Programming The Next Step - Final Report

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1 Productivity App

The idea of the Productivity App is to generate a to-do list based on effective time-management techniques, track the time on individual tasks, and create a productivity report. It incorporates the idea of the so-called Eisenhower matrix (see below) which categorizes tasks based on urgency and importance. Furthermore, users specify how much available time they have together with other to-do list preferences (starting with short tasks and prioritizing the least or most enjoyable tasks). After users generate their to-do list, they have the option to track their productive time with a Pomodoro technique. Lastly, users can generate a Productivity Report which gives them more insights into their productivity, including how well they can estimate task duration.

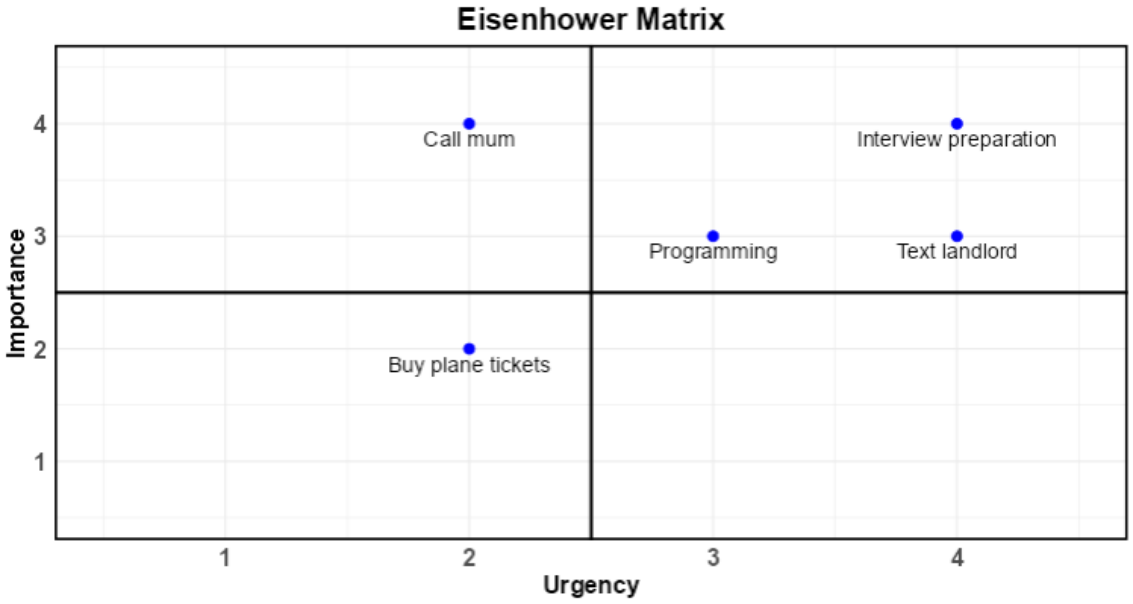

Figure 1: Eisenhower Matrix from the To-Do list tab in the Productivity App

2 Scenario

Purpose: Scenario that describes how to use the Productivity App.

Individual: The app will be designed from a student perspective but it is not limited to students. Any user who wants to generate a to-do list can easily use the app.

Equipment: The user needs to have R and R shiny installed to run the app. They need the ProductivityApp package together with shiny, shinyWidgets, DT, tidyverse, and shinyjs packages. They can install these packages by running the following lines in their console:

```
devtools::install_github("asarafoglou-ptns/Sekaninova-ProductivityApp/ProductivityApp")
install.packages("shiny")
install.packages("shinyWidgets")
install.packages("DT")
install.packages("tidyverse")
install.packages("shinyjs")
```

Once the user has all the required packages installed, they can start the app by running these lines in their console:

```
devtools::source_url("https://raw.githubusercontent.com/asarafoglou-ptns/Sekaninova-
                     ProductivityApp/main/app.R")
shiny::shinyApp(ui, server)
```

The user can also download the app.R file from GitHub. Here, they can also download example csv files tasks-upload.csv and productivity-report.csv which can be uploaded inside the app in case the user wants to try the app functionality without writing down and completing their own tasks.

Scenario:

1. The user opens the Productivity App in R.

2. The app opens on the About page where the user reads the background information about the app and how to use it.

3. The user then proceeds by clicking on the To-Do tab.

4. The user inputs the tasks that they need to complete. For each task, they indicate the task's duration, urgency, importance, and how enjoyable the task is using a sliding bar. The user has to write the name of the task and task duration, otherwise the 'Insert' button cannot be used. Alternatively, the user can upload their tasks and task properties as a csv file (e.g., using the tasks-upload.csv file from GitHub.

5. The tasks are displayed in a table and an Eisenhower matrix with urgency on the x-axis and importance on the y-axis.

6. The user can also download a csv file with the inserted tasks if they want to generate their to-do list at a later point.

7. The user has the option to "Delete Selected Tasks" in case they would like to edit their task table. For instance, if they wrote down incorrect task duration, they can delete the task and insert it again.

8. The user specifies their to-do list preferences - how much free time they have (inserting start and end time), whether they want to start with shorter tasks, and whether they want to start with the most or least enjoyable tasks that have the same importance and urgency.

9. Finally, the user can press a button to generate a to-do list for their day. There is a message under this to-do

list about whether all tasks were successfully scheduled or alternatively which tasks could not be scheduled because there was not enough time available. If the time availability that the user put down is illogical (e.g. end time before start time) or not feasible (i.e., the time availability is not sufficient to complete even a single task from the generated to-do list), the message under the to-do list encourages users to correct their time availability.

10. After the user generates the to-do list, they can move to the Pomodoro tab to get to a page with a Pomodoro timer. Here, it is assumed that the user wants to go through the ordered to-do list generated on the previous tab. Therefore, the first task on the to-do list is selected by default and when the user completes one Pomodoro or completes the task, the time spent on the selected task gets updated. This is displayed in a column next to the ordered tasks. When the user finishes the task and presses "Task completed", a check mark appears next to the completed task. The next task is then automatically selected.

11. The user can also time their breaks using the break timer on the Pomodoro tab. They can select the break length (5, 10, 15, 30 mins) and start the timer.

12. For both the Pomodoro and the Break timer, users have the option to pause or reset the timer. The pause functionality is useful when the user is interrupted and, for instance, doesn't want that time to be counted towards their 'Time spent on task'. When they press the 'Reset' button on the Pomodoro timer, the time that passed will not count toward their 'Time spent on task'. This can be useful when they were interrupted in the beginning of their Pomodoro session or when they decide to work on a different task and not follow the default order. When the user presses the 'Reset' button on the Break timer, the timer returns back to the default 5-min break.

13. Once the user completes all the tasks, they can proceed to the last tab called 'Productivity Report'. By clicking on the button 'Generate report', a graphic and text overview of their productivity will be shown. The plot compares the estimated and actual task duration for every task. The productivity report tells the user how much time they've spent on their tasks, whether they tend to under- or overestimate their task duration and which task duration they estimated the best.

14. If the user doesn't want to base their Productivity Report on the data from the previous tabs, they have the option to upload a csv file with the task data (Task, Estimated duration, Actual duration). The user can download an example of such file named productivityreport-upload.csv from GitHub.

3 Flowchart

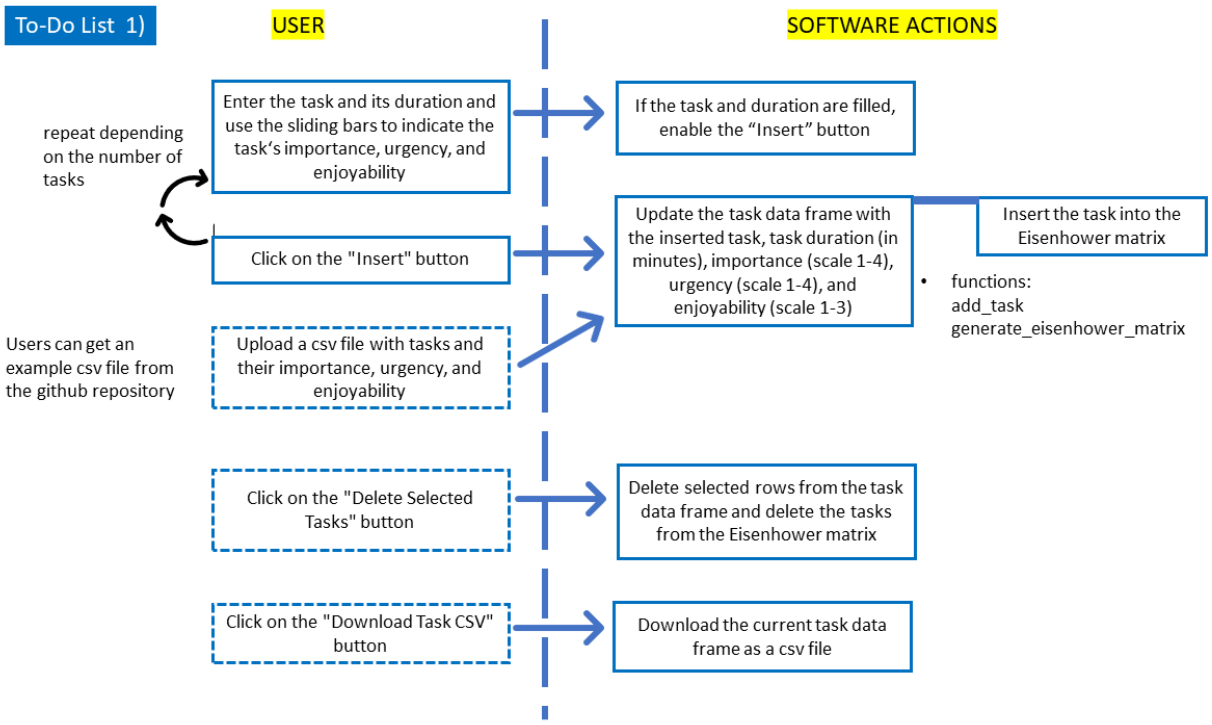

Figure 2: To-Do List tab

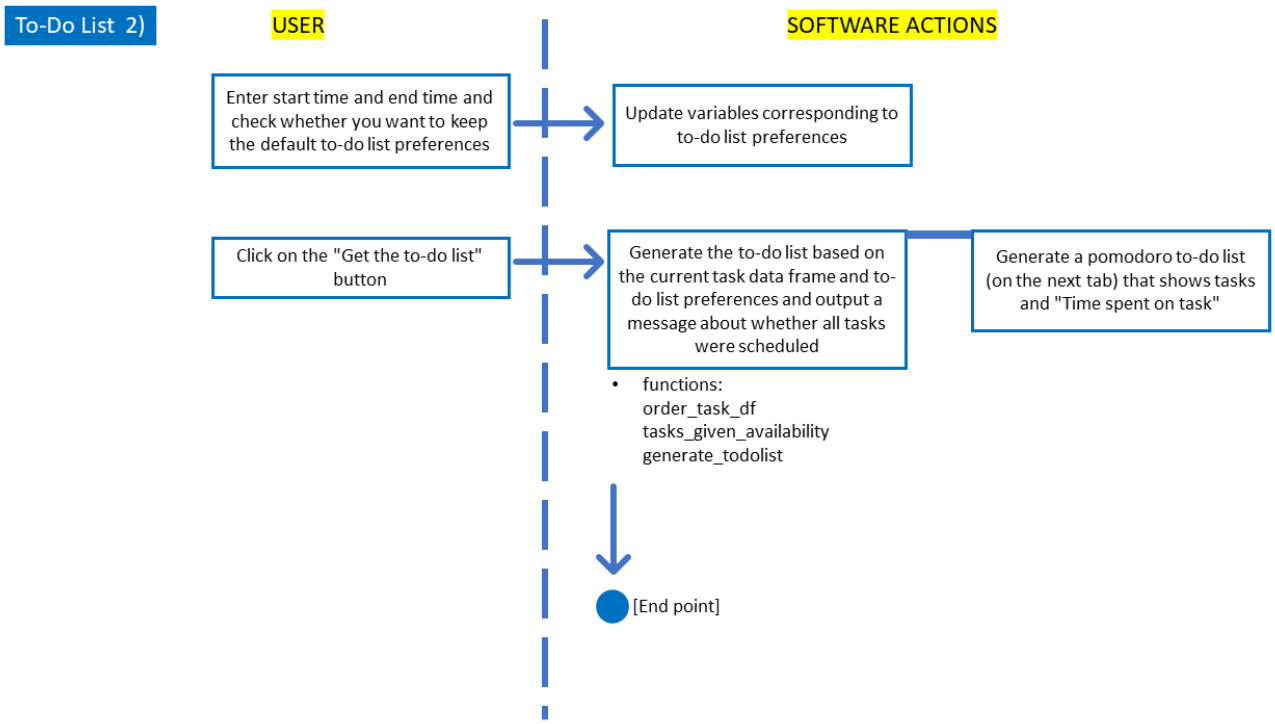

Figure 3: To-Do List tab

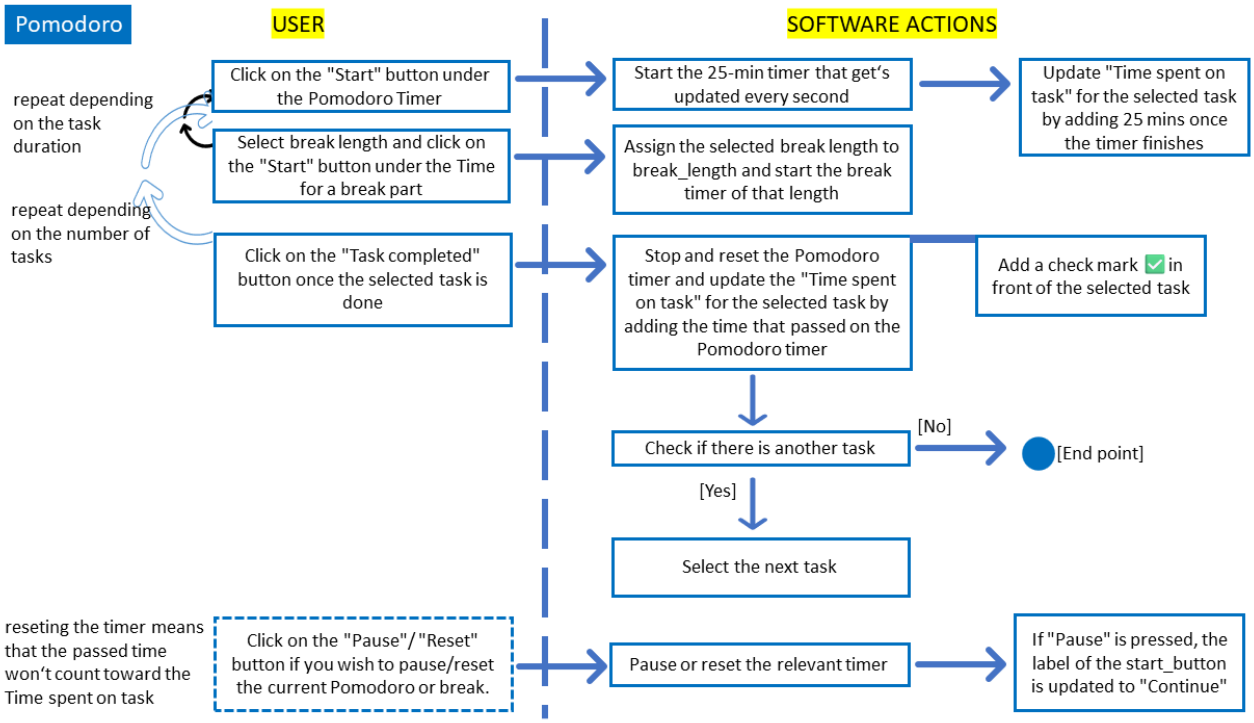

Figure 4: Pomodoro tab

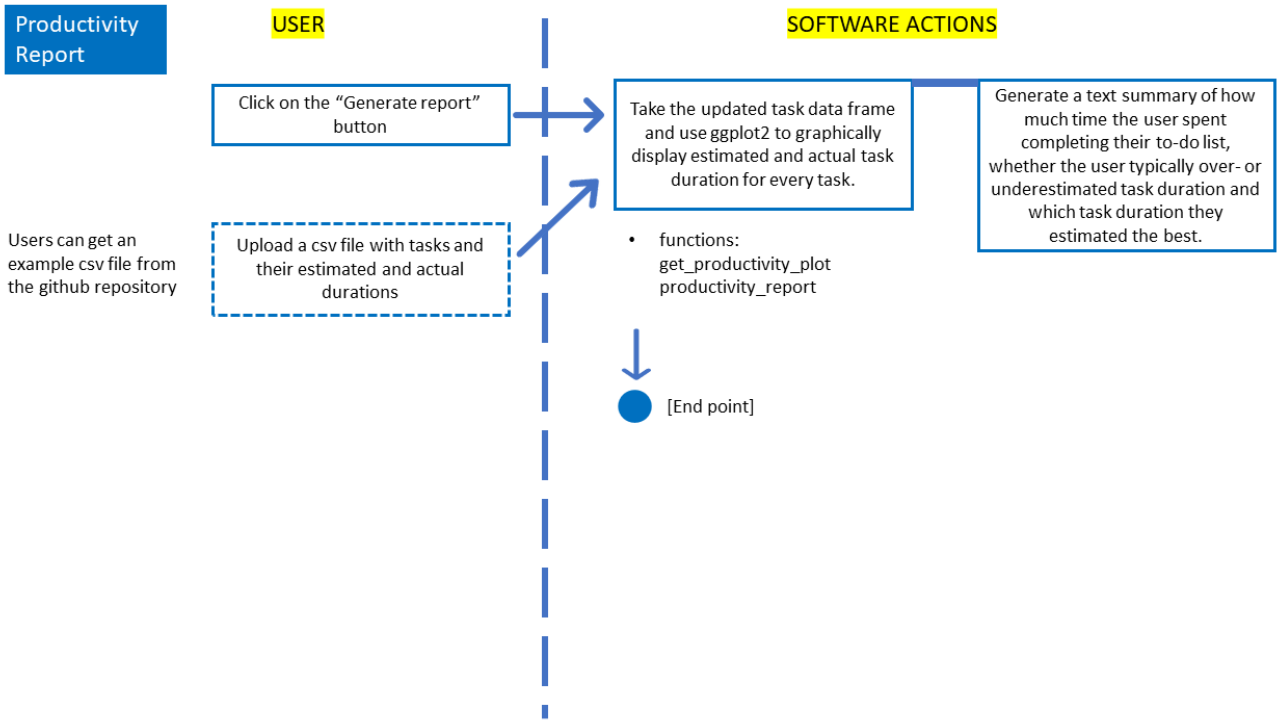

Figure 5: Productivity Report tab

4 How-to for users

1. Read the About page (Figure 5)
2. Insert your tasks and generate your to-do list (Figure 6)
3. Track your productivity with Pomodoro (Figure 7)
4. Get a Productivity Report for your day (Figure 8)

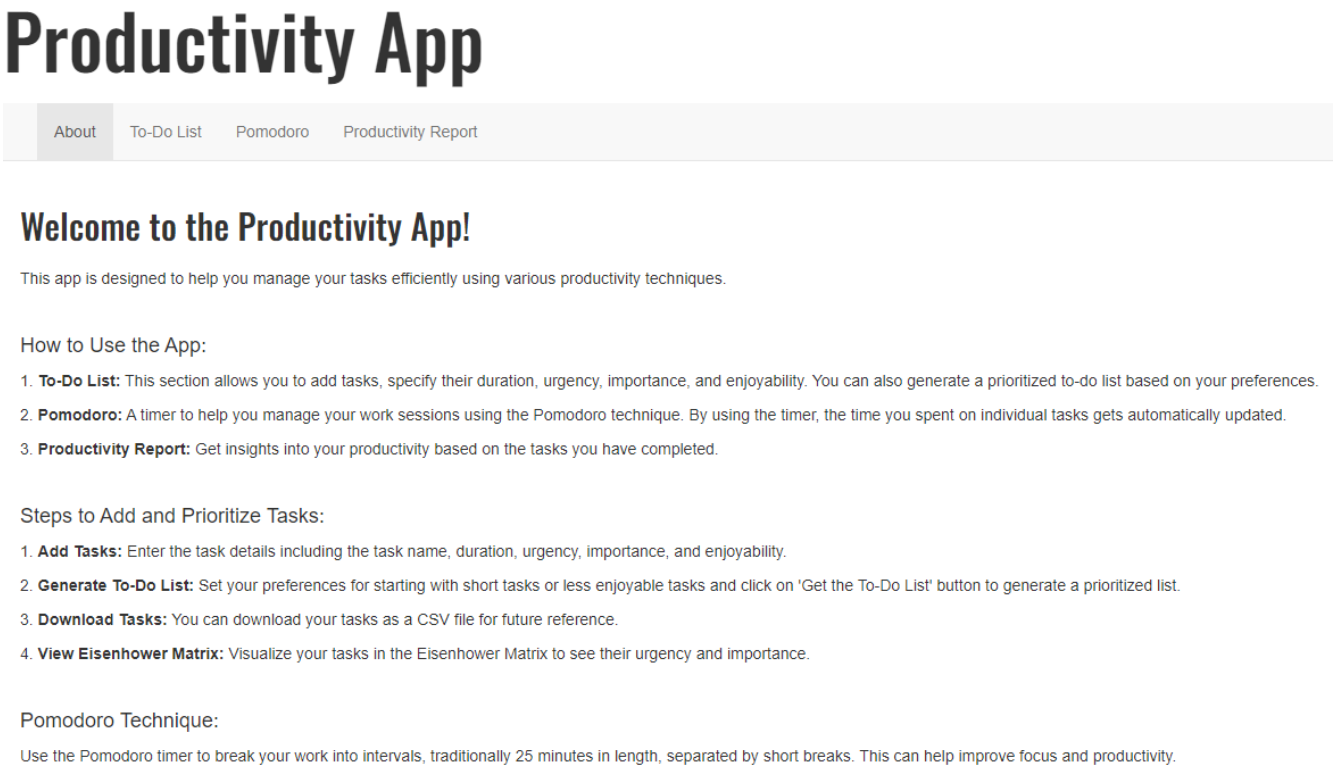

Figure 6: About page

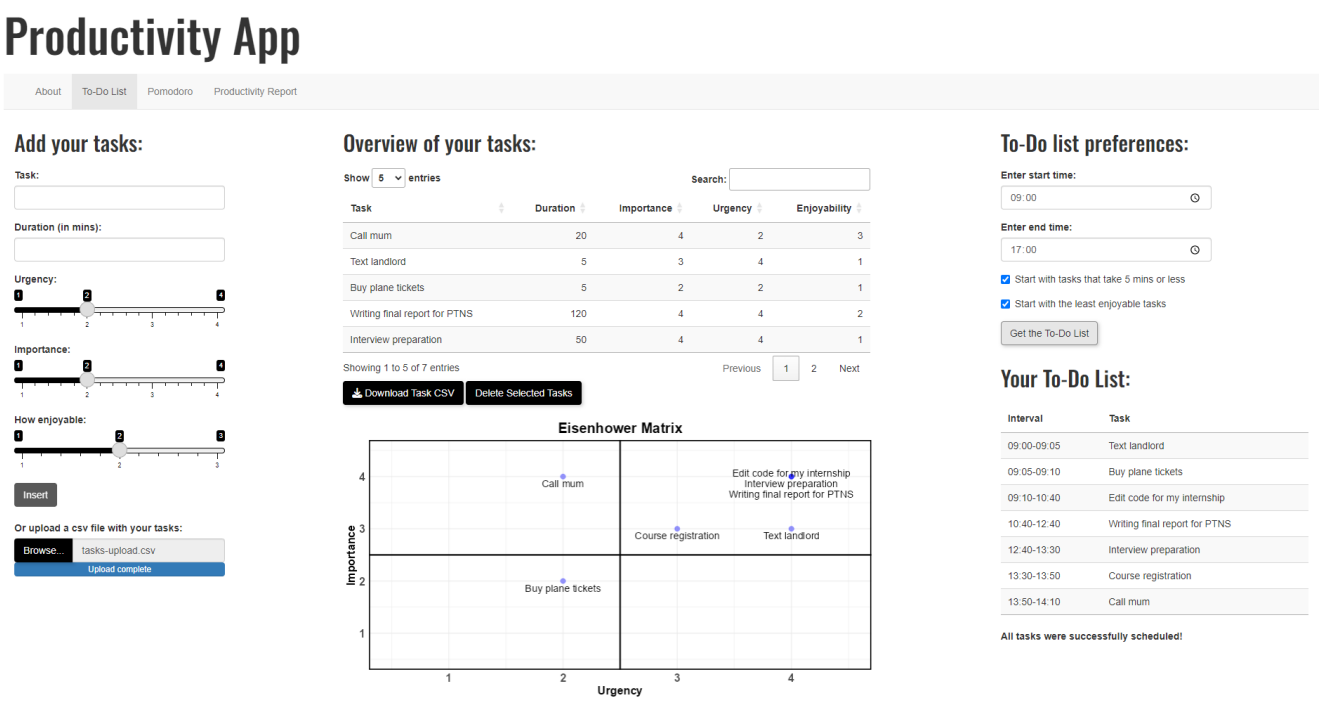

Figure 7: To-Do List tab

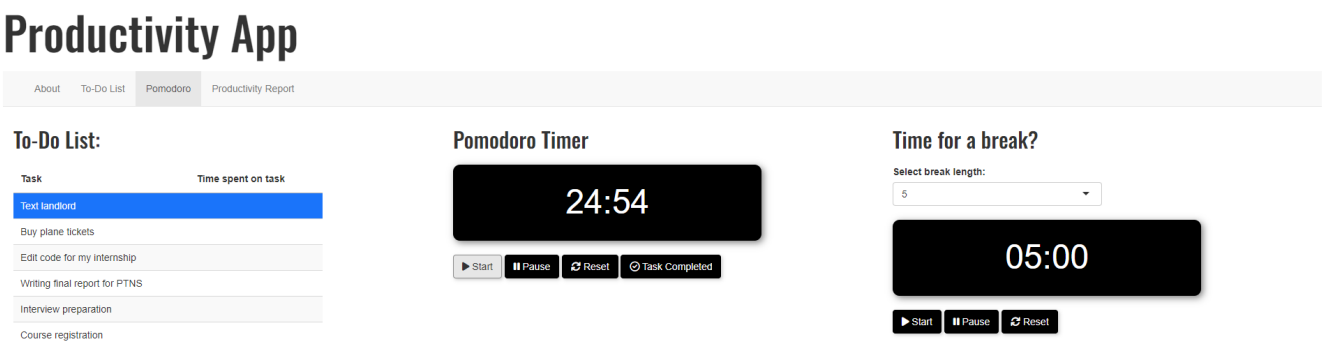

Figure 8: Pomodoro tab

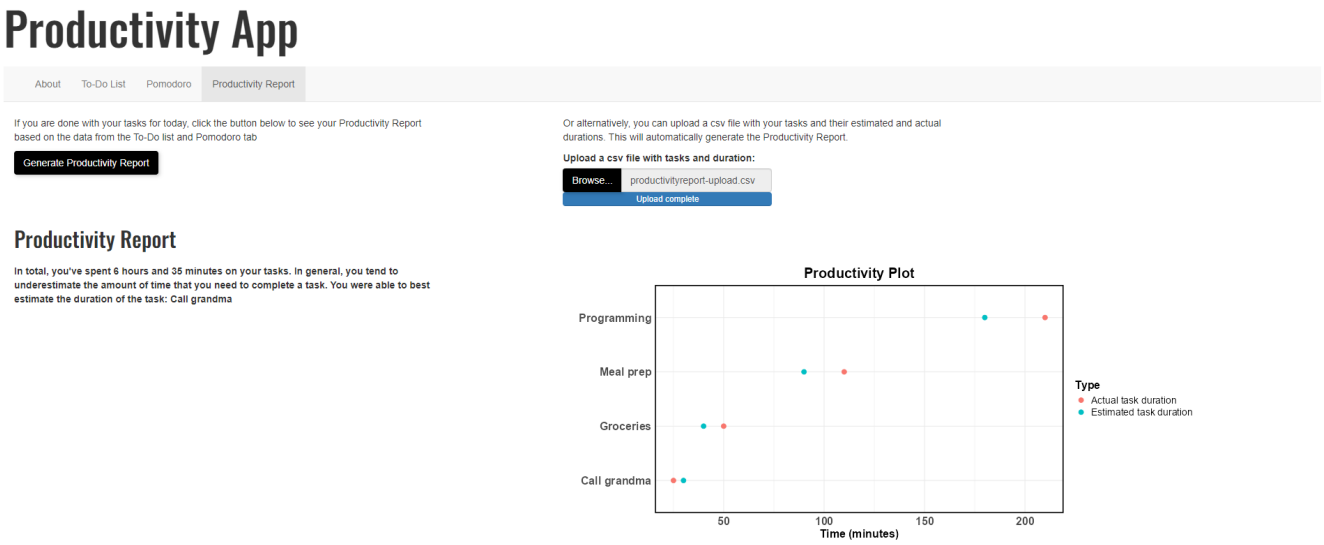

Figure 9: Productivity Report tab

5 Example application

1. The user writes down the task "Make a dentist appointment" together with its duration, and uses the slide bars to indicate importance, urgency, and enjoyability.
2. The user presses "Insert task" and the task is displayed in the table on the right and in the Eisenhower matrix.
3. The user repeats steps 1 and 2 for other tasks.
4. The user specifies their time availability and to-do list preferences and presses "Get the To-Do list" button. In this case, the task "Plan a trip to Austria" was not scheduled, which is written below the to-do list.
5. Next, the user clicks on the Pomodoro tab. The to-do list is shown on the left and the pomodoro and break timers on the right.
6. The user starts the pomodoro session for the first task by pressing the "Start" button under Pomodoro.
7. Once the user finishes the task, they press "Task completed" button and a check mark appears next to the completed task.
8. Next, the user can select break length if they want to take a break.
9. The user starts the selected break by pressing the "Start" button.
10. Once the break finishes, the user starts working on the next task "Work on internship code".
11. When one Pomodoro session finishes, 25 mins get automatically added to the 'Time spent on task' for the selected 'Work on internship code' task.
12. The user completes the two remaining tasks.
13. Once the user completes all tasks, they can move to the Productivity Report tab and click on "Generate Productivity Report" to get the report.

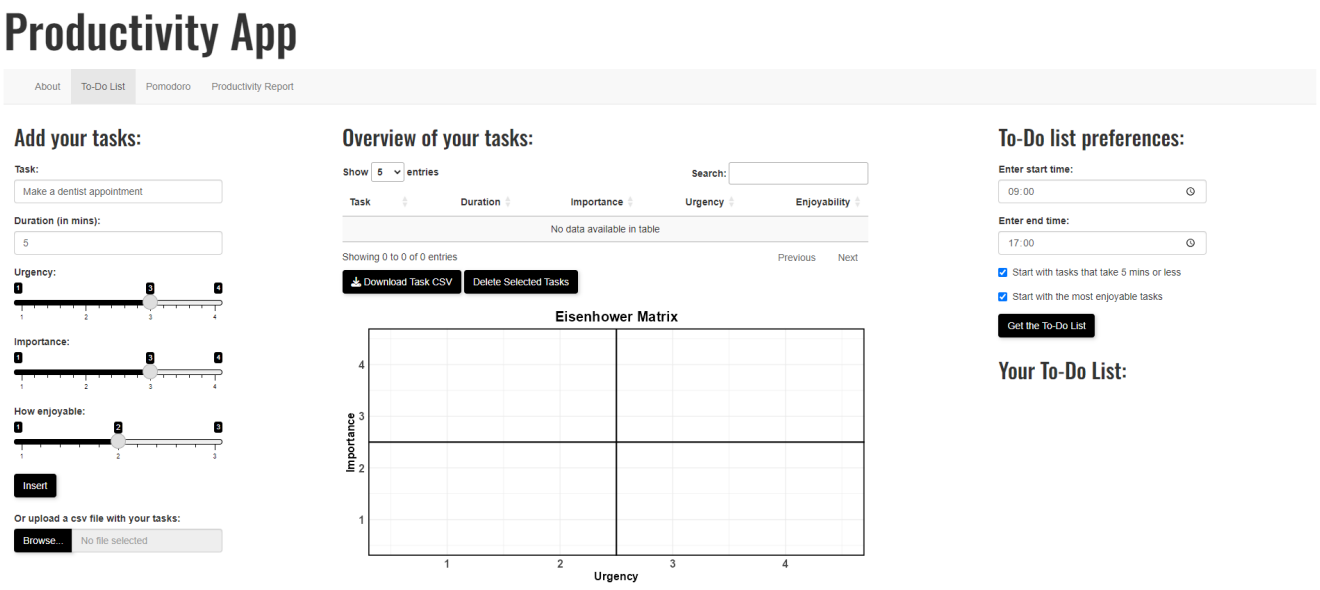

Figure 10: Step 1

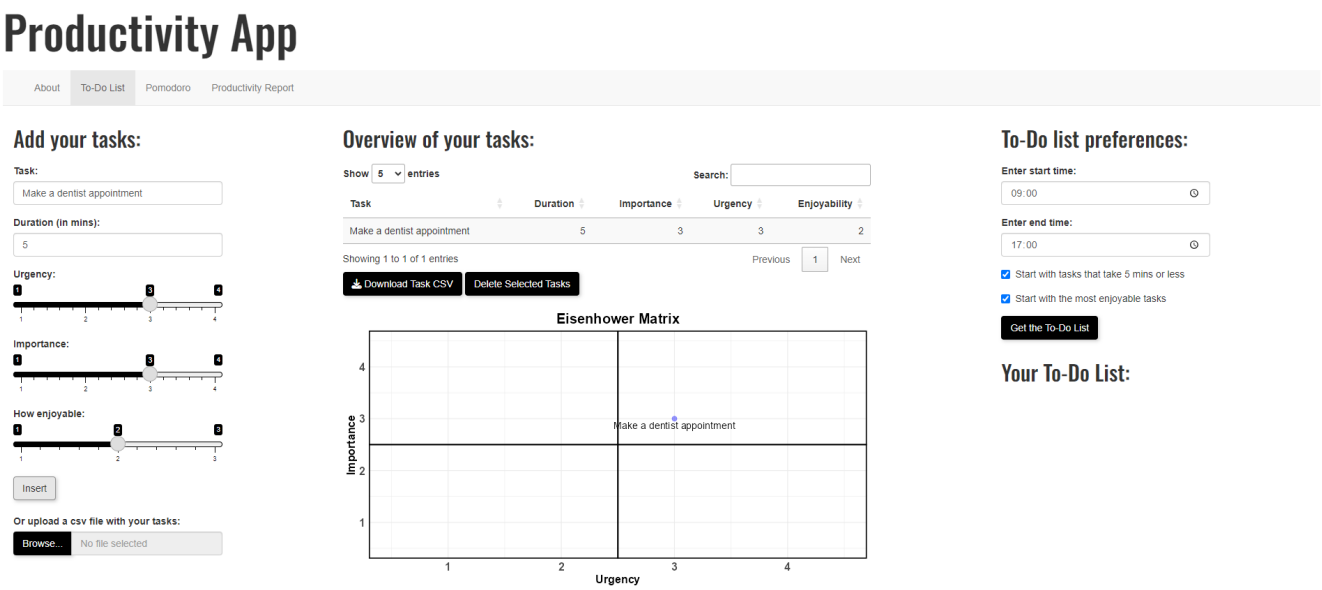

Figure 11: Step 2

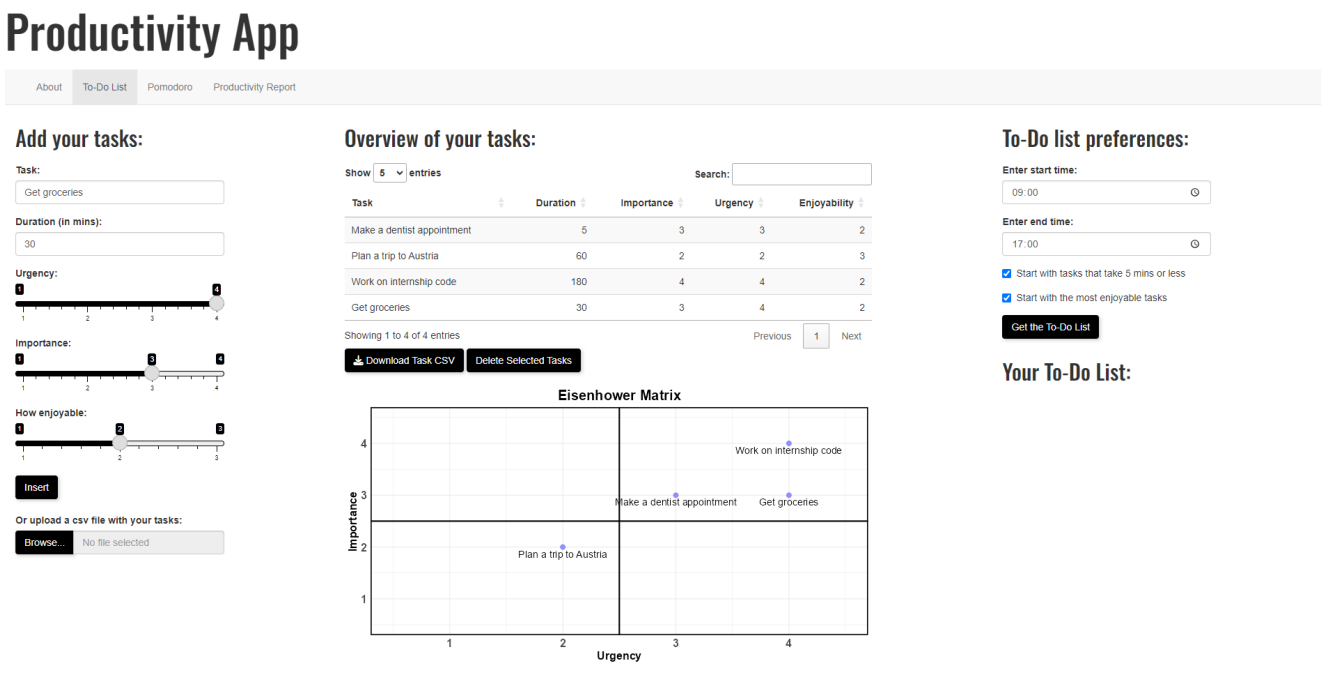

Figure 12: Step 3

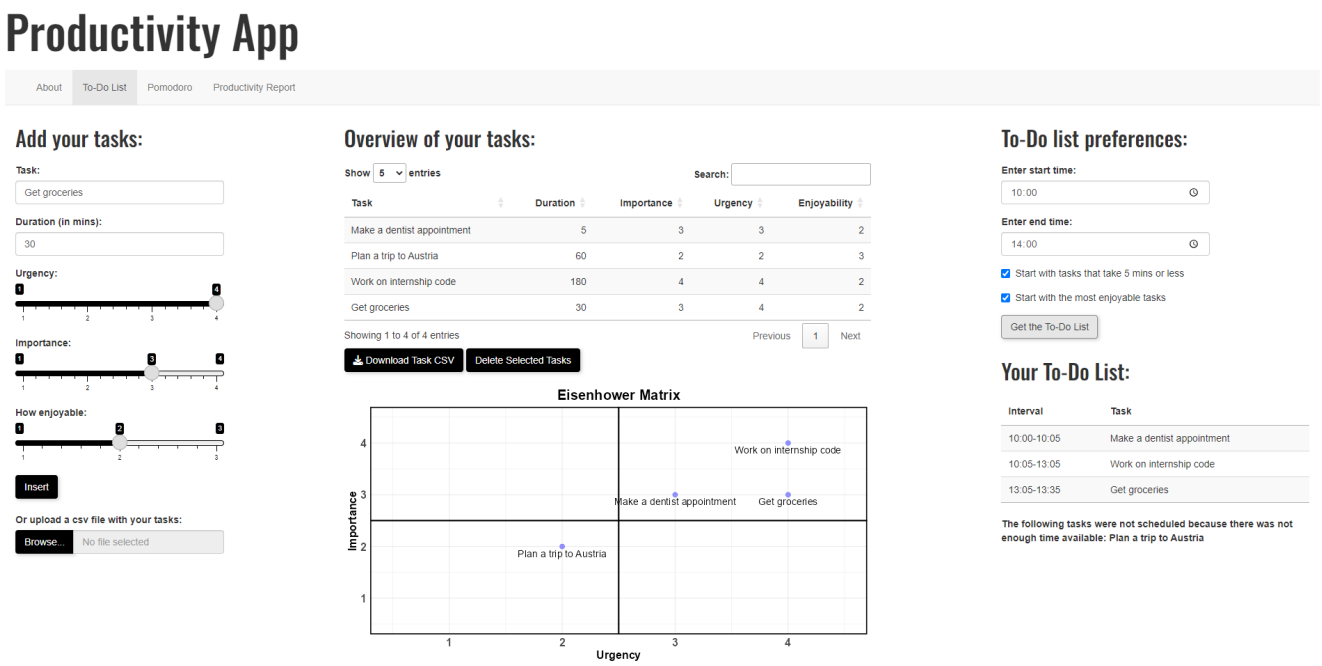

Figure 13: Step 4

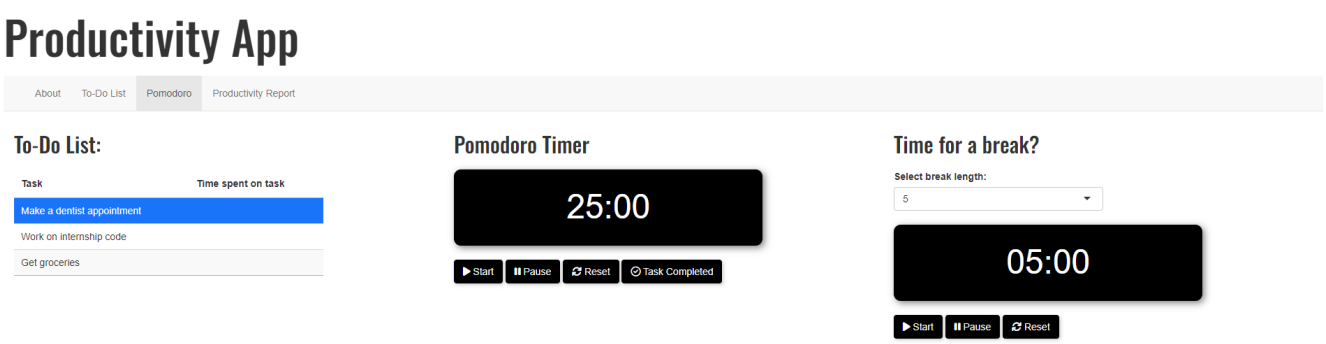

Figure 14: Step 5

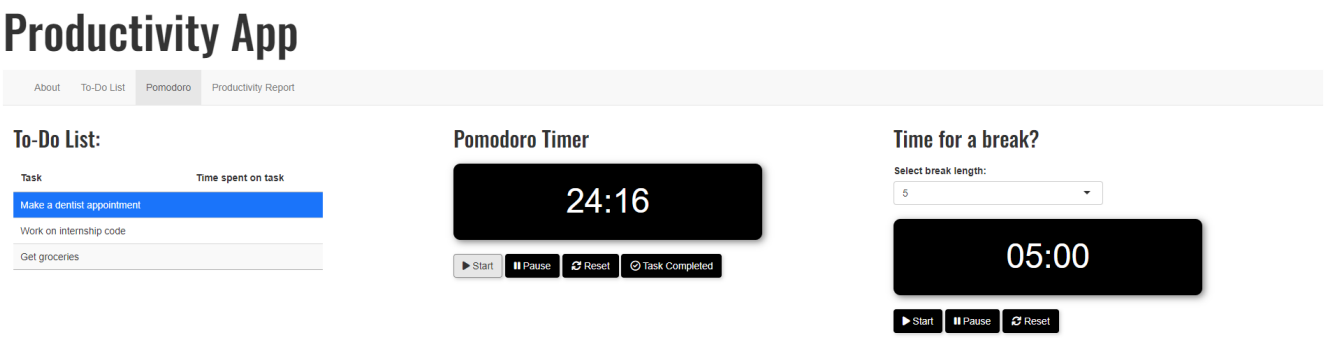

Figure 15: Step 6

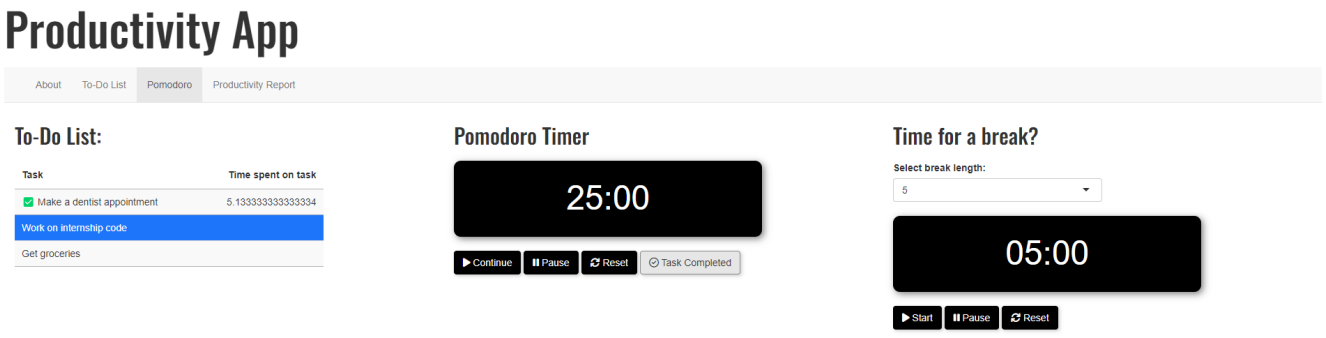

Figure 16: Step 7

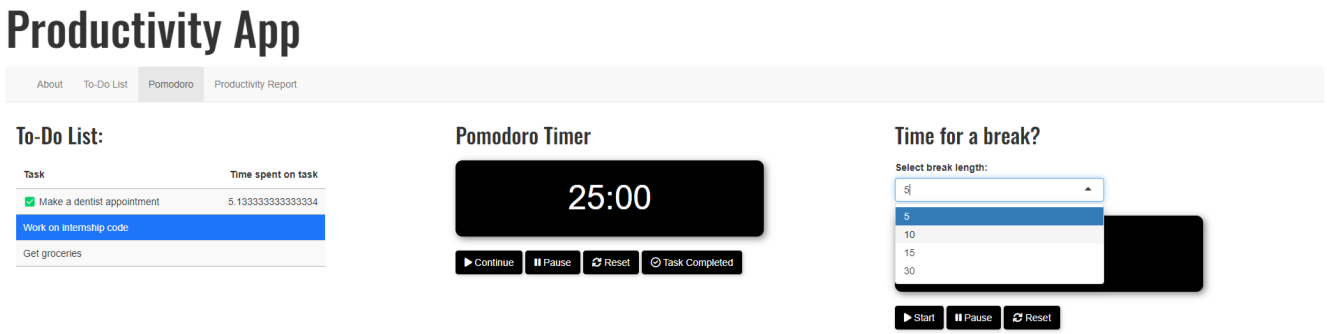

Figure 17: Step 8

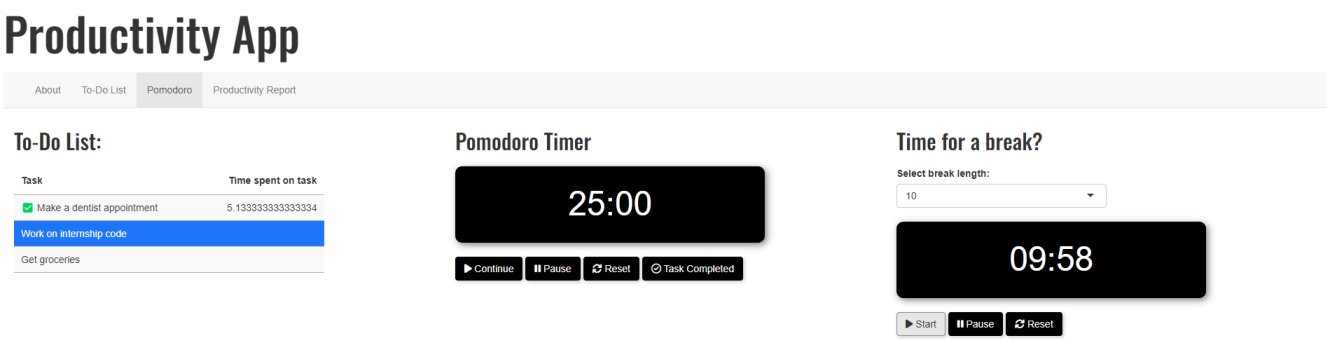

Figure 18: Step 9

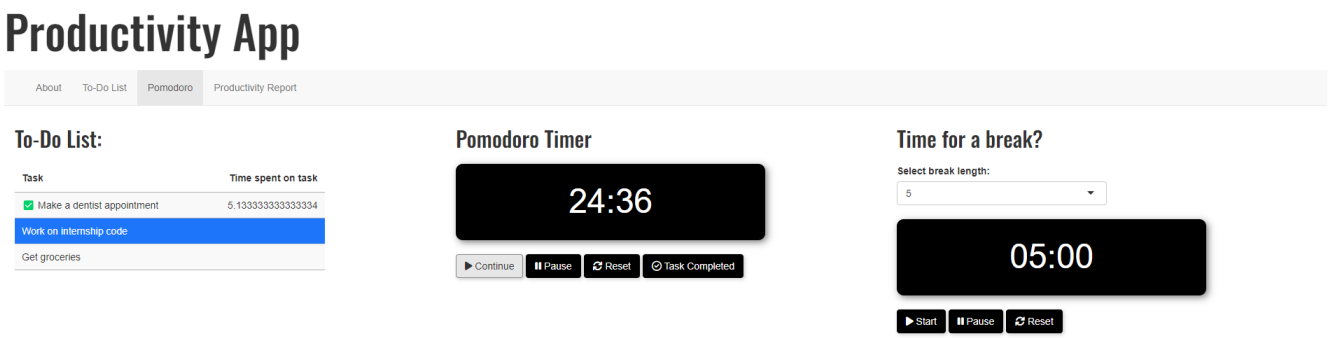

Figure 19: Step 10

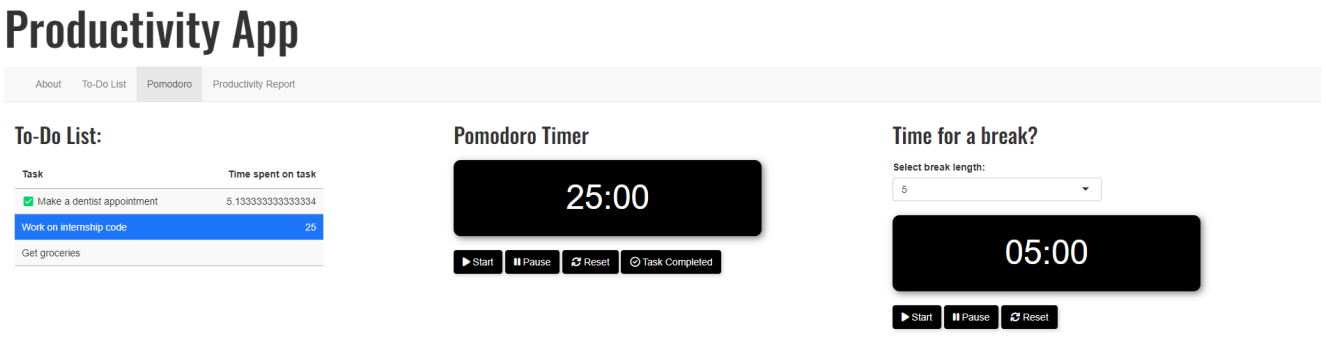

Figure 20: Step 11

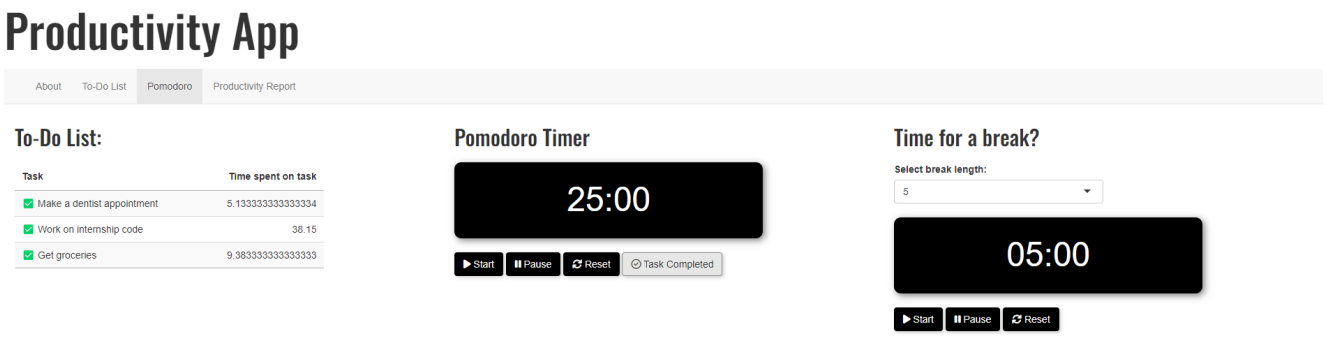

Figure 21: Step 12

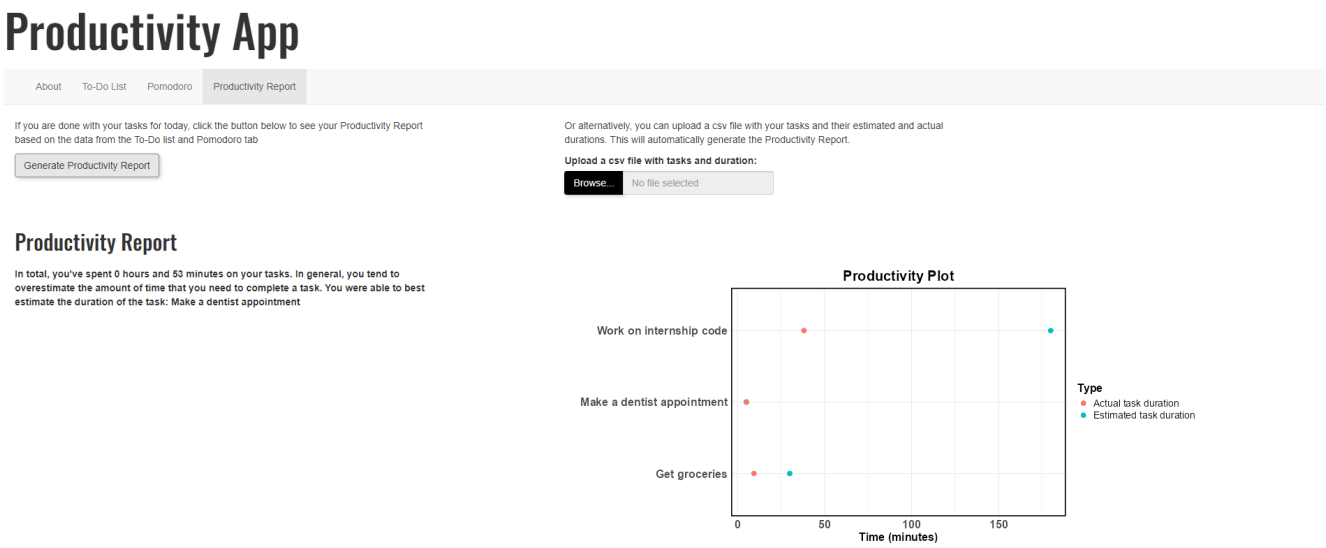

Figure 22: Step 13