

Plan

Automatic Project Detection And Tooling For Devs

1 Full work breakdown

The work breakdown structure covers all the required functionality in the MVP through three milestones, each addressing core parts of the Model, Persistence, and View layers. It also contains tasks for unit testing to ensure that the program is safe to use.

Milestone 1 - Base Implementation (Due: 2024-11-10)

- Model Layer:
 - Implement base classes: Argument that represents an argument of a script, ArgumentVisitor that collects the arguments, FileInfo that contains all the data about a script.
 - Implement must-have functionalities in the Model class: program finding, program running, IO operations.
- Persistence Layer:
 - Implement IDataAccess interface and DataAccess class to be able to save and load configuration data.
- Testing:
 - Define and implement unit tests for all classes and functions in Model and Persistence layers.

Milestone 2 - View Implementation (Due: 2024-11-30)

- View Layer:
 - Implement all the widgets that are needed for each screen: text labels, buttons, combo boxes.
 - Implement all required screens to create the UI: RunnerScreen to be able to run the scripts, RunnableConfigScreen to be able to configure the scripts, ShowRunnablesScreen to be able to list all the scripts.
- Core Execution:
 - Implement main.py to integrate all screens and core functionality.

Milestone 3 - Enhanced Functionality and Testing (Due: 2024-12-14)

- Model and View Layers:
 - Implement search functionality in both Model and View.
 - Implement filtering for main runnables.
- Testing:
 - Develop a comprehensive runner for all test cases.

2 Tasks

We defined the tasks to be easy to understand and small enough to be done within a few days. The tasks must meet some criteria before getting accepted and merged into the solution:

- Unit tests must be written and passed for each new class/function.
- UI components must be validated for usability and performance.
- Core integrations should function without errors.
- Each class, interface, function etc. must have a Python docstring documentation.

The full task list is given in Task assignment (section 4).

3 Structure of tasks

Tasks are structured to reflect dependencies and flow between components:

- Milestone 1 tasks are foundational for Model and Persistence layers.
- Milestone 2 builds upon Milestone 1, focusing on the View layer.
- Milestone 3 completes advanced features and ensures all functionality is tested.

4 Task assignment

The following table shows task assignments for each developer to ensure accountability.

4.1 Milestone 1

Task	Developer	Due Date
Implement Argument class in Model layer	Zsófia Laczkó	2024-11-10
Implement ArgumentVisitor class in Model layer	Benedek Csüllög	2024-11-10
Implement FileInfo class in Model layer	Borbála Merth	2024-11-10
Implement Model class's program finding and executable runner functions in Model layer	Zsófia Laczkó	2024-11-10
Implement Model class's IO operations in Model layer	Márton Petes	2024-11-10
Implement IDataAccess interface in Persistence layer	Dániel Gergely	2024-11-10
Implement DataAccess class inheriting IDataAccess in Persistence layer	Dániel Gergely	2024-11-10
Define unit tests for Argument class in Tests layer	Borbála Merth	2024-11-10
Define unit tests for ArgumentVisitor class in Tests layer	Benedek Csüllög	2024-11-10
Define unit tests for FileInfo class in Tests layer	Borbála Merth	2024-11-10
Define unit tests for Model class in Tests layer	Márton Petes	2024-11-10
Define unit tests for DataAccess class in Tests layer	Dániel Gergely	2024-11-10

Table 2: Task assignments for milestone 1

4.2 Milestone 2

Implement initial widgets in View	Developer C	2024-11-30
Implement View screens (RunnerScreen, RunnableConfigScreen, ShowRunnablesScreen)	Developer A	2024-11-30
Implement main.py integration	Developer B	2024-11-30

Table 4: Task assignments for milestone 2

4.3 Milestone 3

Implement search functionality in Model and View	Developer A, Developer B	2024-12-14
Implement filtering for main runnables	Developer C	2024-12-14
Develop test runner	Developer B	2024-12-14

Table 6: Task assignments for milestone 3

5 Time management

The timeline aligns with each milestone’s due date, ensuring the project is completed on schedule:

- Milestone 1: Complete by 2024-11-10.
- Milestone 2: Complete by 2024-11-30.
- Milestone 3: Complete by 2024-12-14.
- Sufficient time is allocated for testing and integration after each milestone.

6 Architecture

6.1 Software components

The program is built on three main layers, each representing a namespace. These are:

- Model: handles the business logic. Finds runnables, and collects its details. Executes the runnables.
- Persistence: handles the IO operations. Saves and loads user preferences and other information that is needed for better usability.
- View: stands for the user interface.

The following image shows the structure of the 3 layer, and all files in the layers.

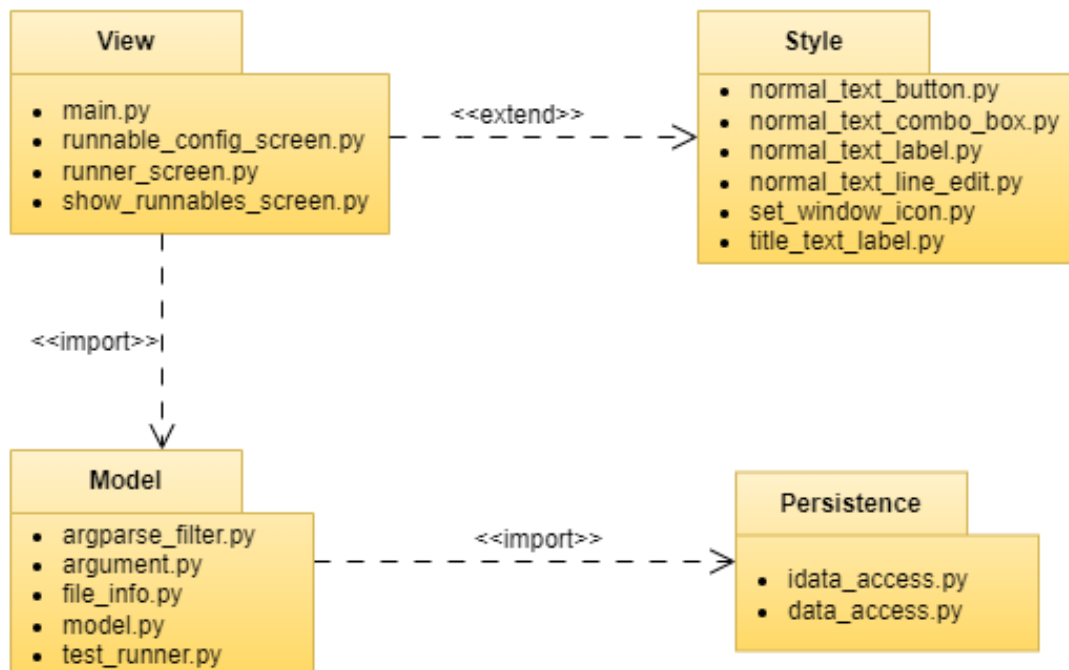


Figure 1: UML package diagram

The UML class diagram of Model and Persistence layers shows the structure of each object and the relations between them.

The UML class diagram of View layer shows the structure of each object and the relations between them.

The View has 3 screens.

- The first one shows all the executables. An executable can be reached with a button. Every executable can be pinned as favourite. The screen also contains a search bar and a clear history button.

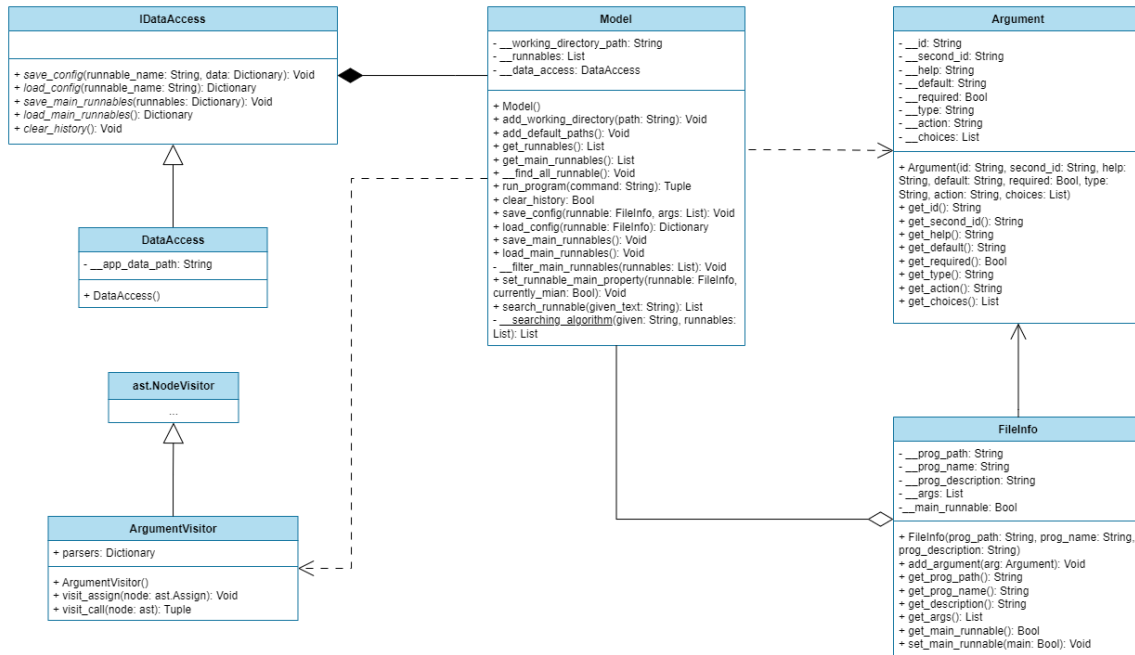


Figure 2: UML class diagram of Model and Persistence layers

- The second screen shows an executable all information. Lists all the arguments and offers an opportunity to give a value to it. The user can also run the program here.
- The third and last screen shows the output messages, logs or errors for the user, after a program execution.

The screens' wire frame plan can be seen below.

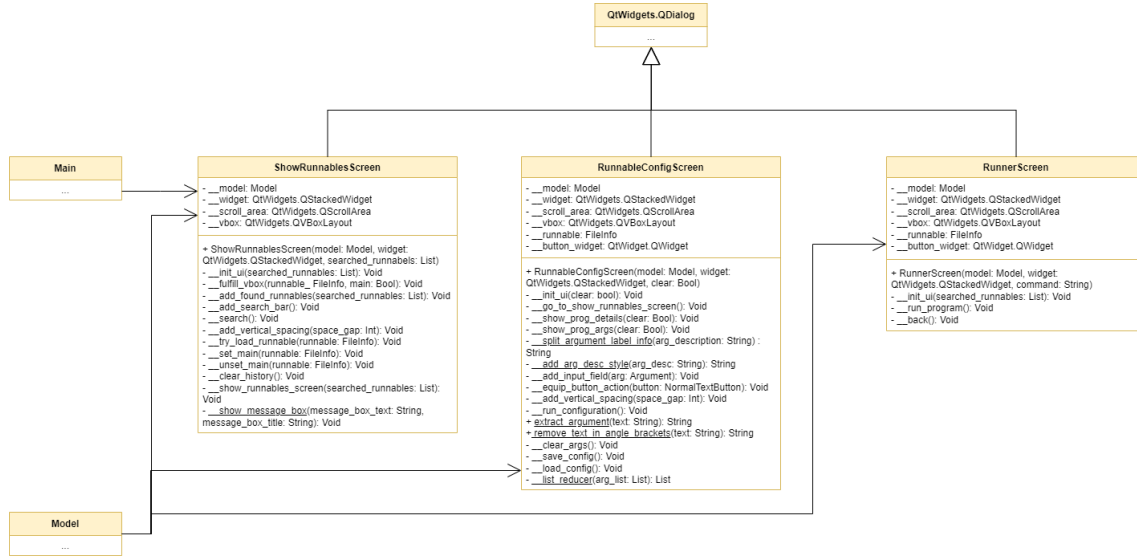


Figure 3: UML class diagram of View layer

6.2 Software installation

To install the software, follow these steps:

1. Clone the repository: `git clone <repo_url>`.
2. Install dependencies: Run `npm install` (for Node.js environment) or `pip install -r requirements.txt` (for Python).
3. Start the application: `npm start` or `python app.py`.

6.3 Software requirements

The following tools and environments are required:

- Operating System: Windows/Linux/MacOS
- Programming Language: Node.js or Python (v3.8+)
- Additional dependencies: Docker, PostgreSQL (if applicable)
- Disk space: At least 500MB of free space
- RAM: 4GB minimum (recommended 8GB for better performance)

ShowRunnablesScreen

Clear history	
input line edit	<input type="button" value="Search"/> <input type="button" value="Clear search"/>
<div>Favourite runnables</div>	<div>Undo pin</div>
<div>Runnables</div>	<div>Pin as favourite</div>

RunnableConfigScreen

Program full path Program name Program description	
Argument details	
Argument:	input line edit
Argument details	
Equip button	
Argument details	
Argument:	choices
Clear history	
Run	
Back	

RunnerScreen

Back
Command
8
Logs and error messages