**PROJECT REPORT**

**Project Title:** Bug Detection and Fixing

## Name: Muthuswetha M (Team Member)

## College: Sri Sairam Engineering College

## Internship Oreganization Name: Intel (Unnati Internship)

## Internship Duration: 36 days (01.03.2025 to 05.04.2025)

## Mentor: Dr. P.Vijayakumari

## Date Of Submission: 04.04.2025

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## ACKNOWLEDGMENT:

We sincerely express our gratitude to **Intel Unnati** for providing us with the opportunity to work on the **Python Bug Detection and Fixing** project as part of their internship program. This experience has been invaluable in enhancing our technical skills and problem-solving abilities in software debugging and automation.

We extend our heartfelt thanks to our mentors and project guides for their continuous support, insightful feedback, and encouragement throughout the project. Their expertise and guidance played a crucial role in refining our approach and improving the quality of our work. We also acknowledge the contributions of our team members, whose collaboration, dedication, and innovative thinking were instrumental in successfully executing the project.

Lastly, we appreciate the vast learning resources and technical support provided by Intel Unnati, which enabled us to explore cutting-edge methodologies in bug detection and resolution, thereby enriching our understanding of Python debugging and software reliability.

Thank you to Intel, Our Mentor.

**PROBLEM STATEMENT:**

A system which aims to enhance software code quality, reduce debugging time and improve developer productivity by identifying bugs in software code and provide recommended fixes.

**AIM:**

The aim of this project is to develop an interactive interface that allows users to detect errors in their Python code and receive recommended fixes along with relevant examples.

**DESCRIPTION:**

The Python Bug Detector is a web-based application designed to help developers identify and fix errors in their Python code efficiently. The tool provides syntax error detection, runtime error analysis and common logical error identification, making it a valuable resource for both beginners and experienced programmers. With features like line highlighting for errors and a light/dark theme toggle, the interface ensures a seamless debugging experience.

Built using Flask for the backend, JavaScript for interactivity and Code Mirror for an intuitive code editing experience, the application allows users to upload Python files or paste code directly into the editor. Once analyzed, the system highlights errors and offers contextual recommendations for fixes, aiding in faster debugging and improved code quality.

The project follows the MIT License, enabling open-source contribution and free usage, allowing developers to modify and enhance the tool as needed.

## ****MY CONTRIBUTION:****

As part of the **Python Bug Detection and Fixing** project under the **Intel Unnati Internship**, I, **M. Muthuswetha**, contributed to the **front-end development** by designing and implementing the **HTML structure and UI components**. My key contributions included:

* **Developing the main interface using HTML**, ensuring a well-structured and user-friendly layout.
* **Creating a navigation bar** that includes a **brand name ("Python Bug Detector")** and user controls.
* **Implementing a theme switch (light/dark mode toggle**) using an input checkbox for better user experience.
* **Integrating the Code Mirror library** to enhance the Python code editing experience.
* **Designing a file upload section with drag-and-drop functionality,** allowing users to upload Python files efficiently.
* **Utilizing Font Awesome icons** for a more intuitive and visually appealing UI.
* **Ensuring mobile responsiveness** by using appropriate meta tags and styling.

This project provided valuable hands-on experience in **HTML, UI structuring, and integrating third-party libraries**.

