

TRAINING SESSION DOCUMENTATION

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1.INTRODUCTION

This document provides a detailed overview of the training sessions conducted, covering essential topics in web development, version control, database management, agile methodologies, and product management. The aim is to equip participants with practical skills and knowledge necessary for modern software development.

2.VERSION CONTROL WITH GIT AND GITHUB

The initial session was conducted by NSS Palakad on version control with Git and Github. By adopting version control systems like Git and platforms such as GitHub, teams can enhance productivity, ensure code stability, and streamline the development process. This section of the training focused on equipping participants with essential skills in version control, empowering them to contribute effectively to collaborative software projects.

Understanding Git

Mentor: Lakshmi Mohandas

In the initial part of the session, we explored Git, a powerful version control system designed to manage code changes efficiently. This session covered the basics of Git, including repositories, branches, commits, and merges. Understanding these fundamental concepts is crucial for effective version control and collaboration in software development. Git's distributed nature allows each developer to have a full copy of the project history, providing resilience and flexibility in workflows. By the end of the session, participants gained a foundational understanding of how to track changes, revert to previous states, and collaborate with others using Git.

GitHub

Mentor: Siv Hari

The second part of the session was an introduction to GitHub, a popular platform for hosting Git repositories. We covered the essentials of navigating GitHub, including creating and managing repositories. Participants learned how to fork repositories, clone them to local machines, and contribute to projects. This session also included a demonstration of GitHub's interface and features, such as issues, pull requests, and project boards. By the end of the session, attendees were equipped with the knowledge to effectively use GitHub for collaborative development, making it easier to manage code versions and contributions from multiple developers.

Git Commands and Merge Conflict Resolution

Mentor: Chaithanya Liz

In the third part of the session, we focused on essential Git commands and handling merge conflicts. Participants learned how to use commands such as **git init**, **git clone**, **git add**, **git commit**, **git push**, and **git pull**. These commands form the backbone of version control, enabling developers to initialize repositories, clone existing ones, stage changes, commit updates, and

synchronize with remote repositories. Additionally, we covered the process of identifying and resolving merge conflicts, which occur when changes from different branches conflict. Practical exercises allowed participants to gain hands-on experience in resolving conflicts, ensuring a smooth workflow in collaborative environments.

Pull Requests

Mentor: Sonika Rajesh

The fourth part of the session detailed the pull request workflow in GitHub, which is essential for facilitating code collaboration. Participants learned how to create, review, and merge pull requests. This session emphasized the importance of pull requests in maintaining code quality and consistency. By proposing changes through pull requests, developers can solicit feedback, discuss improvements, and ensure that code meets project standards before merging it into the main branch. Through practical exercises, participants gained experience in managing pull requests, making it easier to collaborate and integrate contributions from multiple team members.

3.FRONT END DEVELOPMENT

The second session on front-end development, conducted by GEC Thrissur, provided a comprehensive introduction to HTML, CSS, JavaScript, and React. Participants learned the fundamental building blocks of web development, focusing on creating structured content with HTML, enhancing presentation with CSS, adding interactivity with JavaScript, and building dynamic user interfaces with React.

Introduction to Web Designing

Mentor: Neda Ashraf P V

The session introduced participants to basic web design principles. They learned about creating user-friendly web interfaces that focus on visual appeal and ease of use. The session emphasized the importance of design elements like layout, typography, colors, and navigation patterns to enhance user experience. Overall, attendees gained insights into essential practices for developing engaging websites.

HTML Fundamentals

Mentor : Sweetlin Jose

HTML (HyperText Markup Language) serves as the foundation for creating and structuring web pages, enabling browsers to interpret and display content effectively. In this training session, participants learned essential elements and tags such as headings (<h1> to <h6>), paragraphs (<p>), links (Link text), and images (). Additionally, they gained proficiency in building interactive forms using <form>, <input>, <textarea>, and <button>, as well as organizing data with tables using <table>, <tr>, <th>, and <td>.

Styling with CSS

Mentor : Athira M

CSS (Cascading Style Sheets) enhances the visual presentation of HTML elements on web pages. Participants explored CSS selectors including element selectors (e.g., `p { color: blue; }`), class selectors (e.g., `.highlight { background-color: yellow; }`), and ID selectors (e.g., `#header { font-size: 24px; }`). They also learned about the CSS box model, which defines the layout components such as content, padding, border, and margin, using practical examples to understand how styling affects web page layout and spacing.

JavaScript Essentials

Mentor: Aryananda Anil and Ahamed Zain

JavaScript plays a crucial role in adding interactivity and dynamic behavior to web pages. The session introduced participants to basic JavaScript syntax, including variables, operators, and control structures like if-else statements and loops. They delved into functions for reusable code blocks and arrays for storing collections of data. Participants also learned about DOM manipulation techniques to access and modify HTML elements dynamically, along with event handling to respond to user interactions effectively.

React Basics

Mentor: Ashitha P R

The React session focused on building user interfaces using reusable components. Participants gained insight into creating components as functions or classes, managing component data using state and props, and writing JSX (JavaScript XML) to embed HTML within JavaScript. The session also covered lifecycle methods that enable developers to perform actions at different stages of a component's lifecycle, enhancing understanding of how React manages updates and renders components efficiently.

4. DATABASE MANAGEMENT

The third session, conducted by RIT Kottayam, focused on the basics of databases and PostgreSQL. Participants were introduced to fundamental concepts such as database structures and Entity-Relationship (ER) diagrams. The session provided an overview of PostgreSQL, covering its setup, basic commands for data manipulation, and the significance of relational database systems in modern applications.

Database fundamentals

Mentor : Ashly James

This foundational session covered essential concepts in database management systems (DBMS). Participants learned about the significance of structured data storage and the role of databases in modern software development. The session introduced key terminology such as schema, entity,

attribute, and relationships among entities, laying the groundwork for understanding how data is organized and managed within a DBMS.

Queries and Keys

Mentor: Avena Sara Saji

Participants explored SQL queries for data retrieval and manipulation, focusing on the importance of keys (primary, foreign, and unique) in maintaining data integrity. The session highlighted practical examples of querying databases to extract specific information based on criteria and how keys enforce relationships between different tables.

Introduction to PostgreSQL

Mentor: Akash K

The next part of the session provided an overview of PostgreSQL, a robust relational database system. Participants learned how to set up PostgreSQL, create databases, and define tables using SQL commands. The session covered essential operations such as SELECT for querying data, INSERT for adding new records, DELETE for removing data, and UPDATE for modifying existing data. Practical exercises enabled participants to apply their knowledge in creating and managing databases within the PostgreSQL environment.

ER Diagrams and Database Schema

Mentor: Rosby Roby and Sandra Sabu

The last part of the session focused on Entity-Relationship (ER) diagrams and their role in database design. Participants learned how to create ER diagrams to visualize and model database structures, identifying entities, attributes, and relationships. The session included converting ER diagrams into database schemas, translating conceptual designs into practical database implementations. Practical tasks involved creating an ER diagram for an Employee Management System and implementing it using PostgreSQL, reinforcing understanding through hands-on practice.

5.AGILE METHODOLOGIES

Agile methodologies were introduced to enhance project management practices within software development. The session emphasized the iterative approach of Agile, focusing on flexibility and adaptability in project execution. Participants explored various Agile frameworks such as Scrum and Kanban, understanding their applications in managing tasks and improving team collaboration. The Agile pyramid model was discussed, highlighting its role in prioritizing tasks and ensuring incremental progress towards project goals. Practical insights into how Agile methods are implemented at Tarento provided attendees with a clear understanding of its benefits in fostering innovation and responding to changing project requirements.

6.PRODUCT MANAGEMENT LIFE CYCLE

The session on Product Life Cycle (PLC) provided a comprehensive overview of the stages involved in bringing a product from conception to market. Participants learned about the stages of Development, Introduction, Growth, Maturity, and Decline, each phase characterized by specific activities and challenges. Practical examples illustrated how products evolve through these stages, with a focus on strategies for sustaining growth and managing market dynamics. The importance of product roadmap planning and continuous product improvement processes were emphasized, equipping attendees with strategies to optimize product performance and longevity in competitive markets.

7.BUSINESS ANALYSIS

The Business Analysis session delved into the strategic role of analyzing business processes within tech firms. Participants gained insights into how businesses operate ethically and sustainably, with a focus on enhancing user experience and customer satisfaction. Case studies from platforms like Instagram and Facebook illustrated effective strategies for implementing user-centric changes and enhancing software usability. The session also introduced common business analysis tools such as SWOT and PESTLE analysis, enabling participants to identify strengths, weaknesses, opportunities, and threats in business environments. Practical discussions on adapting to market trends and regulatory changes provided attendees with tools to drive business growth and innovation.