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Case Study 8 :- GitHub Basics and Features.

a] What is GitHub. How does it differ from Git?
b]. Explain the following GitHub features with appropriate examples.
• Issues. • Pull request • Forks • Stars • GitHub Pages

Title of the Experiment :-
Understanding the Basics and Key Features of GitHub for collaborative Software Development

Aim:
To learn the role of GitHub in version control, differentiate it from Git, and explore key features such as Issues, Pull requests, Forks, Stars, and Github pages with examples.

a] What is GitHub? How does it differ from Git?
GitHub is a cloud based-based platform for hosting and managing Git repositories. It allows developers to store their code online, collaborate with others, track issues review code & manage projects.

Difference b/w Git and GitHub.

Aspect	Git	GitHub
Types	Distributed Version Control System	Cloud based Git repository hosting platform
Installed on	Local machine	Web-based platform

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Function	Tracks code changes & manage version history.	Host repositories & provide tools for team collaboration
Works offline?	Yes	No requires internet.

b] Explanation of GitHub Features with Appropriate Examples.

1. Issues
- used to report bugs, suggest enhancement or create task checklist.
- Ex:- You notice the login form doesn't. Use and open an issue.
"Login form does not validate email properly"

2] Pull Requests.
- Used to propose change into the property by merging code from one branch into another.

Ex:- You fix a bug on a branch named fix-login and create a pull request to merge it into main.
Title "Fix login email validation bug"
Reviews add comment or approve it before merging.

3]. Forks
- A Fork is a personal copy of someone else's repository. It allow users to experiment without affecting the original project

Ex: You fork an open source project to add a new

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feature. After making changes, you create a PR from your for to the original repository.

4. Stars
- GitHub stars are like "likes" - they let users show appreciation or bookmark repositories they find useful
- Ex: You star a JavaScript game repo u you enjoyed. Other can see how popular a project is based on stars.

5. GitHub Pages
- GitHub pages lets you host static websites from a github repository

Example: you push a personal website to repo and enable GitHub Pages. It published at https://yourusername.github.io/your-repo-name/

Theory:

What is GitHub?

GitHub is a web based platform built on top of Git, a distributed version control system. GitHub is widely used in both open source and commercial software development.

Key features

- Collaboration :- Developers can work together using pull requests, code review & discussion threads.
- Issue tracking:- Report bugs, suggest features &

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track progress using the "issues" feature.
- Web Hosting : Git Hub Pages allows developers to host static website directly from their Github repositories.
- Community & sharing :- Developers can fork repositories, contribute to others code and star projects they like.

Use cases :-
- Team based software development
- Open source project contribution.
- Managing & tracking tasks
- Managing and tracking tasks.

Benefits Of Git Hub.

- Remote collaboration from anywhere.
- Real time version tracking & change history.
- Easy code sharing and feedback.
- Automation through Git Hub actions
- Free hosting for open source repositories & static side.

Conclusion

Through this experiment, I understood how Github provides a complete workflow for collaboration. I specially liked learning about pull requests and issues, which are very useful in teamwork.