CS3560 Homework 3

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What is PSS?

PSS is a tool that will assist the user to schedule his/her activities. It will take various "tasks" as input and schedule them according to the user's needs. Typical tasks would be attending class, studying, working on assignment, and so on. Typical outputs will be daily, weekly, or monthly schedules. PSS also has commands for storing the list of tasks to a data file, or to read those tasks from a data file.

The user will interact with the PSS to enter a new task to the system. There are different types of tasks (see below), but each task will have a start time and a duration. The times and durations should be rounded to the nearest 15 minutes. If the user attempts to create a task that overlaps an existing task, PSS will report the overlap and will not create the new task.

Some of the tasks are recurring tasks. These tasks occur on a repeating basis, from a particular start date to a given end date. For example, one task might be for one hour and 15 minutes, every Tuesday evening at 7:00 p.m., from January 28th to May 5th. Recurring tasks can be further subdivided into Course, Study, Sleep, Exercise, Work, and Meal. Your group can suggest other types of recurring tasks.

Another type of task is a transient task, which only occurs one time. Transient tasks can be further subdivided into Visit, Shopping, and Appointment. You may also add other types of recurring tasks.

A third type of task is an anti-task, which cancels out one particular occurence of a recurring task. For example, an anti-task might be set for February 25th, for an hour and 15 minutes starting at 7:00 p.m. This task would need to refer to the recurring task. Note that if an anti-task removes one instance of a recurring task, then a transient task could be scheduled at that same time.

1. **CRC design**:

User	
id name userFilename getFilename() setFilename()	PSS

Task	
taskName type startDate startTime durationOfTask date checkRestrictions()	Calendar PSS Subclass: Recurring Task Subclass: Transient Task Subclass: Anti-Task

Recurring Task	
name type startDate startTime duration endDate frequencyOfTask checkExtraRestrictions()	Superclass: Task Anti-Task

Transient Task	
name type date startTime duration checkExtraRestrictions()	Superclass: Task Anti-Task

Anti-Task	
name type date startTime duration checkExtraRestrictions()	Recurring Task Transient Task

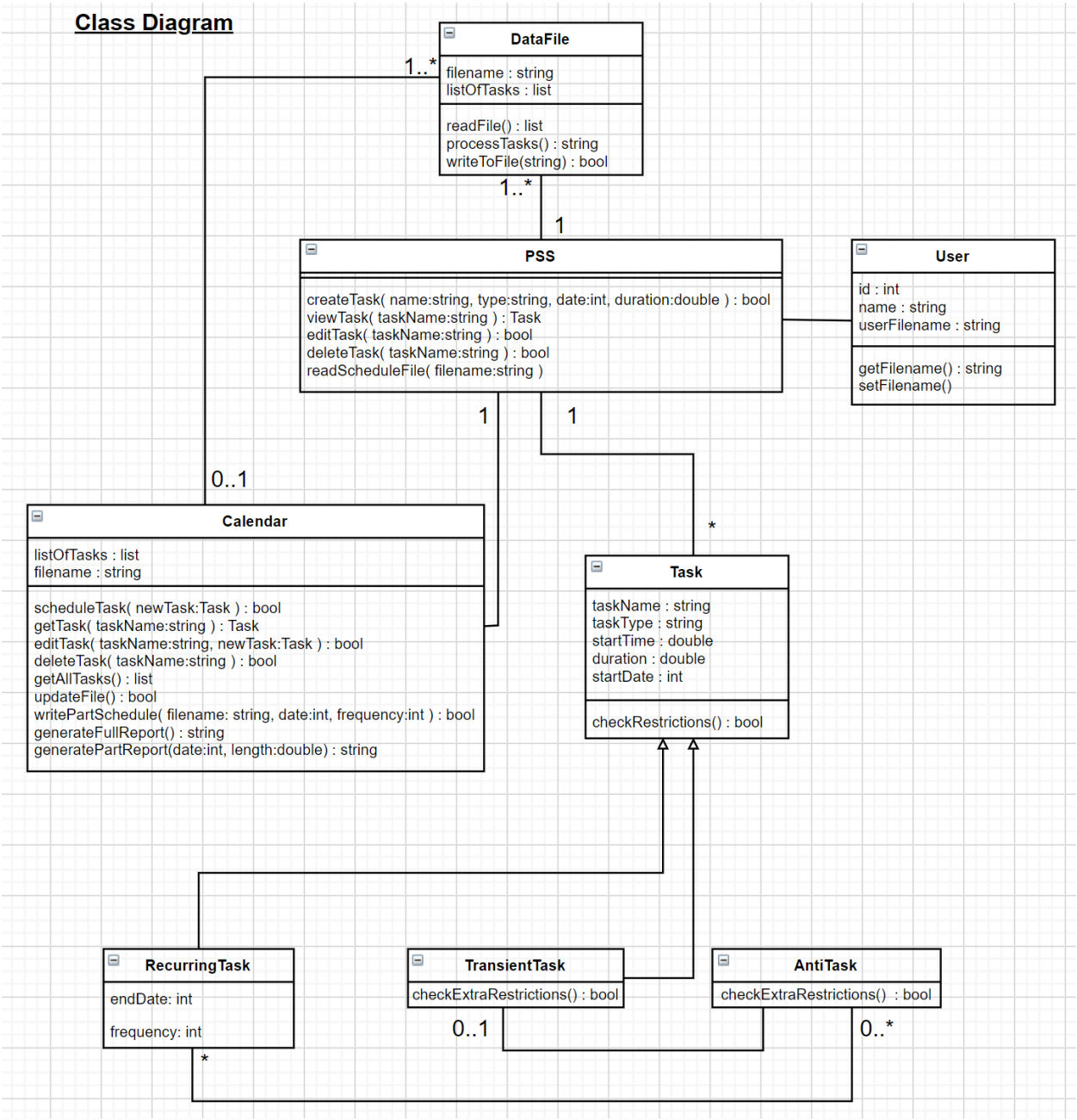
Data File	
filename listOfTasks readFile() processTasks() writeToFile(jsonifiedTasks)	PSS Calendar

PSS	
createTask(taskName, taskType, startDate, duration) viewTask(taskName) editTask(taskName) deleteTask(taskName) readScheduleFile(filename)	User Task Calendar Data File

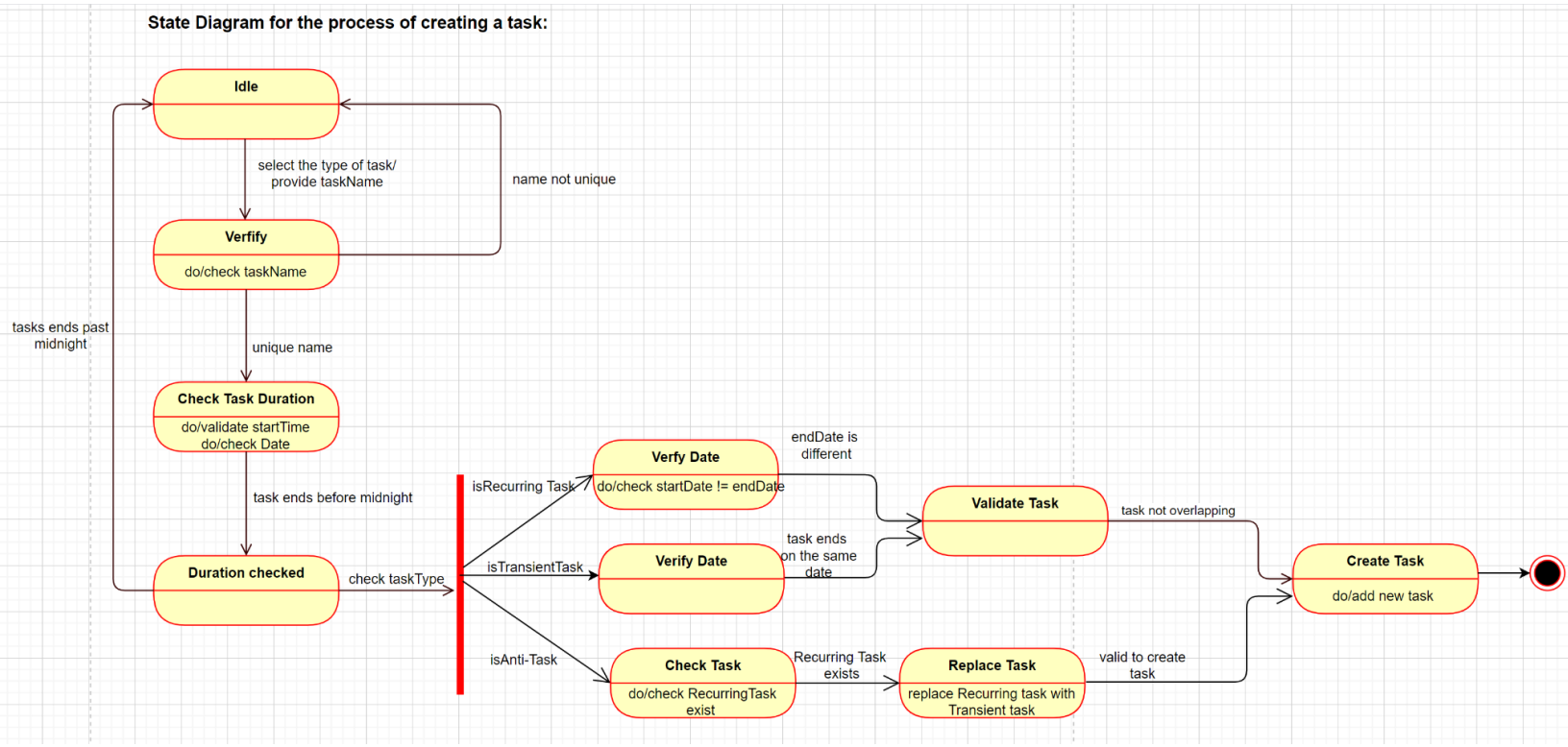
Calendar	
listOfTasks filename scheduleTask(newTask) checkTaskName(taskName) getTask(taskName) editTask(taskName, newTask) deleteTask(taskName) getAllTasks() updateFile() writePartSchedule(filename, startDate, frequency) generateFullReport() generatePartReport(startDate, length)	PSS Task Data File

Report	
listOfTasks generateSchedule() generatePartSchedule(startDate, length)	Calendar

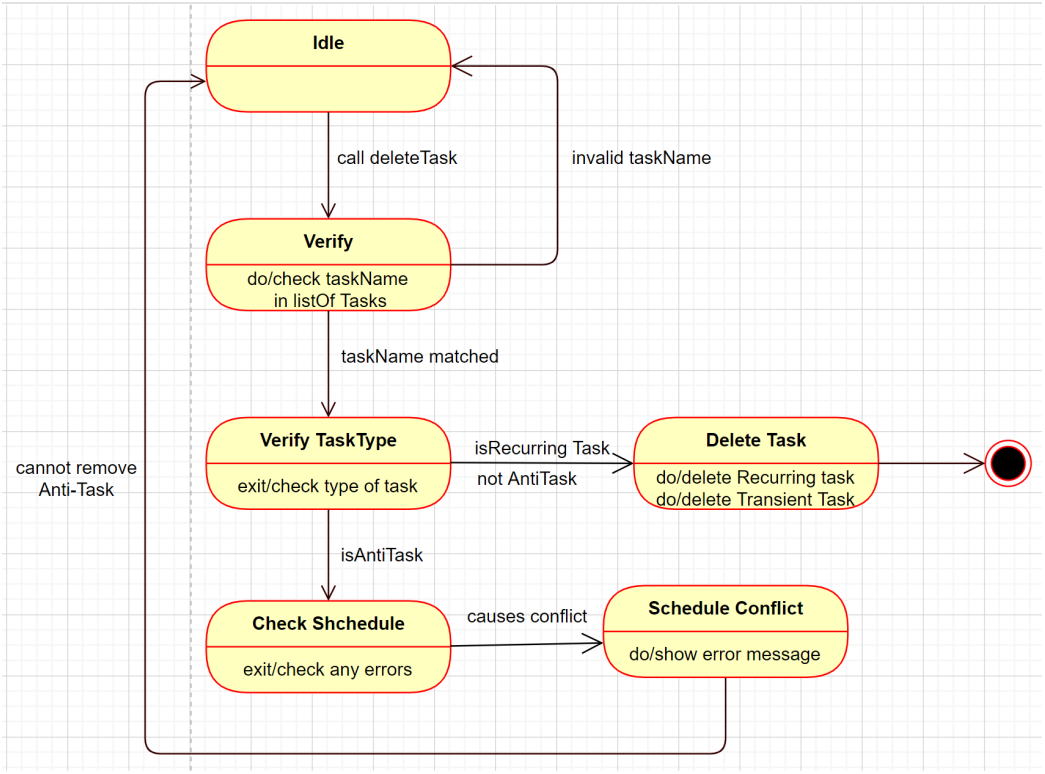
2. Class Diagram:



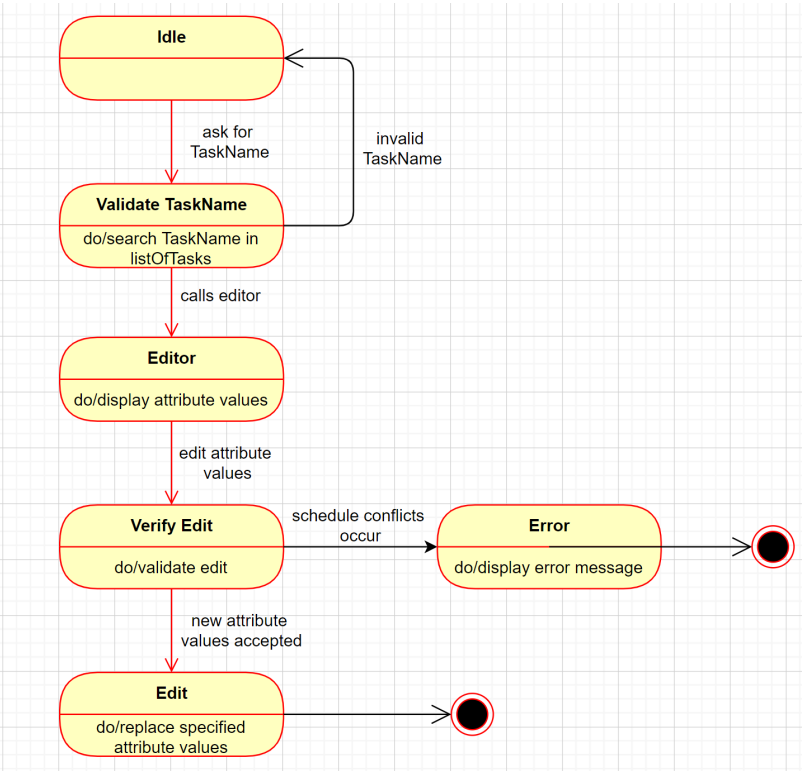
3. State Diagrams:



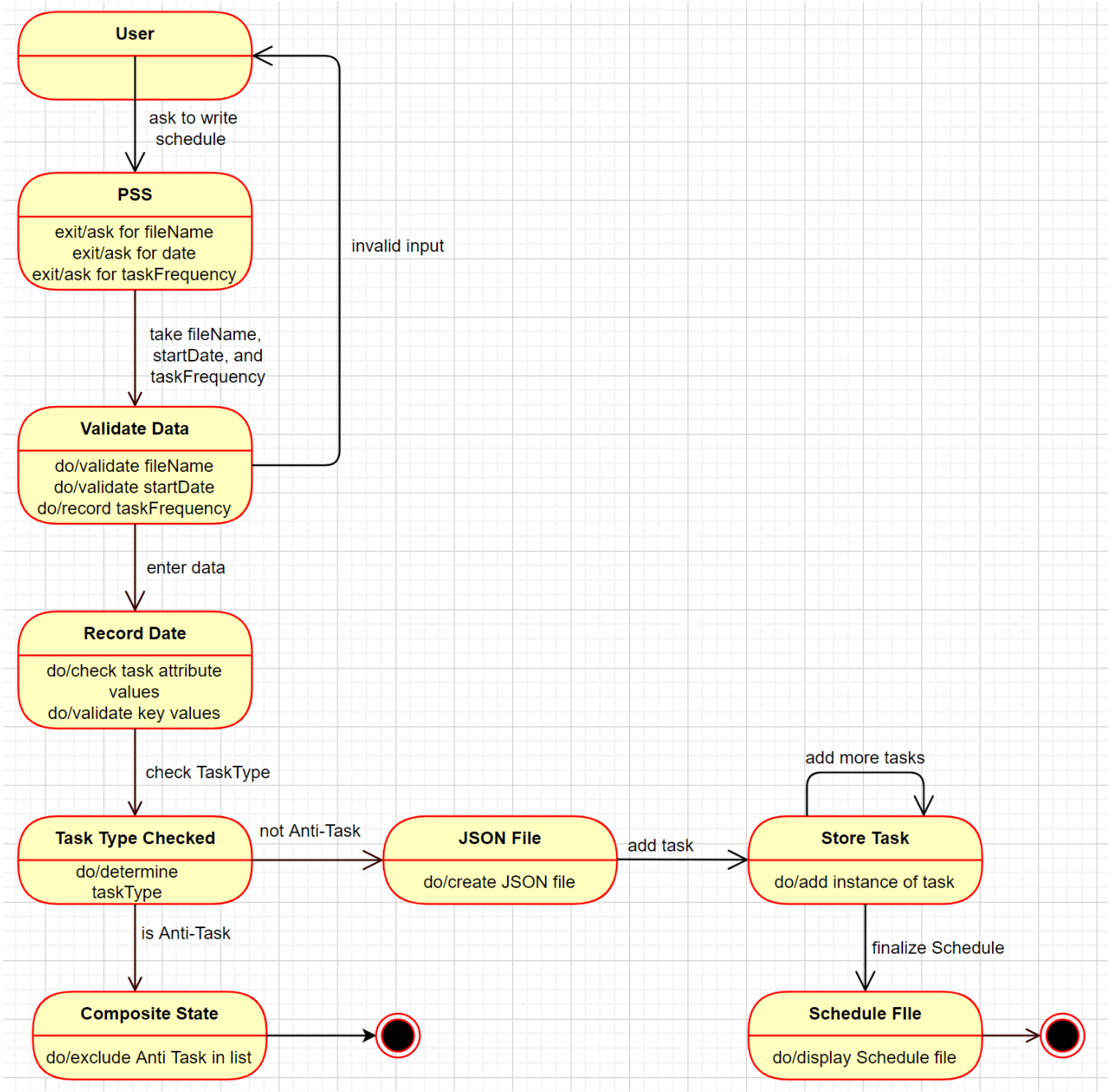
State Diagram for deleting a task:



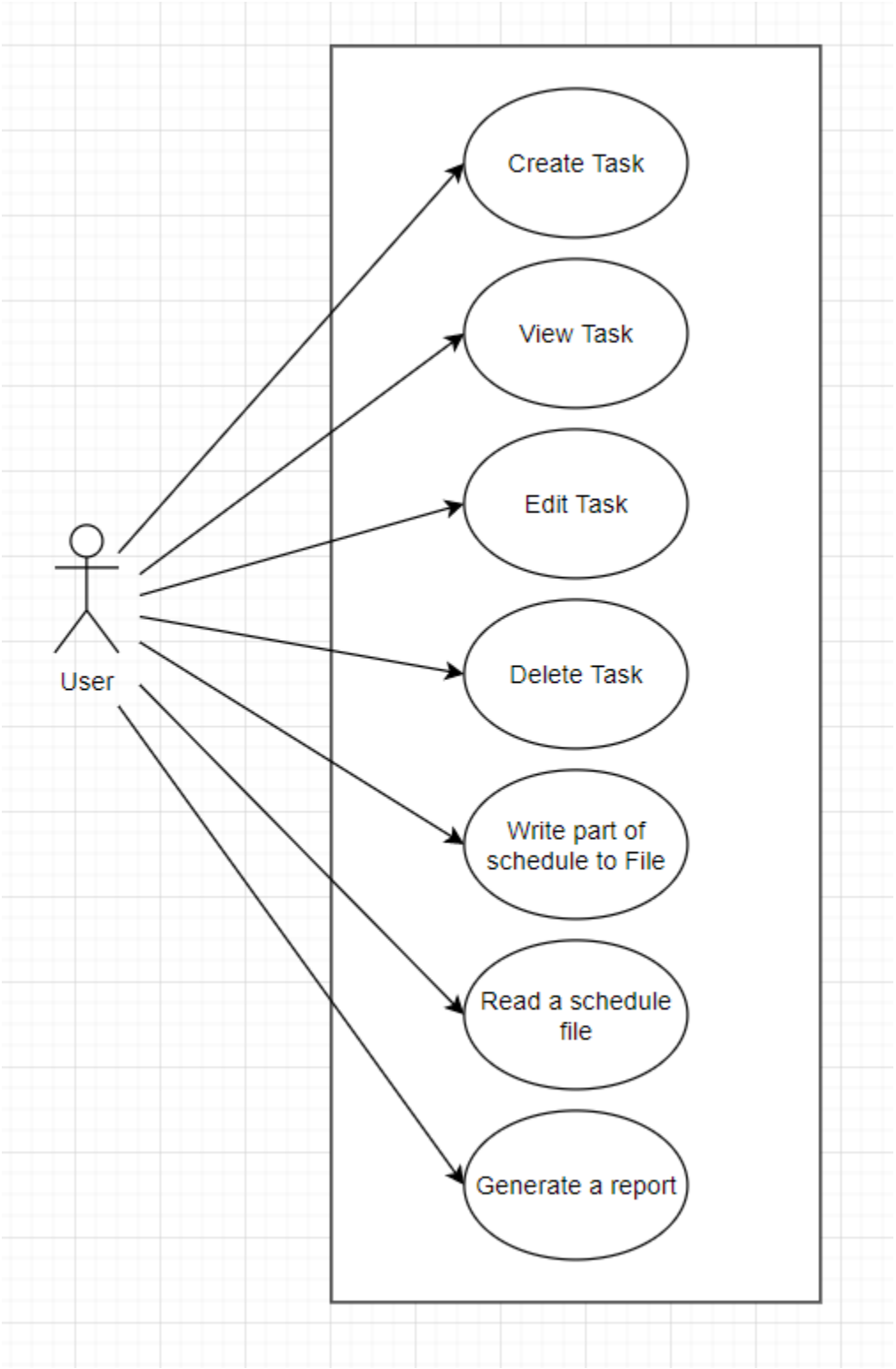
State Diagram for editing a task:



State Diagram for writing a Schedule to File:

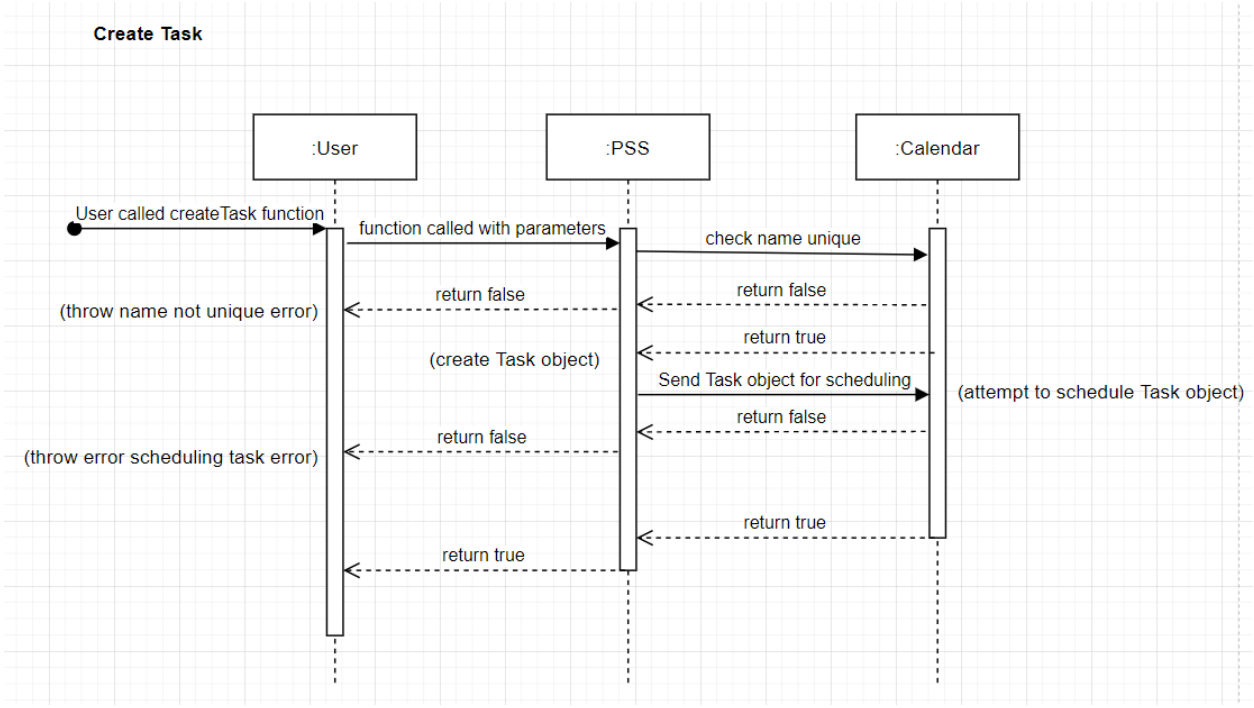


4. **Use Cases**:

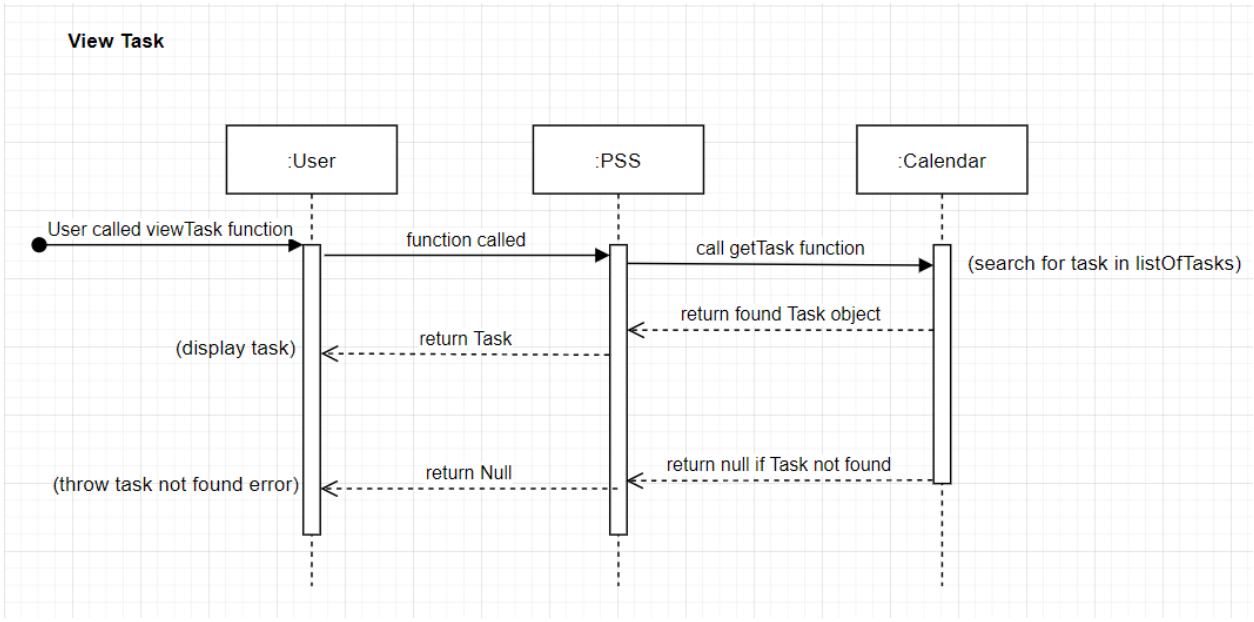

Create Task
View Task
Edit Task
Delete Task
Write part of schedule to File
Read a schedule file
Generate a report
User

5. **Sequence Models**:

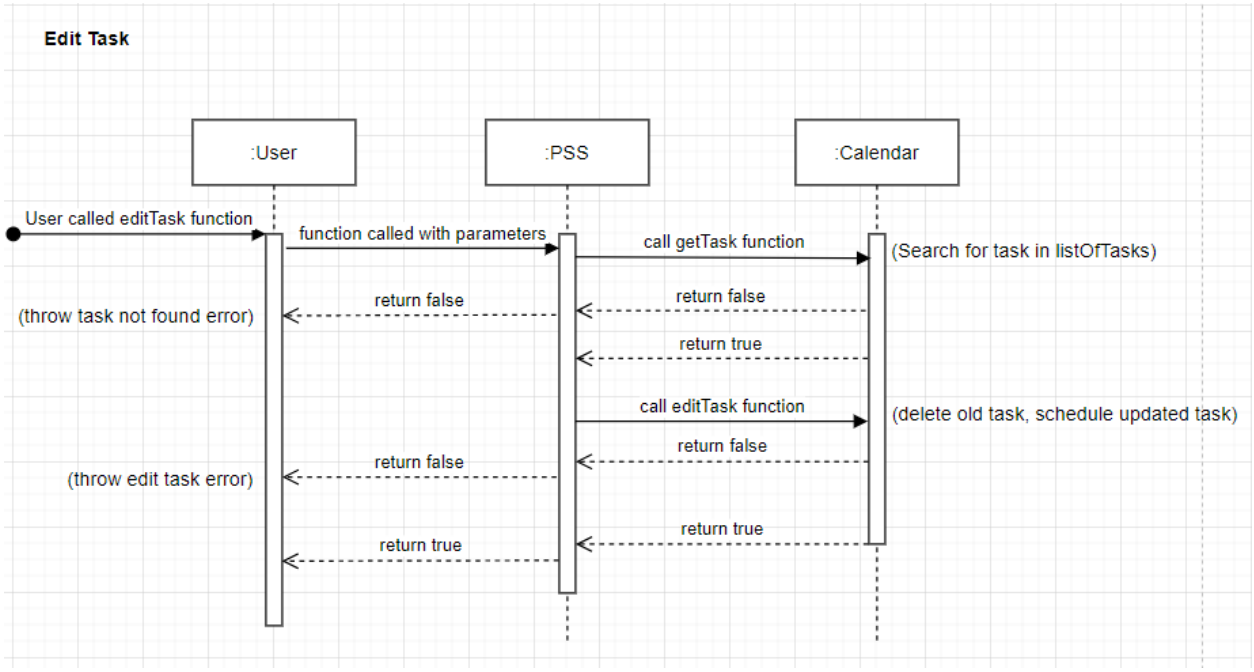
Create Task:



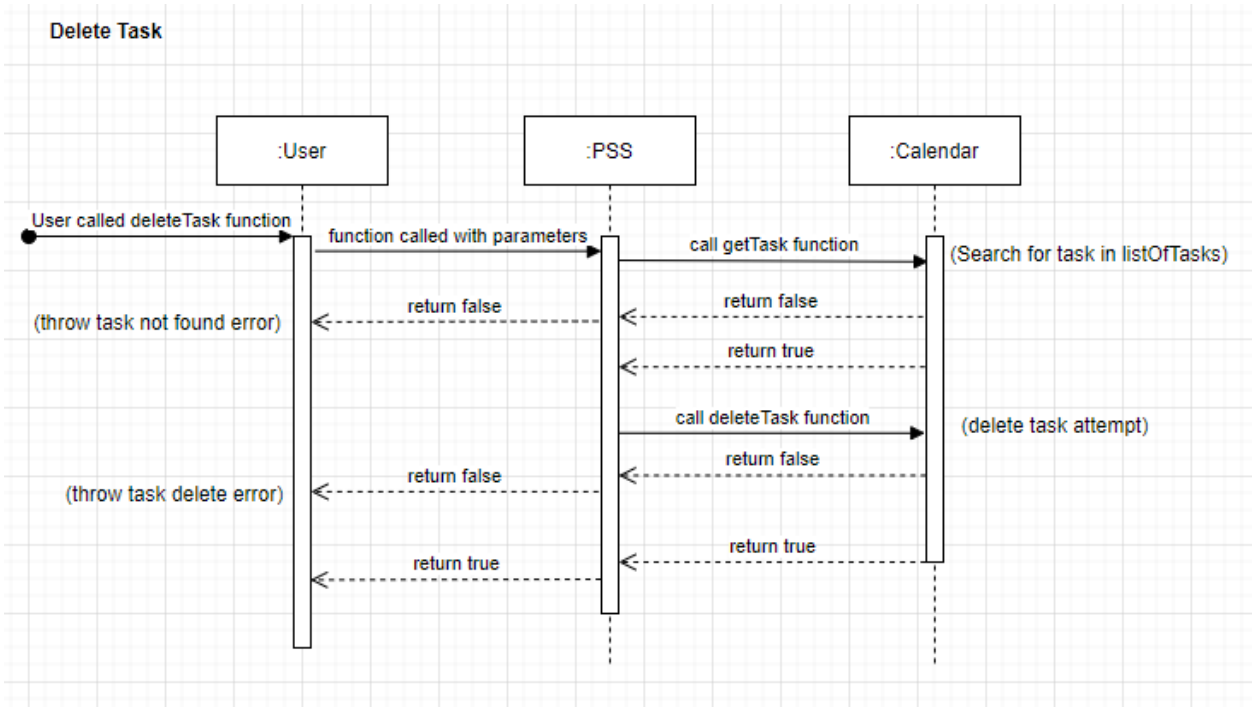
View Task:



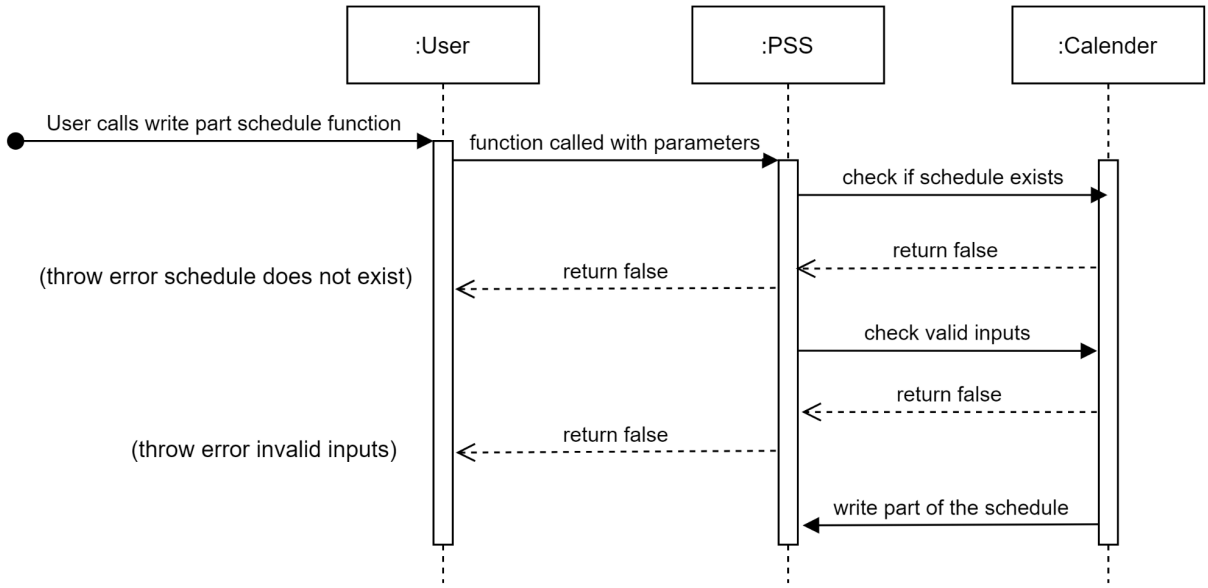
Edit Task:



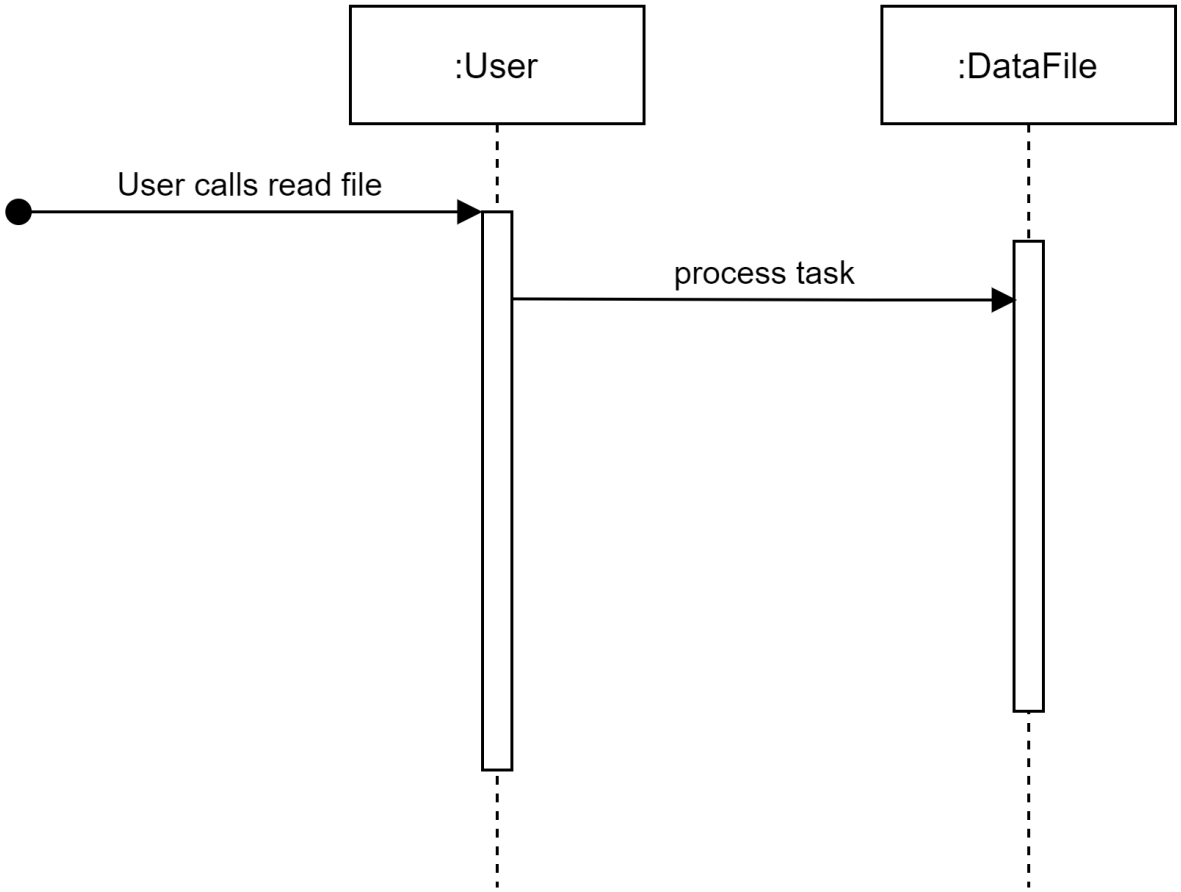
Delete Task:



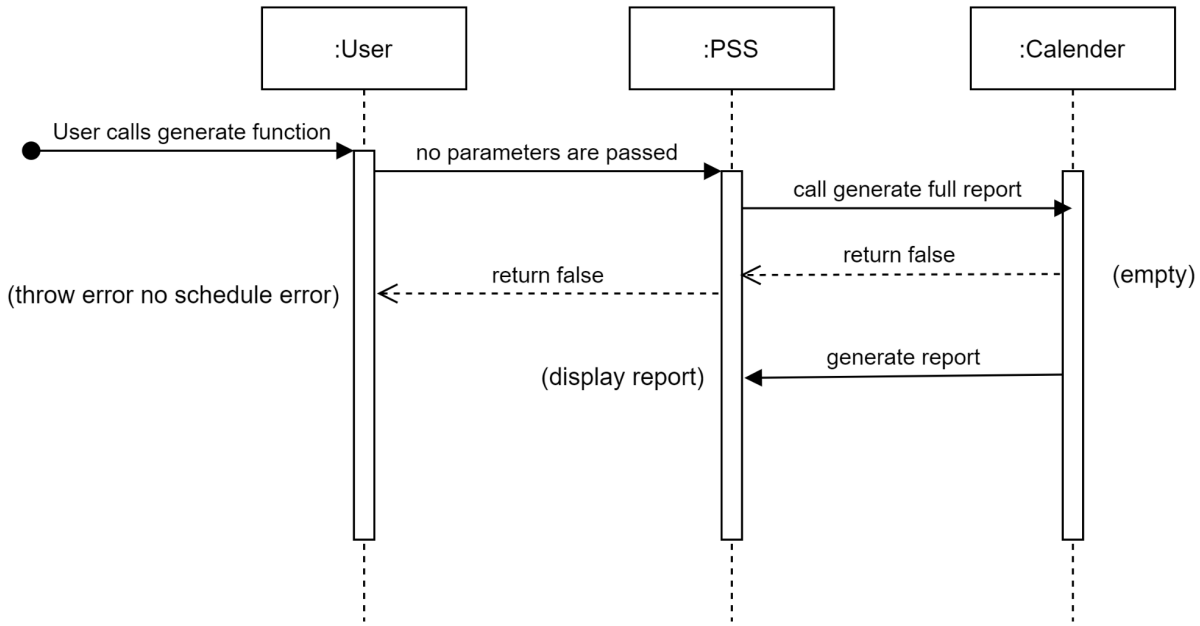
Write Part of Schedule to file:



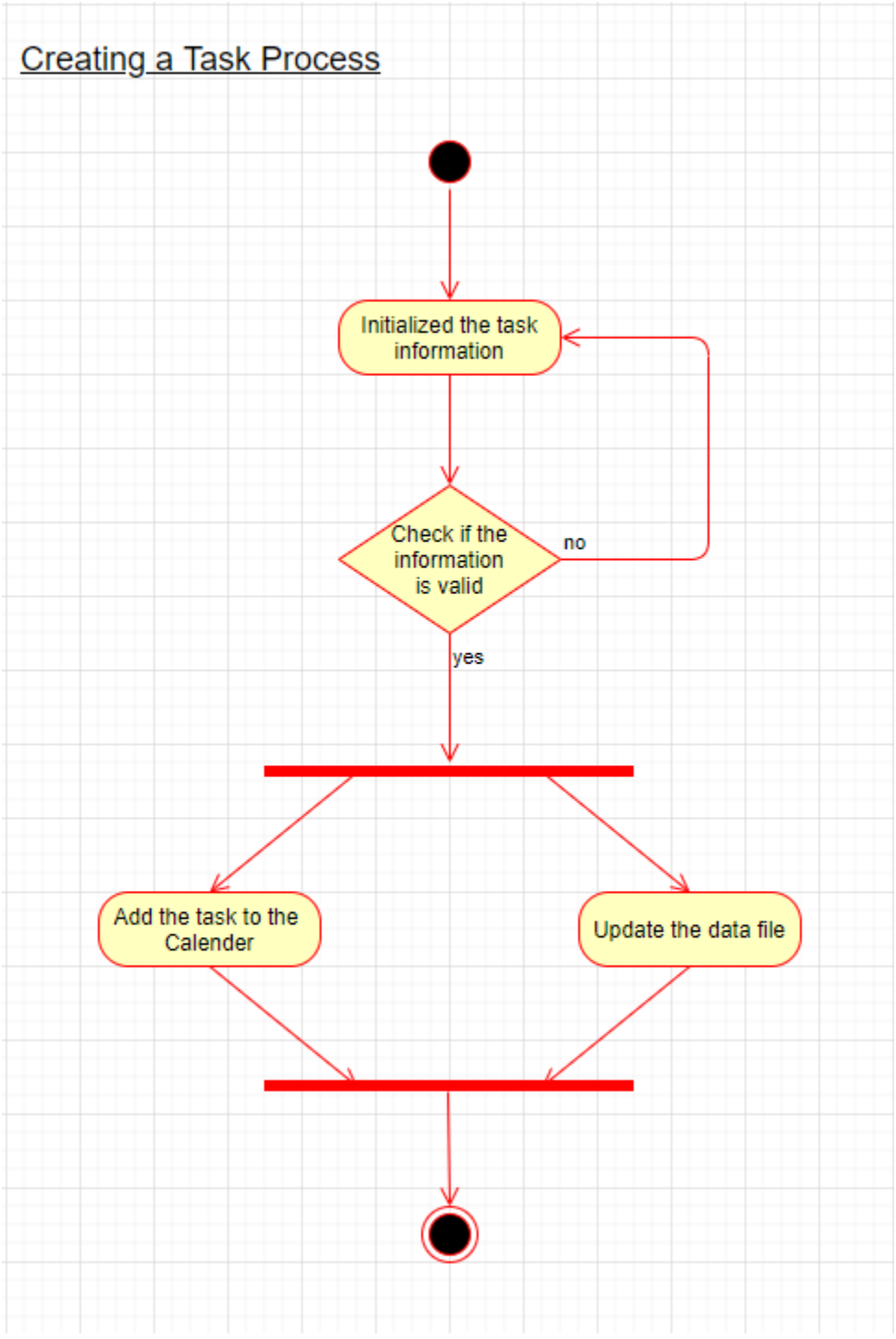
Read schedule from file:



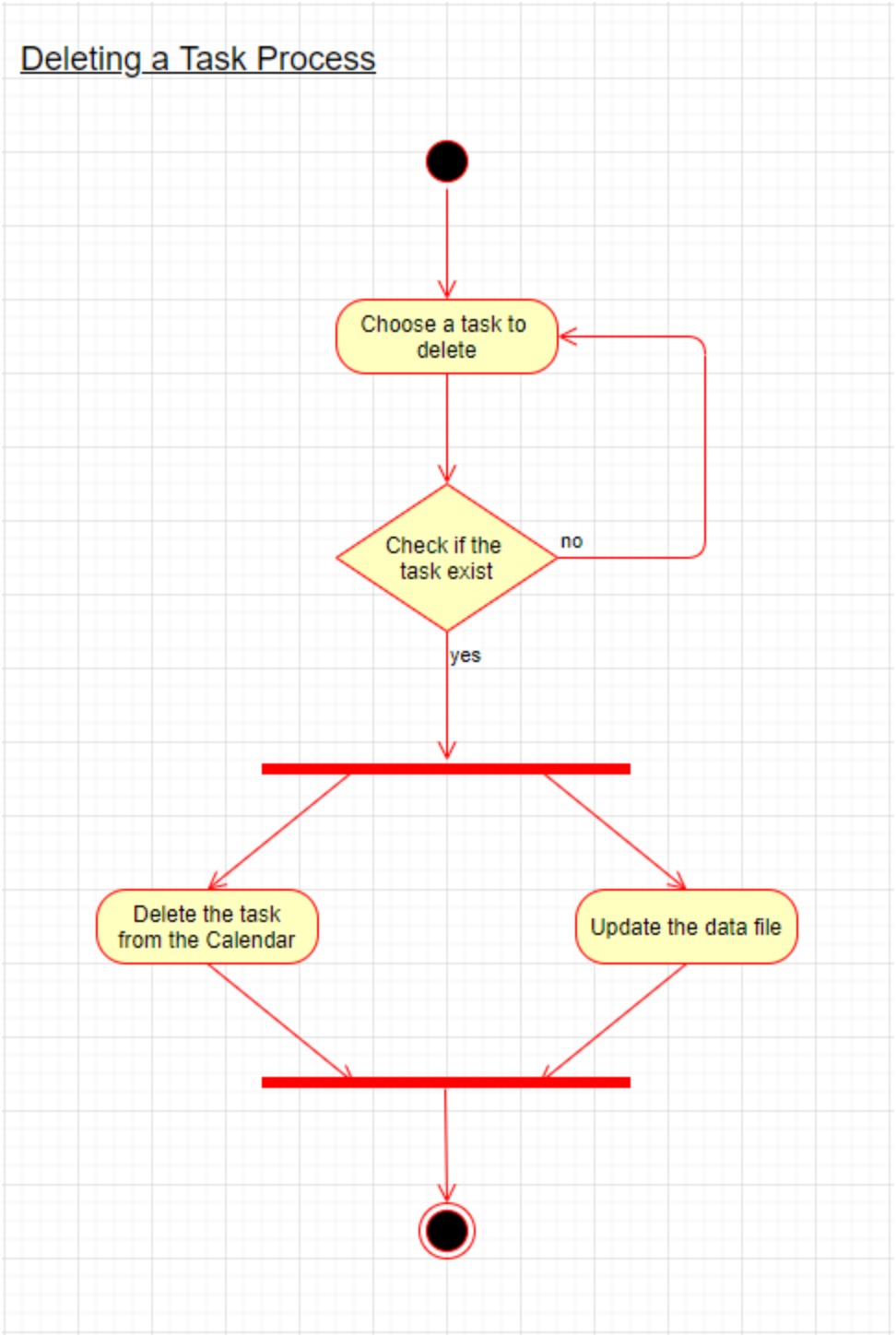
Generate report:

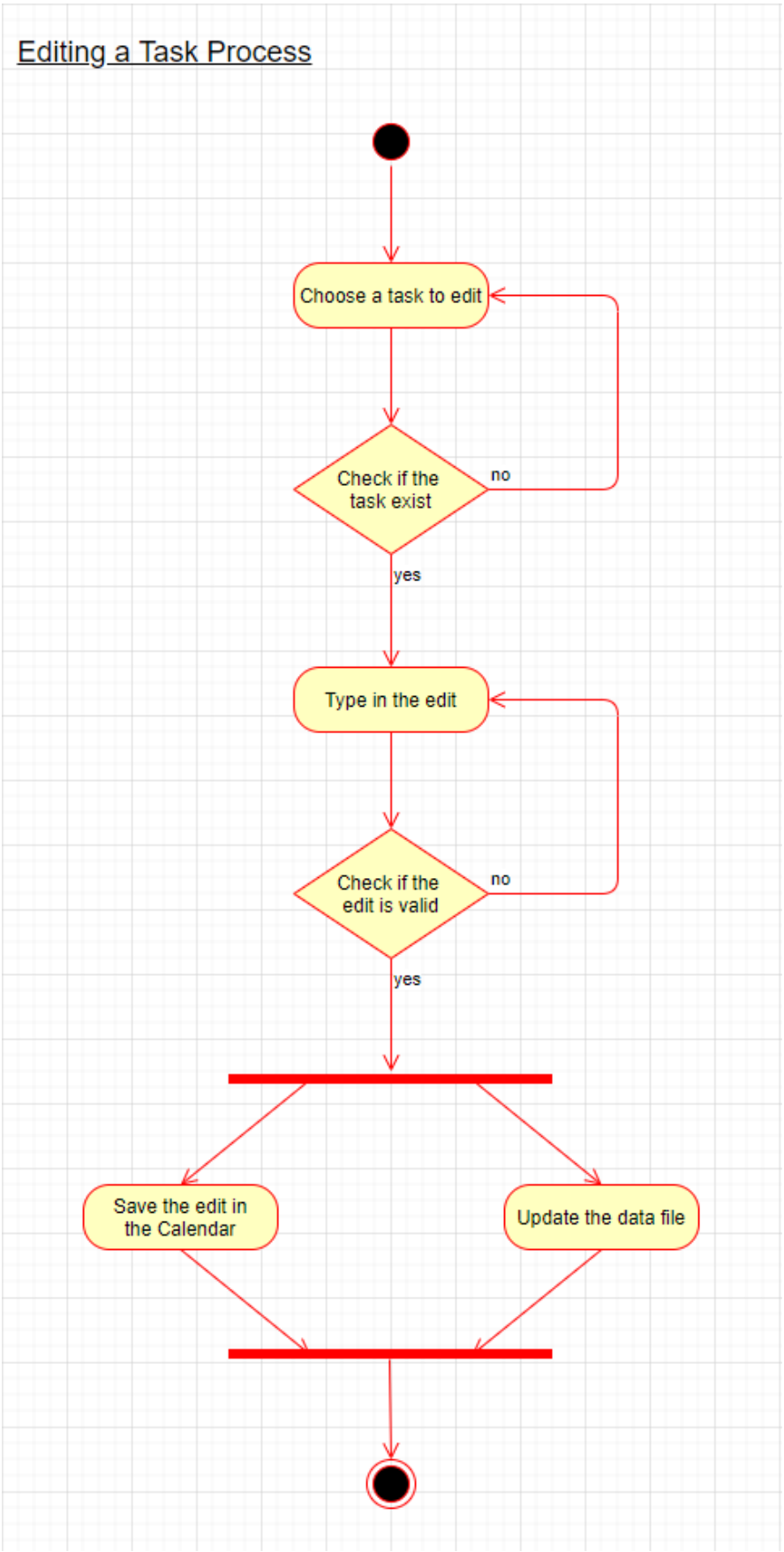


6. **Activity Diagrams**:



Deleting a Task Process




Editing a Task Process
Choose a task to edit
Check if the task exist
no
yes
Type in the edit
Check if the edit is valid
no
yes
Save the edit in the Calendar
Update the data file

Viewing a Task Process