

Marvellous Study Tracker App

Project Title

Marvellous Study Tracker App

Objective of the Project

Marvellous Study Tracker is a simple desktop application built with Java Swing for logging and tracking study sessions. It provides a structured way to maintain a study record, view summaries by date or subject, and export logs to a CSV file for future reference..

Features

- **Add Study Logs:** Users can easily add new study sessions with details like subject, duration (in hours), and a description.
- **Display All Logs:** The application allows users to view a complete list of all recorded study sessions in a separate window.
- **Reports:** It can generate two types of summary reports: total study hours per day and total study hours per subject.
- **Export to CSV:** All study log data can be saved to a CSV file for external analysis or backup.
- **User-Friendly Menu:** Simple console-based interface for easy navigation.

Technologies Used

- **Java:** The core programming language.
- **Swing:** A Java Foundation Class library used for building the graphical user interface (GUI).
- **java.time.LocalDate:** Used for handling dates of the study logs.
- **Collections Framework:** The application utilizes ArrayList and TreeMap for data storage and retrieval.
- **java.io.*:** Used for file operations, specifically for the CSV export functionality.

Project Flow

1. **Start Application:** The user runs the MarvellousStudyTracker application, which displays the main window.
2. **Add Study Log:** The user clicks the "Add Study Log" button, enters the subject, duration, and description in a pop-up dialog, and the current date is automatically captured.
3. **Display All Logs:** The user can click the "Display All Logs" button to open a new window showing a table of all recorded logs.
4. **Generate Reports:** Clicking the "Reports" button opens a new window with two tables: one summarizing total hours by date and another summarizing total hours by subject.

5. **Export to CSV:** The "Export to CSV" button prompts the user to choose a save location and filename for the exported data.

Classes and Their Purpose

A) Class: StudyLog

- Represents a **single study session** record.
- **Attributes:**
 - LocalDate Date → Date of study log (auto-generated).
 - String Subject → Subject studied.
 - double Duration → Duration of study in hours.
 - String Description → Brief note about what was studied.
- **Methods:**
 - Constructor → Initializes a study log.
 - Getters → getDate(), getSubject(), getDuration(), getDescription().
 - toString() → Converts study log to a readable string format.

B) Class: StudyTracker

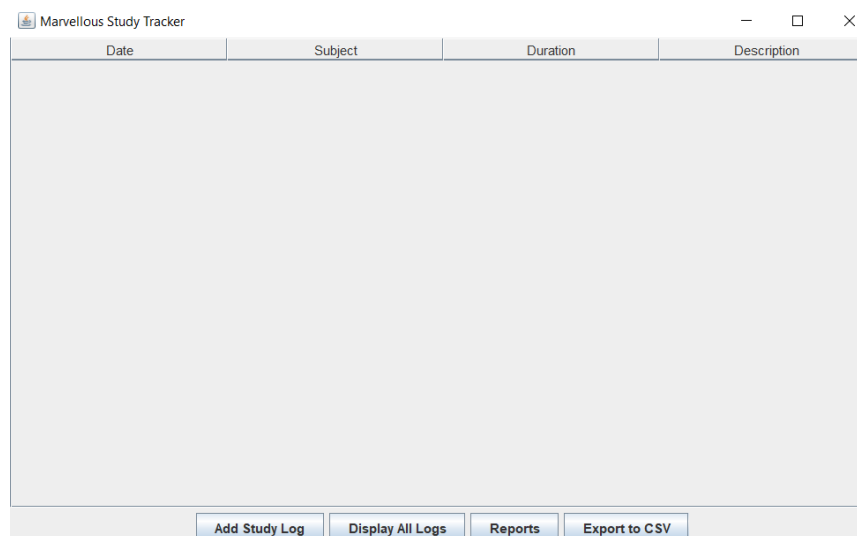
- Manages all **study logs** in memory.
- **Attributes:**
 - ArrayList<StudyLog> Database → Stores all study logs dynamically.
- **Methods:**
 - InsertLog() → Adds a new log to the database.
 - getLogs() → Shows all logs.
 - ExportCSV() → Exports all logs to a CSV file.
 - SummaryByDate() → Displays total hours grouped by date.
 - SummaryBySubject() → Displays total hours grouped by subject.

C) Class: MarvellousStudyTracker

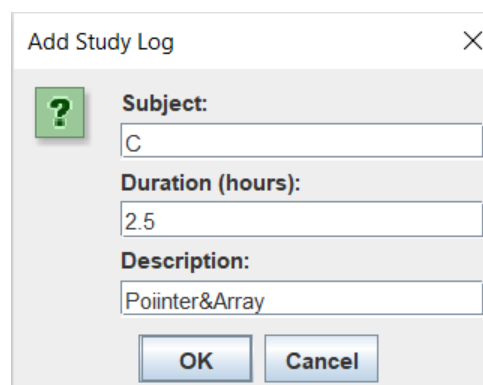
- This is the main class that **extends JFrame and contains the GUI logic**.
- **Methods:**
 - Constructor: Sets up the main window, including the table, buttons, and event listeners.
 - main(String[] args): The entry point of the application, which creates an instance of MarvellousStudyTracker and makes it visible.

Example Output

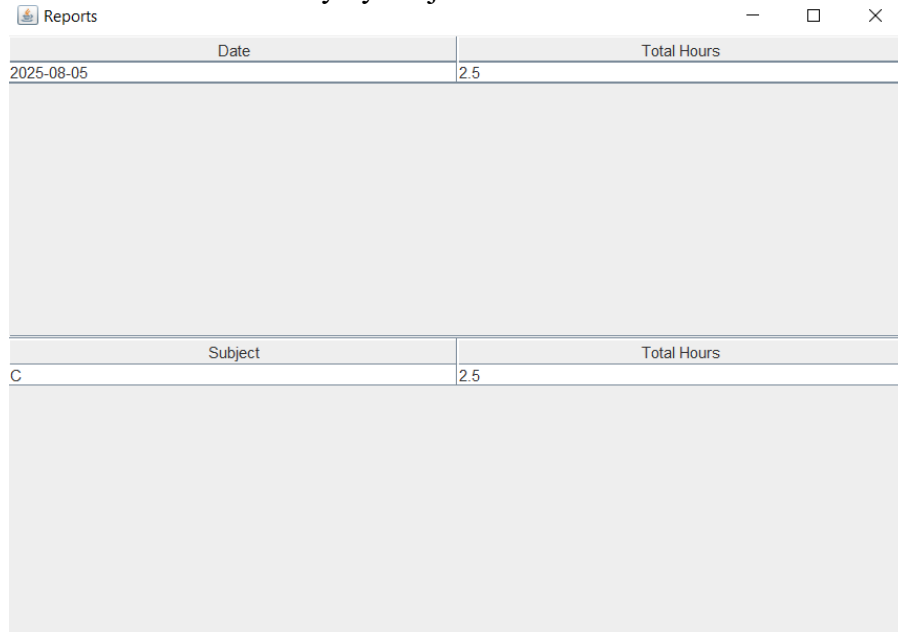
- **Main Application Window:** A JFrame containing a table to display logs and buttons for "Add Study Log", "Display All Logs", "Reports", and "Export to CSV".



- **Add Log Dialog:** After Clicking “Add Study Log Button” a JOptionPane pop-up requesting input for subject, duration, and description.



- **Reports Window:** After Clicking “Reports Button” a separate JFrame containing two tables, one for summary by date and one for summary by subject.



The Reports Window is a Java Swing JFrame titled "Reports". It contains two tables. The first table is titled "Date" and "Total Hours", showing a single row with the date "2025-08-05" and "2.5" hours. The second table is titled "Subject" and "Total Hours", showing a single row with the subject "C" and "2.5" hours.

Date	Total Hours
2025-08-05	2.5

Subject	Total Hours
C	2.5

- **Export CSV:** After Clicking “Export Csv Button” a JFileChooser dialog opens, allowing the user to choose a location and filename to save the CSV file. The application then exports the study log data to the selected file.

