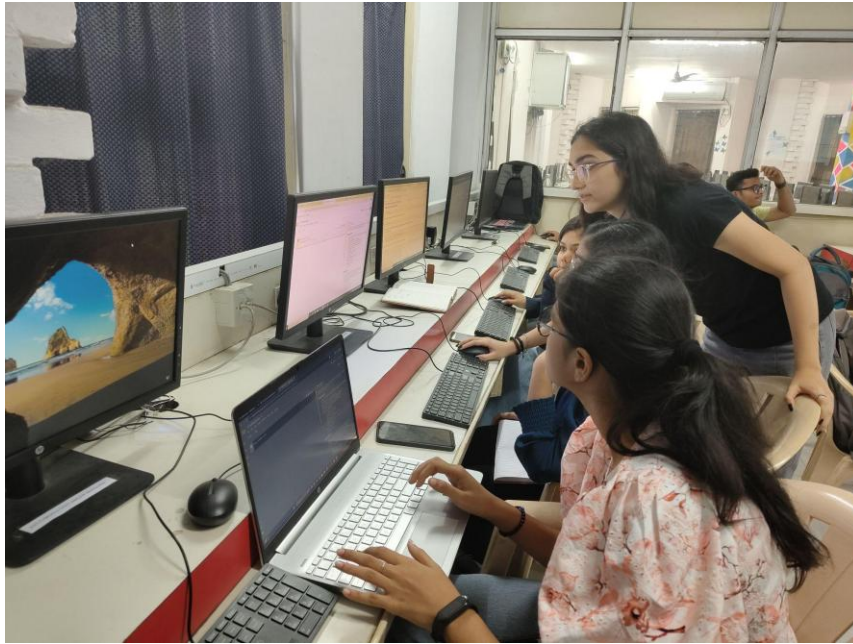
through GitHub were emphasized.

Key Takeaways:

- **Enhanced Data Handling Skills:** Participants acquired proficiency in utilizing NumPy and Pandas for efficient data manipulation, enabling them to preprocess and analyze datasets effectively in AI projects.
- **Data Visualization Proficiency:** Understanding Matplotlib and Seaborn empowered attendees to create visually appealing and insightful plots, facilitating better data interpretation and presentation.
- **Improved Collaboration and Version Control:** The knowledge gained in GitHub usage fostered collaborative coding practices, ensuring version control and seamless teamwork in coding projects.
- **Enhanced Coding Skills:** Participants developed proficiency in utilizing Python libraries for data manipulation, analysis, and visualization, improving their coding efficiency in AI projects.
- **Practical Implementation:** Through hands-on exercises, attendees gained practical experience in implementing data manipulation, analysis, and visualization techniques, enhancing their ability to apply these skills in real-world scenarios.

Event Glimpses:





Conclusion:

The technical workshop series on Python libraries and GitHub provided participants with valuable knowledge and skills essential for success in data science and AI projects. By mastering Python libraries such as NumPy, Pandas, Matplotlib, and Seaborn, and understanding GitHub's role in version control and collaborative coding, attendees are now well-equipped to tackle complex AI-related challenges with confidence and proficiency.