CS304 Software Engineering Project Proposal

SVSMate – SUSTechers' Own Intelligent VScode Extension

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Outline

- **Survey** - User Story (HE)

- **Proposal** - Feature Requirements (TU, WU)

- **Sprint** - Process & Division of Labor (QIN, HUANG)

SVSMate — SUSTech VScode Mate

- Tired of **opening browser - logging into BlackBoard - waiting - open course site - navigating through multiple categories - clicking the file - saving it locally - open Explorer - moving to your working directory**?

- Always **forget to submit** before DDL?

- Feeling overwhelmed by **files and tasks management**?

- Feeling **disconnected with AI tools** and daily workload?
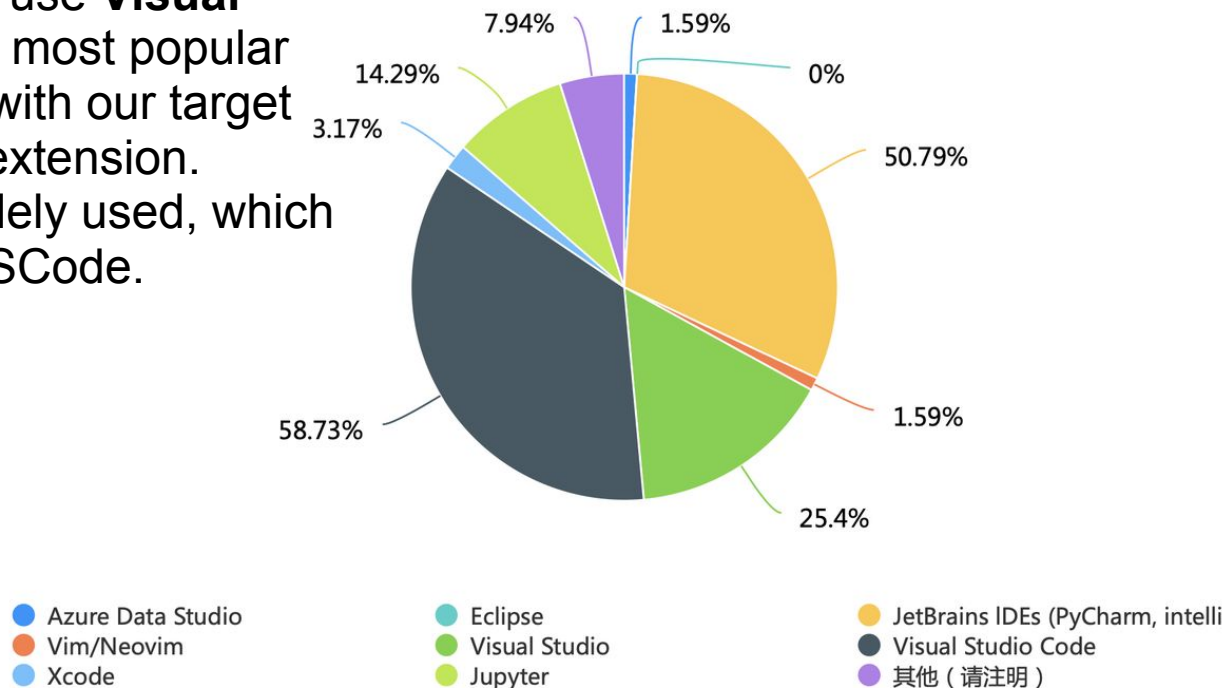
Survey — Preface

Before developing our VSCode extension, we created a questionnaire and invited potential users to fill it out to collect user stories and determine their needs. Through data analysis, we can better understand user expectations and optimize the extension's functionality to enhance the user experience.

Questionnaire—Respondent Demographics
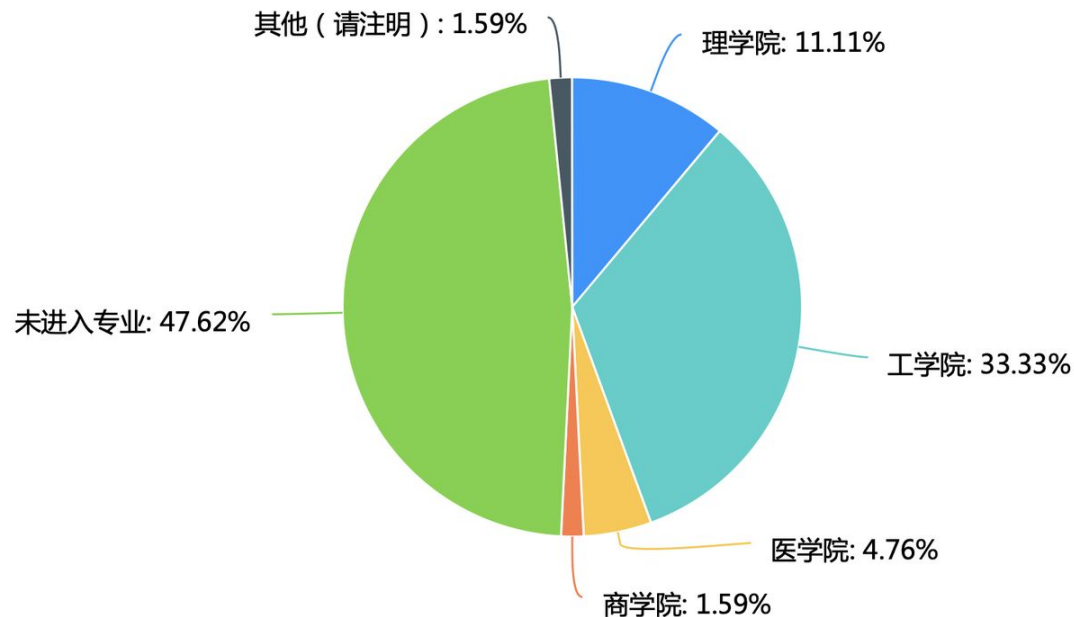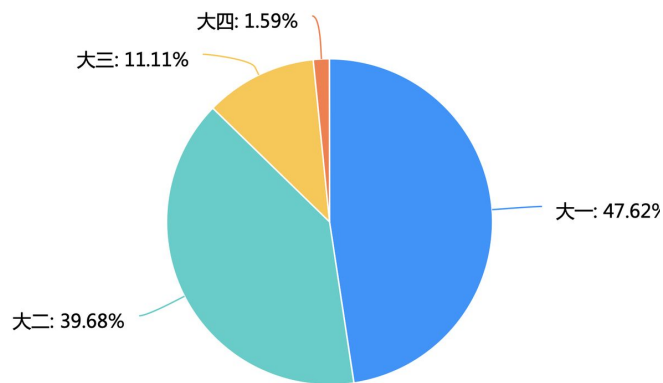
Questionnaire—Current Tools Usage

Nearly **51%** of respondents use **Visual Studio Code**, making it the most popular development tool, aligning with our target user base for the VSCode extension. **Jupyter (25.4%)** is also widely used, which can also be integrated in VSCode.

Pie chart labels: 7.94%, 1.59%, 14.29%, 0%, 3.17%, 50.79%, 58.73%, 1.59%, 25.4%

Legend:
- Azure Data Studio
- Vim/Neovim
- Xcode
- Eclipse
- Visual Studio
- Jupyter
- JetBrains IDEs (PyCharm, intelli...
- Visual Studio Code
- 其他（请注明）

Questionnaire—User Pain Points Analysis

The survey respondents are primarily **freshmen and sophomores (85%+)**, with most majoring in **engineering or undeclared (80%+)**, indicating that the plugin's main users are **beginner programmers, especially engineering students**.

1.59%
44.44%
49.21%
28.57%
60.32%
46.03%
53.97%
33.33%
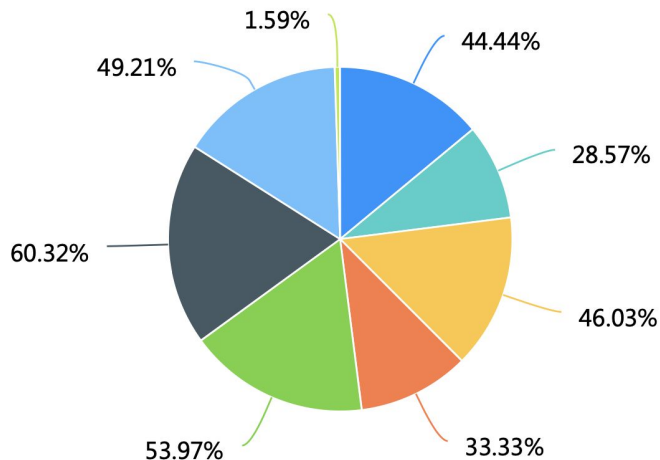
- 🔵 课程资料管理混乱（找不到课件、作业要求、代码示例等）
- 🟢 任务/作业进度难以追踪（容易错过DDL，不清楚任务完成情况）
- 🟡 代码协作不便（多人合作时难以同步代码、沟通成本高）
- 🟠 代码版本管理困难（代码修改后难以恢复之前版本，缺少历史记录）
- 🟢 代码质量不佳（希望获得代码优化建议，避免低效/冗余代码）
- ⚫ AI 编程辅助不足（希望有 AI 解释代码、自动修复错误、代码补全等功能）
- 🔵 学习计划 & 任务管理混乱（没有明确的学习路径，难以管理学习目标）
- 🟢 其他（请注明）

Questionnaire—Expected Functionality

Questionnaire—Conclusion

1. **The primary target users are beginner programmers, especially freshmen and sophomores in engineering disciplines.**
2. **Visual Studio Code is the most commonly used development tool, so the VocCode plugin should prioritize VS Code compatibility.**
3. **Users are most concerned about AI-assisted programming (e.g., code optimization, error detection).**
4. **Task management and progress tracking are essential needs, so the plugin should offer task planning and deadline tracking features.**
5. **Code execution, quality analysis, and testing functionalities are highly demanded and should be prioritized.**

Proposal—Functional Requirements

Our extension has five distinct **features** addressing the pain points:

- Course Materials Pipeline Management

- Progress & Task Tracking

- AI Integration

- Collaboration Tools

- Note Taking

Plan for the first sprint

In this sprint, our primary objective is to develop the API components for **Course Materials Management, Progress Tracking & Task Management, and AI Integration**.

This includes enabling seamless synchronization of course data from BlackBoard, providing an API for deadline tracking and task management, and integrating AI-powered assistance for code generation, automated summaries, and material reorganization. By the end of this sprint, we aim to have fully functional backend services that ensure efficient data handling, user-friendly frontend task tracking, and AI-enhanced learning support.

Github Scrum Board

Tasks Assigned

- Project Manager: Linhan He

- Frontend: Kaitong Qin & Yutong Wu

- Backend: Langchu Huang & JunLing Tu