

Smart Task Scheduler with Priority Queues

Project Overview

Project Title: Smart Task Scheduler with Priority Queues

Objective:

To build a task management application that uses a priority queue to sort tasks based on urgency. This JavaFX desktop project helps users manage and organize their tasks efficiently with a simple graphical interface.

Technologies Used

- Programming Language: Java 17
- GUI Framework: JavaFX
- Build Tool: Manual / CLI
- IDE: Eclipse 2025 or IntelliJ IDEA
- Version Control: Git & GitHub

Tools Used

- Java Development Kit (JDK 11 or later)
- JavaFX SDK
- Eclipse IDE or IntelliJ IDEA
- Git Bash / Command Line

Package Structure

- Main.java: Launches the JavaFX application
- Task.java: Model class for representing task data
- TaskStorage.java: Stores tasks using a PriorityQueue
- TaskSchedulerUI.java: Builds the user interface

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- TaskController.java: Manages UI logic and task handling

Features & Setup Guide

Key Features:

- Add and view tasks using a graphical interface
- Prioritize tasks using Java's PriorityQueue
- Simple, extendable JavaFX UI structure
- In-memory task management logic

How to Run:

1. Ensure Java 11+ and JavaFX SDK are installed.
2. Compile the files using the following command:

```
javac --module-path /path/to/javafx-sdk/lib --add-modules javafx.controls *.java
```

3. Run the application:

```
java --module-path /path/to/javafx-sdk/lib --add-modules javafx.controls Main
```

4. You can also run the project via Eclipse or IntelliJ by setting the VM options for JavaFX.

Conclusion

This project serves as a beginner-to-intermediate level Java GUI application using object-oriented design principles. It demonstrates how to integrate GUI components with logical task management. The codebase is modular and can be expanded with file-based storage, reminders, and calendar views.