

**University of Westminster**

Module: 4COSC006C Software Development 1

Module Lecture: Guganathan Poravi

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# Program Description

This Python program is a task management system that allows users to create, view, update, and delete tasks. Each task includes an ID, name, description, priority level, start date, and due date. The program ensures valid date entries and prevents past dates. Tasks are stored in a text file (tasks.txt), enabling persistence across sessions. The system provides a menu-driven interface for managing tasks efficiently. It also validates user input, ensuring only correct priority levels and numeric task IDs are entered. This lightweight task manager is ideal for simple task tracking without requiring external databases.

# Pseudo Code for Stage 1

BEGIN TaskManager

SET TaskList = Empty List

SET NextTaskID = 1

FUNCTION ValidateDate(DateInput)

TRY

CONVERT DateInput to Date (Format: "YYYY-MM-DD")

IF DateInput is before Today THEN

RETURN False

ELSE

RETURN True

IF Error THEN

RETURN False

FUNCTION AddTask()

PRINT "Enter task details:"

REPEAT

ASK "Enter task name:"

UNTIL TaskName is NOT empty

REPEAT

ASK "Enter task description:"

UNTIL TaskDescription is NOT empty

REPEAT

ASK "Enter priority (Low, Medium, High):"

UNTIL Priority is "Low" OR "Medium" OR "High"

REPEAT

ASK "Enter starting date (YYYY-MM-DD):"

UNTIL ValidateDate(StartDate) is True

REPEAT

ASK "Enter due date (YYYY-MM-DD):"

UNTIL ValidateDate(DueDate) is True

CREATE Task with TaskID, Name, Description, Priority, StartDate, DueDate

ADD Task to TaskList

INCREASE NextTaskID by 1

PRINT "Task added successfully!"

REPEAT

ASK "Do you want to add another task? (Yes or No)"

IF "Yes" THEN

CALL AddTask()

ELSE IF "No" THEN

RETURN

UNTIL Valid Input

FUNCTION ViewTasks()

IF TaskList is empty THEN

PRINT "No tasks available!"

ELSE

FOR EACH Task in TaskList

PRINT Task Details

FUNCTION UpdateTask()

CALL ViewTasks()

IF TaskList is empty THEN RETURN

REPEAT

ASK "Enter Task ID to update:"

UNTIL Task ID is found in TaskList

PRINT "Press Enter to skip any field."

ASK "Enter new name (or press Enter to keep the same):"

IF NewName is NOT empty THEN UPDATE Task Name

ASK "Enter new description (or press Enter to keep the same):"

IF NewDescription is NOT empty THEN UPDATE Task Description

REPEAT

ASK "Enter new priority (Low, Medium, High) or press Enter to skip:"

IF Input is Empty THEN BREAK

UNTIL Priority is "Low" OR "Medium" OR "High"

UPDATE Task Priority

REPEAT

ASK "Enter new starting date (YYYY-MM-DD) or press Enter to skip:"

IF Input is Empty THEN BREAK

UNTIL ValidateDate(StartDate) is True

UPDATE Task StartDate

REPEAT

ASK "Enter new due date (YYYY-MM-DD) or press Enter to skip:"

IF Input is Empty THEN BREAK

UNTIL ValidateDate(DueDate) is True

UPDATE Task DueDate

PRINT "Task updated successfully!"

FUNCTION DeleteTask()

CALL ViewTasks()

IF TaskList is empty THEN RETURN

REPEAT

ASK "Enter Task ID to delete:"

UNTIL Task ID is found in TaskList

REPEAT

ASK "Are you sure you want to delete this task? (Yes or No)"

IF "Yes" THEN

REMOVE Task from TaskList

PRINT "Task deleted successfully!"

RETURN

ELSE IF "No" THEN

PRINT "Task deletion canceled."

RETURN

UNTIL Valid Input

FUNCTION MainMenu()

WHILE True

PRINT "Task Manager Menu"

PRINT "1) Add Task"

PRINT "2) View Tasks"

PRINT "3) Update Task"

PRINT "4) Delete Task"

PRINT "5) Exit"

ASK "Enter your choice:"

IF Choice is "1" THEN CALL AddTask()

ELSE IF Choice is "2" THEN CALL ViewTasks()

ELSE IF Choice is "3" THEN CALL UpdateTask()

ELSE IF Choice is "4" THEN CALL DeleteTask()

ELSE IF Choice is "5" THEN

REPEAT

ASK "Are you sure you want to exit? (Yes or No)"

IF "Yes" THEN

PRINT "Goodbye!"

RETURN

ELSE IF "No" THEN

BREAK

UNTIL Valid Input

ELSE

PRINT "Invalid choice! Try again."

IF Running as Main Program THEN

CALL MainMenu()

END TaskManager

# Test Cases for Stage 2 with Expected vs Actual Output

## Test Case Table

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test Case | Input | Expected Output | Actual Output | Pass or fail |
| Case 1 – Add a task | Task name : Task 1  Task description : Studying  Task priority : High  Task due date : 2025-03-31 | Print “Task created successfully” and write the user inputs on the text file | Printed “Task created successfully” and user inputs were written on the text file | Pass |
| Case 2 – Same task name validation | Task name : Task 1 | Print “Task name already exists” | Prints “Task name already exists” | Pass |
| Case 3 – Invalid priority error handling | Task name : Task 2  Task Description : ICT EXAMS  Task Priority : hih | Print “Invalid priority. Please enter a valid priority (high/medium/low)" | Prints “Invalid priority. Please enter a valid priority (high/medium/low)" | Pass |
| Case 4 – View a task | Task name : Task 1 | Print “Task found  Task name : Task 1  Task description : Studying  Task priority : High  Task due date : 2025-03-31 “ | Prints “Task found  Task name : Task 1  Task description : Studying  Task priority : High  Task due date : 2025-03-31 “ | Pass |
| Case 5 – Invalid task name | Task name : Task 3 | Print “Task not found” | Prints “Task not found” | Pass |
| Case 6 – Task update field skip | (pressed enter to skip update field) | Print the pervious data without overwriting | Print the pervious data without overwriting | Pass |
| Case 7 – Delete a task | Task name to delete : Task 1 | Delete the relevant task | Deletes the relevant task | Pass |
| Case 8 – Invalid task name | Task name : Task 3 | Print “Task not found” | Prints “Task not found” | Pass |
| Case 9 – Invalid input in main menu | Choice : a | Print “Invalid input. Please enter a valid number ” | Prints “Invalid input. Please enter a valid number ” | Pass |
| Case 10 – Invalid input when the program requests the user to continue to add, view, update and delete tasks. | Common input : n | Print “"Invalid input. Please enter a valid response (yes/no)” | Prints “"Invalid input. Please enter a valid response (yes/no)” |  |
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## Test case figures

Main menu

A screenshot of a computer

AI-generated content may be incorrect.

Create a task

A computer program code with blue text

AI-generated content may be incorrect.

A screenshot of a computer

AI-generated content may be incorrect.

Same name Validation

A close-up of a white background

AI-generated content may be incorrect.

Wrong priority error input

A screenshot of a computer

AI-generated content may be incorrect.

VIEW TASKS

Task name

A screenshot of a computer program

AI-generated content may be incorrect.

Wrong task name

A screenshot of a computer

AI-generated content may be incorrect.

UPDATE TASK

A screenshot of a computer program

AI-generated content may be incorrect.

A screenshot of a computer

AI-generated content may be incorrect.

DELETE TASK

A screenshot of a computer program

AI-generated content may be incorrect.

A screenshot of a computer

AI-generated content may be incorrect.

Task not found

A screenshot of a computer screen

AI-generated content may be incorrect.

Other Cases

Invalid input on main menu

A screenshot of a computer program

AI-generated content may be incorrect.

Add task

Blue text on a white background

AI-generated content may be incorrect.

Update task

A close-up of words

AI-generated content may be incorrect.

Read task

A close-up of blue text

AI-generated content may be incorrect.

Delete task

A screenshot of a computer

AI-generated content may be incorrect.