School Of Engineering
Department of Computer Science and Engineering
<u>B Tech, Minor Project - Weekly Progress Report (2024-25)</u>

Semester: VI

Week No: 1

From: 17.02.2025   To : 22.02.2025

Department	CSE-CORE	
Names & USN of Team Members	S Rayyan Ahmed	ENG22CS0424
	Suraj S	ENG22CS0425
	Sahil K	ENG22CS0429
	Shreyas Bharadwaj	ENG22CS0459
Name of the Guide	Prof. Sowmya H.D	
Project Title	CodeSense – Tracks and measures the "health" of code	

Work Carried out by the team during the Week :	
• Established the boilerplate structure for the VS Code extension. • Analyzed the core architecture of VS Code extensions. • Researched best practices for efficient extension development. • Studied the functionality and importance of linters in maintaining code quality.	
Individual Contribution by Student	**Work Carried out**
S Rayyan Ahmed	Explored and evaluated different methodologies for integrating linters.
Suraj S	Acquired foundational knowledge on static code analysis techniques.
Sahil K	Documented the process of setting up the extension scaffold.
Shreyas Bharadwaj	Initialized and configured the VS Code extension boilerplate.
Work Planned for the Following Week: Gain a comprehensive understanding of the VS Code API and its integration points.	

Percentage Work Completed: 10 %

Signature of the Guide: Signature of Students:

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Semester: VI

Week No: 2

From: 24.02.2025   To : 01.03.2025

Department	CSE-CORE	
Names & USN of Team Members	S Rayyan Ahmed	ENG22CS0424
	Suraj S	ENG22CS0425
	Sahil K	ENG22CS0429
	Shreyas Bharadwaj	ENG22CS0459
Name of the Guide	Prof. Sowmya H.D	
Project Title	CodeSense – Tracks and measures the "health" of code	

Work Carried out by the team during the Week :
- Explored the VS Code API and its core functionalities.
- Investigated the process of creating custom commands and diagnostics.
- Conducted research and comparison of various Python linters.
- Selected PyLint as the primary tool for code analysis.

Individual Contribution by Student	Work Carried out
S Rayyan Ahmed	Studied the VS Code API documentation thoroughly.
Suraj S	Implemented and tested basic commands and event listeners.
Sahil K	Finalized the adoption of PyLint based on its extensibility and robustness.
Shreyas Bharadwaj	Analyzed different Python linters for compatibility and output structure.

Work Planned for the Following Week: Design an initial user interface to display linter messages.

Percentage Work Completed: 20 %

Signature of the Guide: Signature of Students:

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Semester: VI

Week No: 3

From: 03.03.2025 **To :** 08.03.2025

Department	CSE-CORE	
Names & USN of Team Members	S Rayyan Ahmed	ENG22CS0424
	Suraj S	ENG22CS0425
	Sahil K	ENG22CS0429
	Shreyas Bharadwaj	ENG22CS0459
Name of the Guide	Prof. Sowmya H.D	
Project Title	CodeSense – Tracks and measures the "health" of code	

Work Carried out by the team during the Week :
- Successfully integrated PyLint within the VS Code extension.
- Developed the functionality to execute PyLint as an external process.
- Captured, processed, and formatted the output from PyLint.
- Displayed PyLint diagnostics directly within the editor interface.

Individual Contribution by Student	Work Carried out
S Rayyan Ahmed	Implemented subprocess calls to execute PyLint and retrieve results.
Suraj S	Mapped PyLint output to the VS Code diagnostic framework.
Sahil K	Configured the execution environment for PyLint integration.
Shreyas Bharadwaj	Conducted tests using Python scripts to validate the implementation.

Work Planned for the Following Week: Set up Ollama to facilitate local execution of the chosen LLM.

Percentage Work Completed: 30 %

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Semester: VI

Week No: 4

From: 10.03.2025   To : 15.03.2025

Department	CSE-CORE	
Names & USN of Team Members	S Rayyan Ahmed	ENG22CS0424
	Suraj S	ENG22CS0425
	Sahil K	ENG22CS0429
	Shreyas Bharadwaj	ENG22CS0459
Name of the Guide	Prof. Sowmya H.D	
Project Title	CodeSense – Tracks and measures the "health" of code	

Work Carried out by the team during the Week :
- Evaluated multiple LLMs for their suitability in code analysis.
- Selected CodeLlama based on its performance and adaptability.
- Installed and configured Ollama to enable local execution of CodeLlama.
- Initiated the integration process to align LLM suggestions with PyLint diagnostics.

Individual Contribution by Student	Work Carried out
S Rayyan Ahmed	Conducted a comparative analysis of available LLMs for code-related tasks.
Suraj S	Mapped LLM-generated suggestions to the diagnostic output structure.
Sahil K	Tested the CodeLlama model using basic prompts to verify its functionality.
Shreyas Bharadwaj	Successfully installed and set up Ollama for local model execution.

Work Planned for the Following Week: Develop a structured pipeline to send linter results to the LLM.

Percentage Work Completed: 40 %

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Semester: VI

Week No: 5

From: 17.03.2025   To : 22.03.2025

Department	CSE-CORE	
Names & USN of Team Members	S Rayyan Ahmed	ENG22CS0424
	Suraj S	ENG22CS0425
	Sahil K	ENG22CS0429
	Shreyas Bharadwaj	ENG22CS0459
Name of the Guide	Prof. Sowmya H.D	
Project Title	CodeSense – Tracks and measures the "health" of code	

Work Carried out by the team during the Week :
- Studied the Ollama API to understand its usage and endpoints.
- Implemented the initial integration between the Ollama API and the extension.
- Successfully transmitted PyLint diagnostics to the LLM.
- Enhanced diagnostic feedback by incorporating LLM-generated solutions.

Individual Contribution by Student	Work Carried out
S Rayyan Ahmed	Explored and experimented with the Ollama API to understand its operation.
Suraj S	Developed the integration layer to facilitate communication with CodeLlama.
Sahil K	Enhanced diagnostic messages to provide more actionable insights.
Shreyas Bharadwaj	Developed a structured pipeline to send linter results to the LLM.

Work Planned for the Following Week: Refine Quick Fix suggestions to improve their precision and relevance.

Percentage Work Completed: 50 %

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Semester: VI

Week No: 6

From: 24.03.2025 **To : 29.03.2025**

Department	CSE-CORE	
Names & USN of Team Members	S Rayyan Ahmed	ENG22CS0424
	Suraj S	ENG22CS0425
	Sahil K	ENG22CS0429
	Shreyas Bharadwaj	ENG22CS0459
Name of the Guide	Prof. Sowmya H.D	
Project Title	CodeSense – Tracks and measures the "health" of code	

Work Carried out by the team during the Week :
- Refined Quick Fix suggestions by improving the prompt structure for CodeLlama.
- Implemented initial logic to prioritize actionable and context-aware fixes.
- Enhanced the integration layer to reduce latency in processing LLM responses.
- Conducted preliminary testing of Quick Fix suggestions on sample Python scripts.

Individual Contribution by Student	Work Carried out
S Rayyan Ahmed	Optimized the prompt design for CodeLlama to generate precise fixes.
Suraj S	Developed logic to filter and prioritize Quick Fix suggestions.
Sahil K	Tested Quick Fix functionality with various Python code scenarios.
Shreyas Bharadwaj	Improved the integration layer for faster LLM response handling.

Work Planned for the Following Week: Enhance the user interface to display Quick Fix suggestions seamlessly.

Percentage Work Completed: 55 %

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Semester: VI

Week No: 7

From: 31.03.2025   To : 05.04.2025

Department	CSE-CORE	
Names & USN of Team Members	S Rayyan Ahmed	ENG22CS0424
	Suraj S	ENG22CS0425
	Sahil K	ENG22CS0429
	Shreyas Bharadwaj	ENG22CS0459
Name of the Guide	Prof. Sowmya H.D	
Project Title	CodeSense – Tracks and measures the "health" of code	

Work Carried out by the team during the Week :
- Designed and implemented a user-friendly interface for Quick Fix suggestions.
- Integrated a hover-based display for diagnostic messages and suggested fixes.
- Improved error handling for cases where CodeLlama fails to provide valid fixes.
- Conducted user testing to gather feedback on the interface usability.

Individual Contribution by Student	Work Carried out
S Rayyan Ahmed	Designed the UI components for displaying Quick Fix suggestions.
Suraj S	Implemented hover-based diagnostic message display in the editor.
Sahil K	Enhanced error handling for invalid or incomplete LLM responses.
Shreyas Bharadwaj	Conducted user testing sessions and documented feedback.

Work Planned for the Following Week: Optimize the extension for performance and memory efficiency.

Percentage Work Completed: 60 %

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Semester: VI

Week No: 8

From: 07.04.2025   To : 12.04.2025

Department	CSE-CORE	
Names & USN of Team Members	S Rayyan Ahmed	ENG22CS0424
	Suraj S	ENG22CS0425
	Sahil K	ENG22CS0429
	Shreyas Bharadwaj	ENG22CS0459
Name of the Guide	Prof. Sowmya H.D	
Project Title	CodeSense – Tracks and measures the "health" of code	

Work Carried out by the team during the Week :
- Optimized the extension by reducing memory usage during linter execution.
- Improved the efficiency of subprocess calls to PyLint.
- Implemented caching for frequently accessed LLM responses.
- Conducted performance benchmarking to identify bottlenecks.

Individual Contribution by Student	Work Carried out
S Rayyan Ahmed	Reduced memory overhead in subprocess handling for PyLint.
Suraj S	Implemented caching mechanism for LLM responses.
Sahil K	Conducted performance tests to measure execution time.
Shreyas Bharadwaj	Analyzed and resolved bottlenecks in the extension's performance.

Work Planned for the Following Week: Implement support for additional Python linters to enhance code analysis.

Percentage Work Completed: 65 %

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Semester: VI

Week No: 9

From: 14.04.2025   To : 19.04.2025

Department	CSE-CORE	
Names & USN of Team Members	S Rayyan Ahmed	ENG22CS0424
	Suraj S	ENG22CS0425
	Sahil K	ENG22CS0429
	Shreyas Bharadwaj	ENG22CS0459
Name of the Guide	Prof. Sowmya H.D	
Project Title	CodeSense – Tracks and measures the "health" of code	

Work Carried out by the team during the Week :
- Integrated Flake8 as an additional linter for broader code analysis.
- Developed a configuration system to allow users to select preferred linters.
- Updated the diagnostic pipeline to handle multiple linter outputs.
- Tested compatibility between PyLint and Flake8 outputs.

Individual Contribution by Student	Work Carried out
S Rayyan Ahmed	Integrated Flake8 into the extension's linter pipeline.
Suraj S	Developed the user configuration interface for linter selection.
Sahil K	Updated the diagnostic system to merge outputs from multiple linters.
Shreyas Bharadwaj	Tested compatibility and resolved conflicts between linters.

Work Planned for the Following Week: Enhance Quick Fix suggestions to support multiple linters.

Percentage Work Completed: 70 %

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Semester: VI

Week No: 10

From: 21.04.2025   To : 26.04.2025

Department	CSE-CORE	
Names & USN of Team Members	S Rayyan Ahmed	ENG22CS0424
	Suraj S	ENG22CS0425
	Sahil K	ENG22CS0429
	Shreyas Bharadwaj	ENG22CS0459
Name of the Guide	Prof. Sowmya H.D	
Project Title	CodeSense – Tracks and measures the "health" of code	

Work Carried out by the team during the Week :
- Extended Quick Fix suggestions to incorporate Flake8 diagnostics.
- Improved LLM prompt design to handle multiple linter inputs.
- Implemented a ranking system for Quick Fix suggestions based on severity.
- Conducted integration testing to ensure compatibility with both linters.

Individual Contribution by Student	Work Carried out
S Rayyan Ahmed	Enhanced LLM prompts to process Flake8 diagnostics.
Suraj S	Developed the ranking algorithm for Quick Fix suggestions.
Sahil K	Tested Quick Fix functionality with combined linter outputs.
Shreyas Bharadwaj	Ensured seamless integration of Flake8 with existing systems.

Work Planned for the Following Week: Implement a settings panel for user customization of extension features.

Percentage Work Completed: 75 %

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Semester: VI

Week No: 11

From: 28.04.2025   To : 03.05   .2025

Department	CSE-CORE	
Names & USN of Team Members	S Rayyan Ahmed	ENG22CS0424
	Suraj S	ENG22CS0425
	Sahil K	ENG22CS0429
	Shreyas Bharadwaj	ENG22CS0459
Name of the Guide	Prof. Sowmya H.D	
Project Title	CodeSense – Tracks and measures the "health" of code	

Work Carried out by the team during the Week :
- Developed a settings panel for users to customize linter and LLM preferences.
- Implemented options to toggle between linters and adjust diagnostic verbosity.
- Added support for user-defined prompt templates for CodeLlama.
- Conducted usability testing to validate the settings panel functionality.

Individual Contribution by Student	Work Carried out
S Rayyan Ahmed	Designed the settings panel UI and configuration logic.
Suraj S	Implemented toggle options for linter selection and verbosity.
Sahil K	Added support for custom prompt templates in the settings.
Shreyas Bharadwaj	Conducted usability tests and gathered user feedback.

Work Planned for the Following Week: Conduct comprehensive testing across various Python codebases.

Percentage Work Completed: 80 %

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Semester: VI

Week No: 12

From: 05.05.2025   To : 10.05.2025

Department	CSE-CORE	
Names & USN of Team Members	S Rayyan Ahmed	ENG22CS0424
	Suraj S	ENG22CS0425
	Sahil K	ENG22CS0429
	Shreyas Bharadwaj	ENG22CS0459
Name of the Guide	Prof. Sowmya H.D	
Project Title	CodeSense – Tracks and measures the "health" of code	

Work Carried out by the team during the Week :
- Conducted extensive testing on diverse Python codebases.
- Identified and fixed bugs related to diagnostic display and Quick Fix application.
- Improved error handling for edge cases in linter and LLM integration.
- Documented test results and prepared a bug-fix report.

Individual Contribution by Student	Work Carried out
S Rayyan Ahmed	Tested the extension on complex Python codebases.
Suraj S	Fixed bugs in the diagnostic display logic.
Sahil K	Enhanced error handling for edge cases in LLM responses.
Shreyas Bharadwaj	Documented test cases and bug-fix outcomes.

Work Planned for the Following Week: Prepare documentation and user guides for the extension.

Percentage Work Completed: 85 %

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Semester: VI

Week No: 13

From: 12.05.2025   To : 17.05.2025

Department	CSE-CORE	
Names & USN of Team Members	S Rayyan Ahmed	ENG22CS0424
	Suraj S	ENG22CS0425
	Sahil K	ENG22CS0429
	Shreyas Bharadwaj	ENG22CS0459
Name of the Guide	Prof. Sowmya H.D	
Project Title	CodeSense – Tracks and measures the "health" of code	

Work Carried out by the team during the Week :
- Drafted comprehensive user documentation for the CodeSense extension.
- Created a detailed user guide covering installation, configuration, and usage.
- Prepared a technical report summarizing the extension's architecture and features.
- Conducted a final round of user testing to validate documentation clarity.

Individual Contribution by Student	Work Carried out
S Rayyan Ahmed	Drafted the technical report on the extension's architecture.
Suraj S	Created the user guide for installation and configuration.
Sahil K	Documented the usage instructions and Quick Fix features.
Shreyas Bharadwaj	Conducted user testing to ensure documentation clarity.

Work Planned for the Following Week: Finalize the extension and prepare for deployment to the VS Code Marketplace.

Percentage Work Completed: 90 %

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Semester: VI

Week No: 14

From: 19.05.2025   To : 24.05.2025

Department	CSE-CORE	
Names & USN of Team Members	S Rayyan Ahmed	ENG22CS0424
	Suraj S	ENG22CS0425
	Sahil K	ENG22CS0429
	Shreyas Bharadwaj	ENG22CS0459
Name of the Guide	Prof. Sowmya H.D	
Project Title	CodeSense – Tracks and measures the "health" of code	

Work Carried out by the team during the Week :
- Finalized the CodeSense extension for deployment.
- Packaged the extension for submission to the VS Code Marketplace.
- Conducted final integration tests to ensure stability and compatibility.
- Prepared a presentation summarizing the project for final evaluation.

Individual Contribution by Student	Work Carried out
S Rayyan Ahmed	Packaged the extension and verified Marketplace requirements.
Suraj S	Conducted final integration and compatibility tests.
Sahil K	Prepared the project presentation for evaluation.
Shreyas Bharadwaj	Finalized the extension's configuration and documentation.

Work Planned for the Following Week: Submit the extension to the VS Code Marketplace and address any feedback.

Percentage Work Completed: 100 %

Signature of the Guide: Signature of Students:

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