ALGO-MATE

A Design Pattern Insertion Extension for Visual Studio Code

PROBLEM

- A “Software Design Pattern” is a general, reusable solution to a commonly occurring problem
- Hard to find helpful information on
- Many programmers never learned them
- Easy to find misinformation and distractions online.

WHAT IS ALGO-MATE? - METHODOLOGY

- Algo-Mate is an extension for VS Code which allows users to quickly search for, and insert commonly used design patterns into their code without leaving their IDE.
- The chosen design pattern is added to the file in the proper language based on file extension
- Algo-Mate then assists the user to quickly fill in variable names or insert values into the algorithm through helpful comments and variable grouping.
- If the user needs more information on a design pattern, they can follow our built in help menu to a reputable website.

WHY ALGO-MATE?

- Design pattern snippets across multiple programming languages is a novel idea.
- Algo-Mate is helpful for users who are attempting to implement common design patterns into their code.
- Reduces the need for finding forum-based coding solutions or design pattern documentation, which can quickly draw the user's attention off of their current project.

FEATURES

- Four design patterns implemented in four different languages
- Auto-completion of design patterns for VS Code using JSON snippets
- Navigation to design pattern documentation via UI component
- Generate build data via UI component

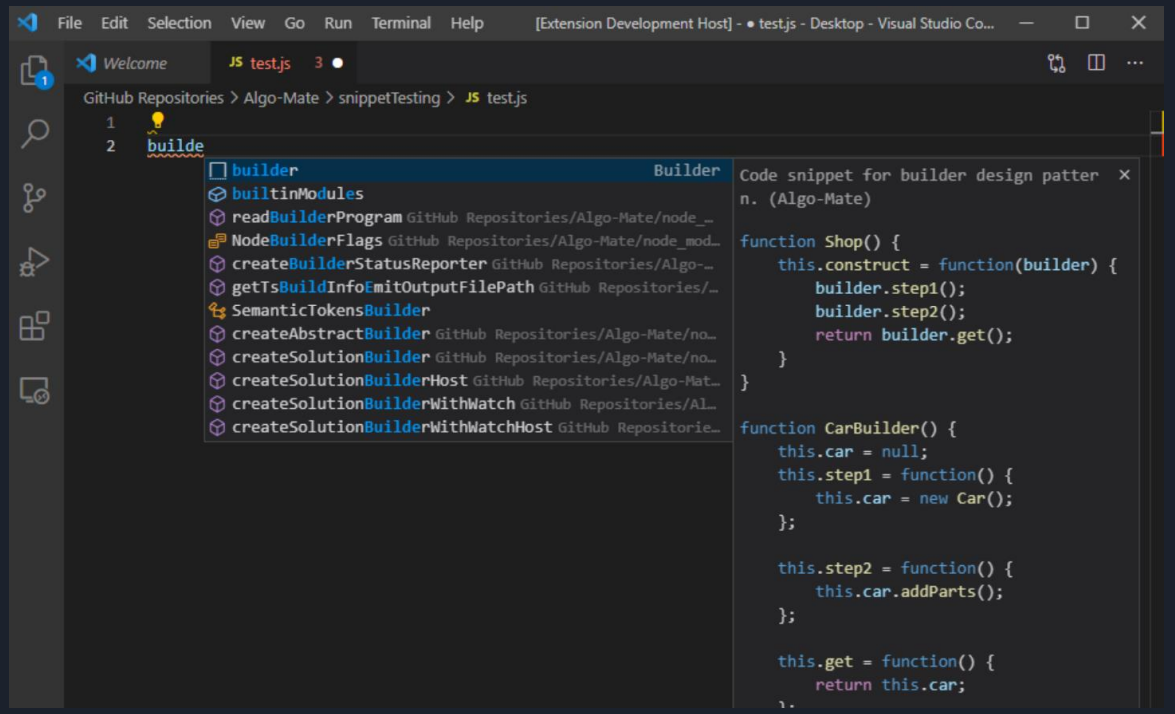
TOOLS & TECHNOLOGY

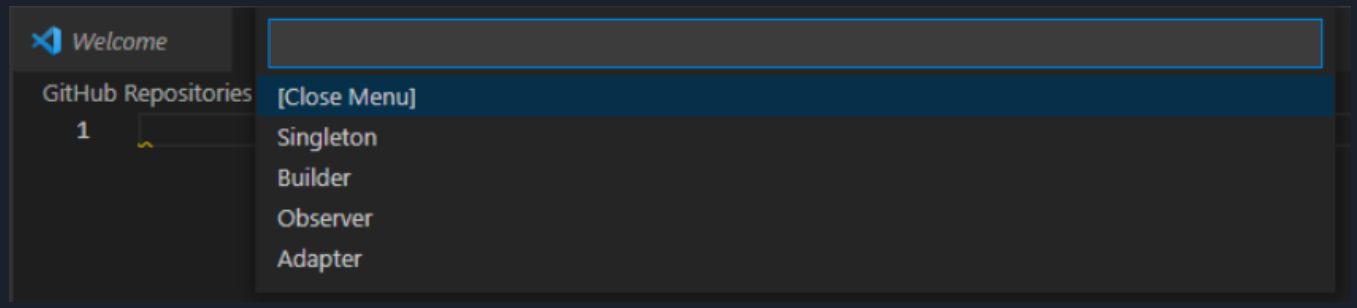
- VS Code and VS Code Extension API
- JSON files include:
  - cpp.json
  - java.json
  - javascript.json
  - python.json
- Travis CI
- Git/GitHub
- NPM
- NumPy, Pandas, and Matplotlib modules for Python

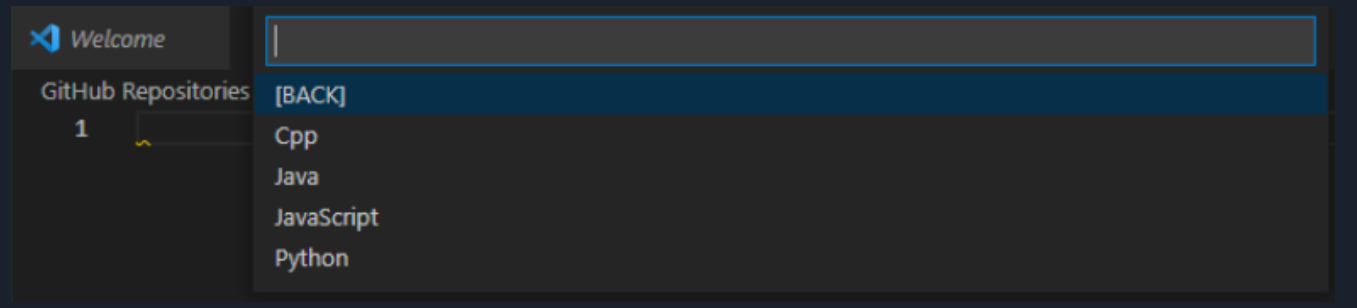
The Design Patterns

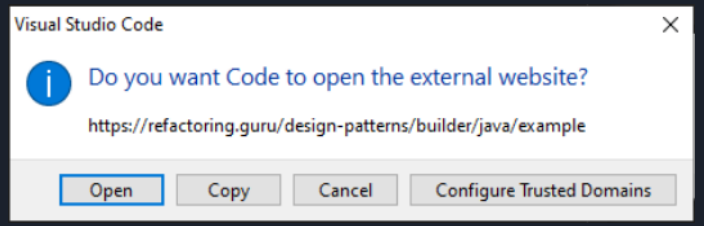
- Singleton
- Builder
- Adapter
- Observer

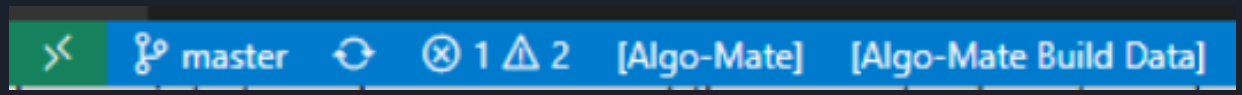
ALGO-MATE UI MOCKUP







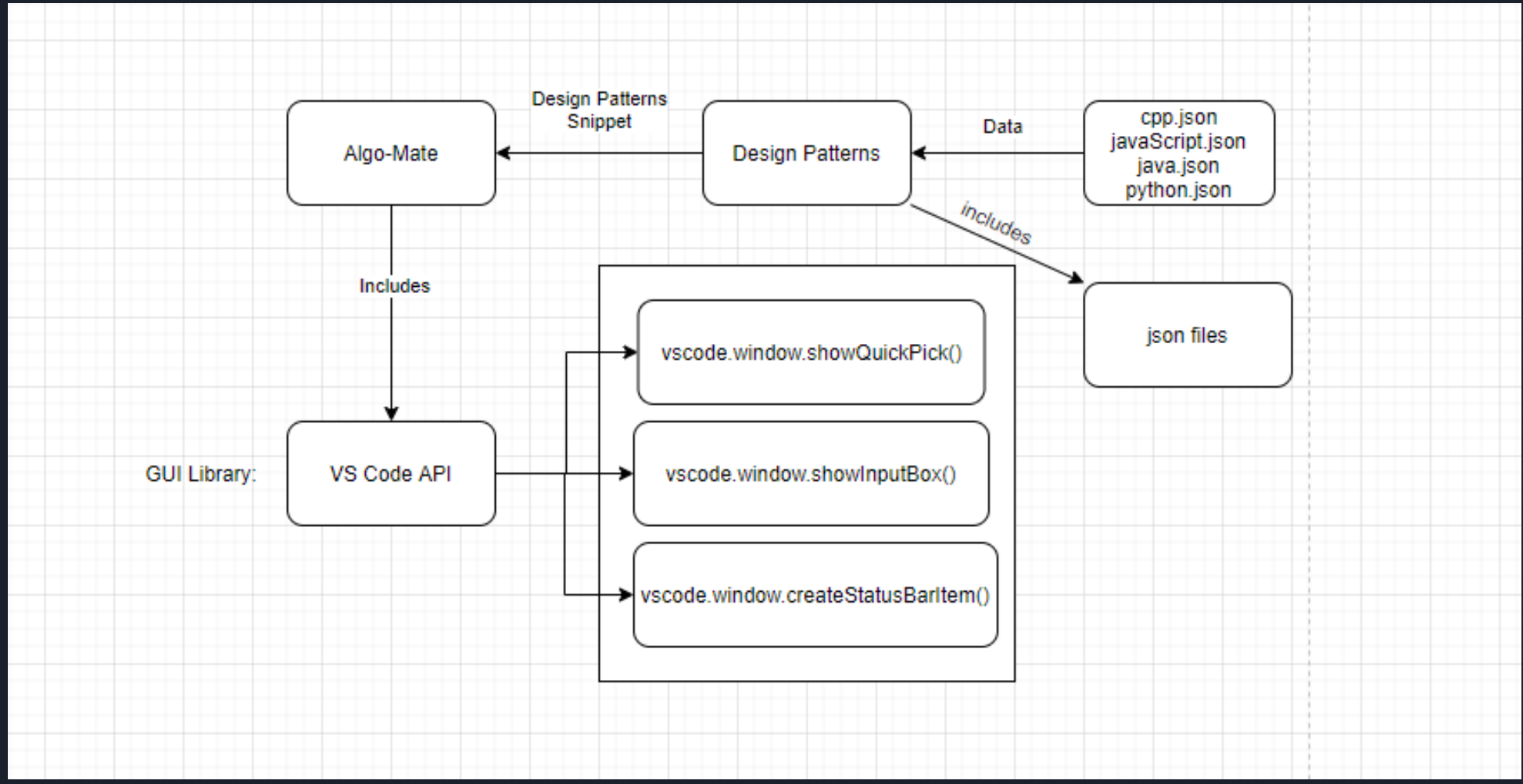




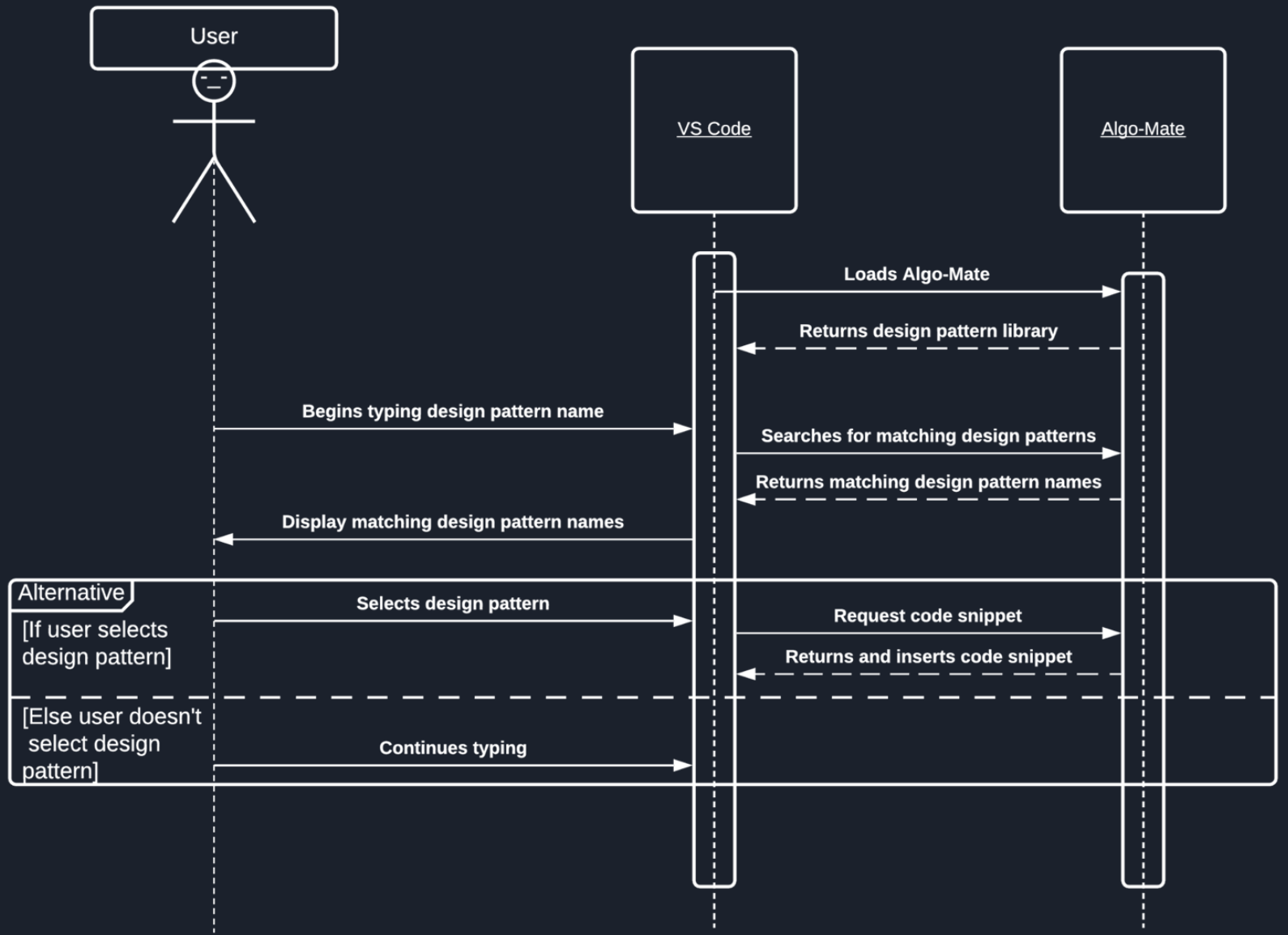
Design Pattern Auto-Completion

Graphical User Interface

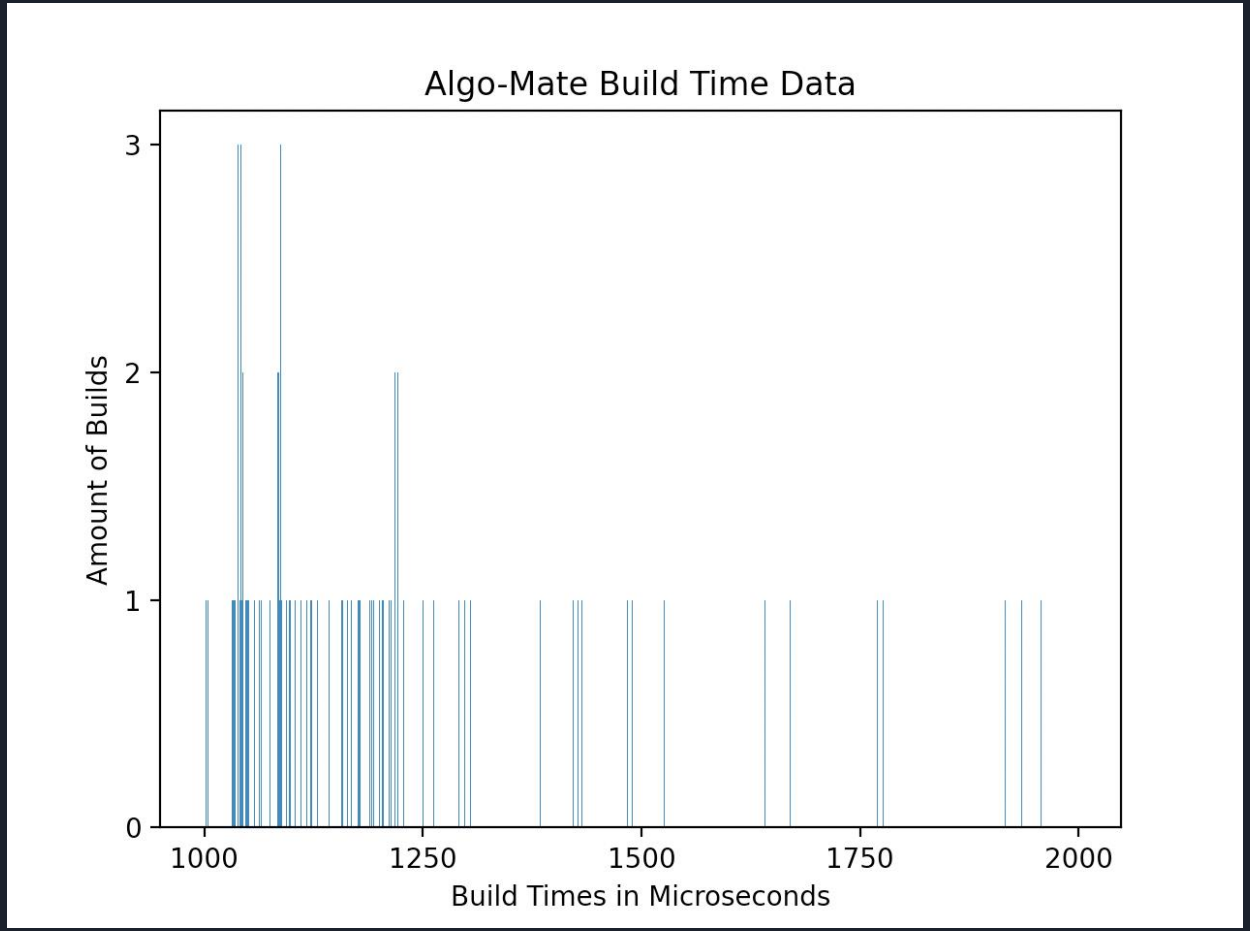
Architecture



User Interaction



RESULTS AND OBSTACLES



DEMONSTRATION

FUTURE WORK

- Add more languages such as C#, Ruby, Go, Swift
- Include more design patterns such as Factory, Prototype, Bridge, Facade, Mediator, and State
- Add more options within the UI
- Include separate design pattern completions with more complete demos/examples

QUESTIONS?