FACULTY OF ENGINEERING AND TECHNOLOGY
DEPARTMENT OF COMPUTER ENGINEERING

ENCS4370 - COMPUTER ARCHITECTURE

First semester 2024/2025

First Project – Interactive Monthly Calendar Application

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Sec: 2

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Abstract

This project aims to develop a MIPS assembly code that facilitates the viewing, editing, and management of appointments within a monthly calendar. The envisioned application is designed to offer a user-friendly interface, enabling users to seamlessly interact with calendar functionalities. Users will have the capability to add, edit, and view appointments for specific dates, enhancing the overall user experience in appointment scheduling and organization.

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1. Assumptions

- We take October 2023 as the assumption for our case.
- The calendar is for a month and this month has 31 days.
- The first day of the month is Sunday and the last day is Tuesday.
- We assume that the calendar.txt file is in the right formula.

2. To Do list

- Create an input file.
- Make the menu.
- Read the input file.
- View the calendar.
    - Per day.
    - Per set of days.
    - Given slot in a given day.
- Add a new appointment.
- Delete an appointment.
- View Statistics.
    - Number of lectures (in hours).
    - Number of OH (in hours).
    - Number of Meetings (in hour).
    - Average lectures per day.
    - Ratio between total number of hours reserved for lectures and total number of hours reserved OH.
- Store calendar in text file.

3. Teamwork

Table 3-1: Teamwork

Task	Team member
View the calendar	Tariq
Delete an appointment	Tariq
Create an input file / Read file	Tariq
Make the menu	Tariq / Wasim
Store calendar in text file	Tariq / Wasim
Add a new appointment.	Wasim
View Statistics	Wasim

4. Calculations

- **calendar_mem (Memory space to store the calendar)**
    - 31: This represents the number of days in the month, as there are 31 lines.
    - 10: This is an estimated size for each appointment.
    - 9: This represents the maximum number of appointments per day.
    - Total size = 31 × 10 × 9
    - Total size = 2790

- **input_string (Maximum length of the input string)**
    - The sequence "1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31" has 91 characters, including digits and commas.

- **day_buffer (Buffer to store the day as a string)**
    - 10: This is an estimated size for each appointment.
    - 9: This represents the maximum number of appointments per day.
    - Total size = 10 × (9+1)
    - Total size = 100

5. Testing examples

5.1. The Start

When the program is run, the program reads the Calendar.txt file and displays the main menu for the user to choose the operation he wants.

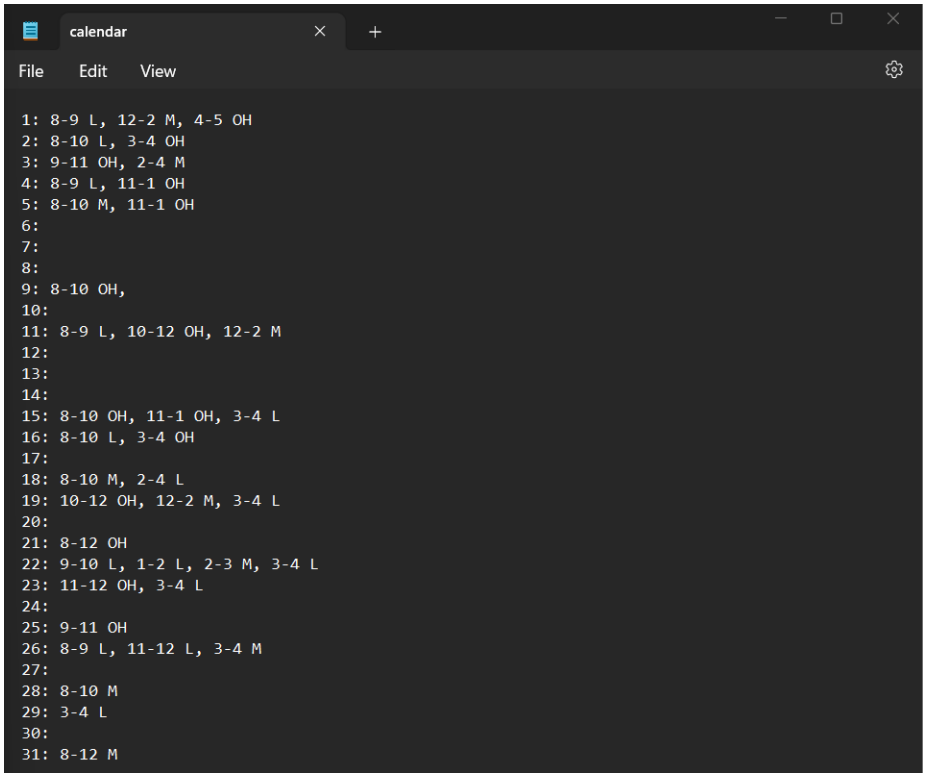

Figure 5-1: File input (calendar.txt)

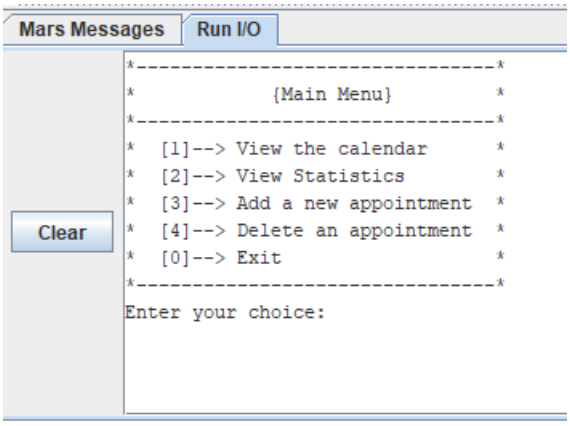

Figure 5-2: The main menu

5.2. View the Calendar

When the user chooses the view calendar operation, the program displays the view calendar menu.

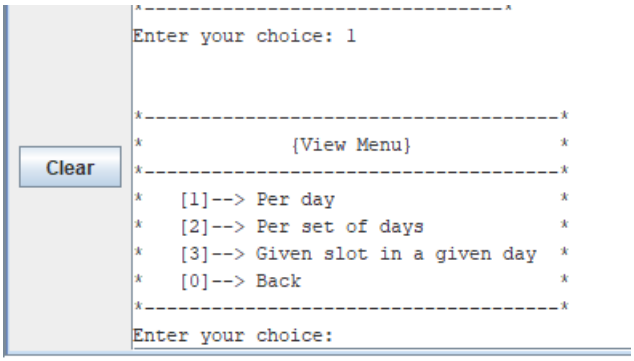

Figure 5-3: The view calendar menu

5.2.1. Per day

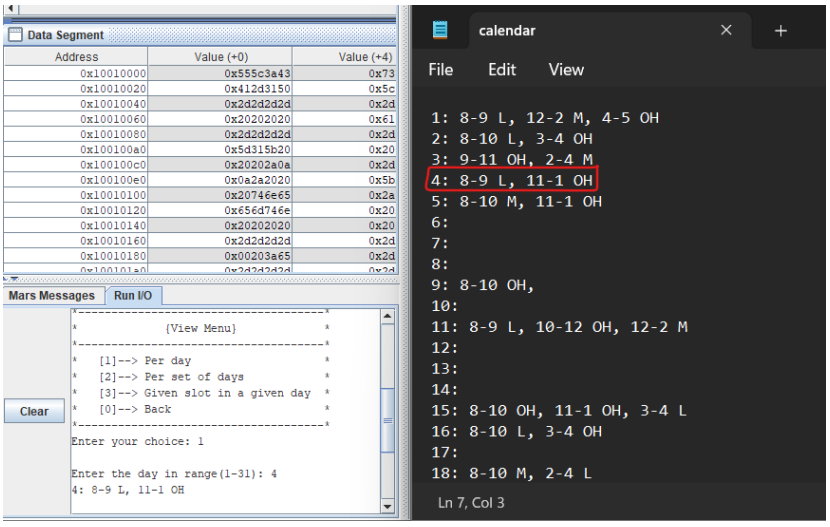

Figure 5-4: View day 4

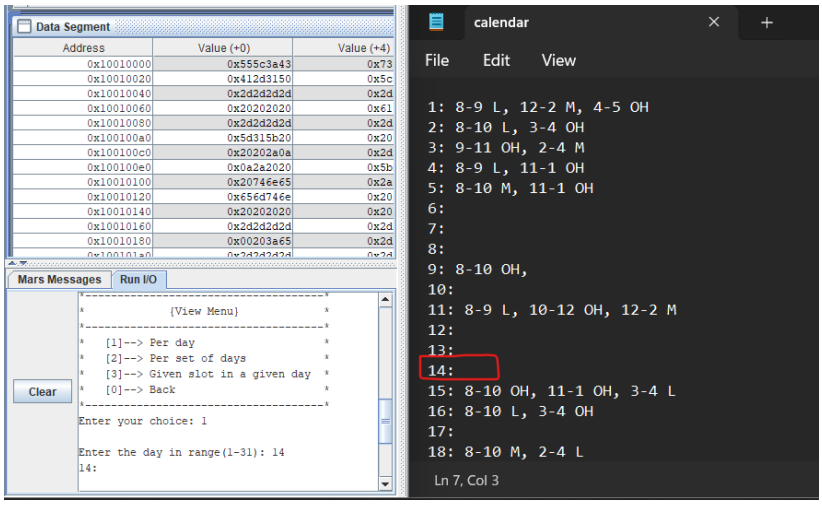

Figure 5-5: View day 14 (empty day)

5.2.2. Per set of days

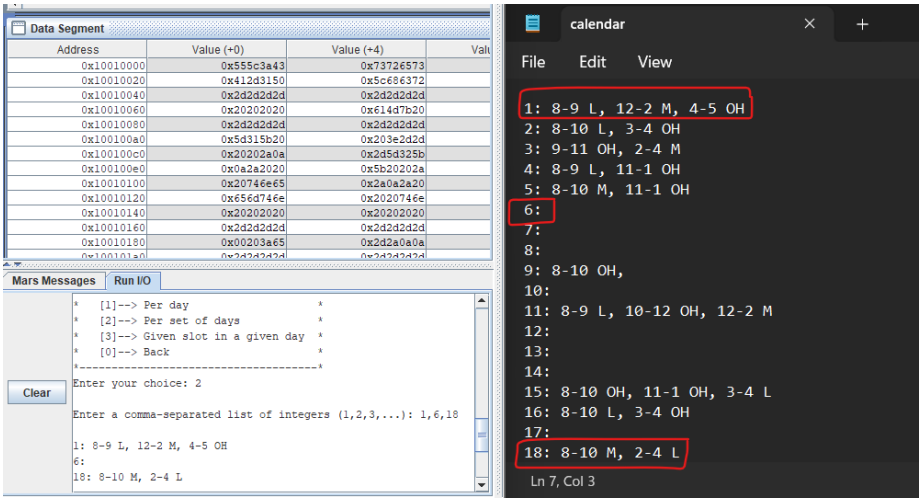

Figure 5-6: View set of days (1, 6, and 18)

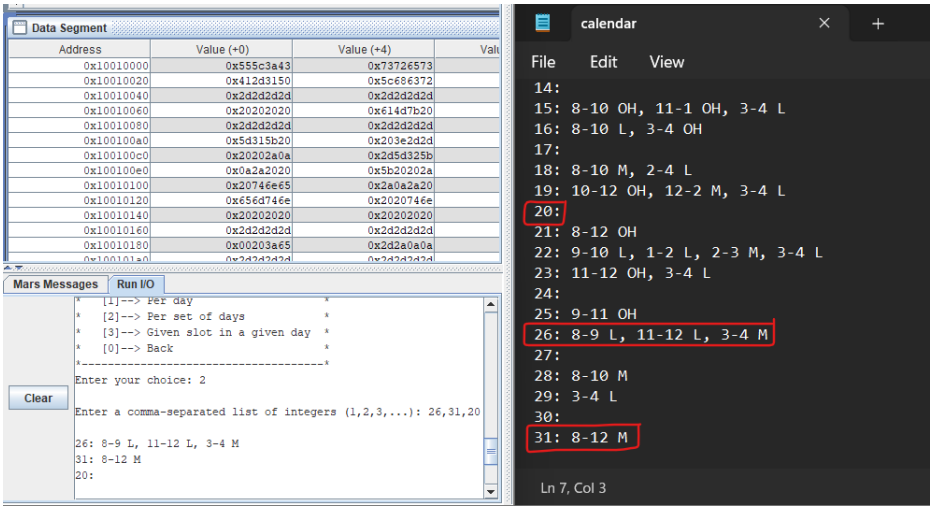

Figure 5-7: View set of days (26, 31, and 20)

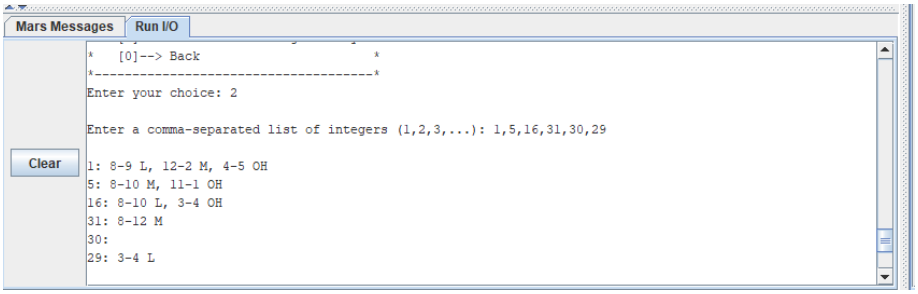

Figure 5-8: View set of days

5.2.3. Given slot in a given day

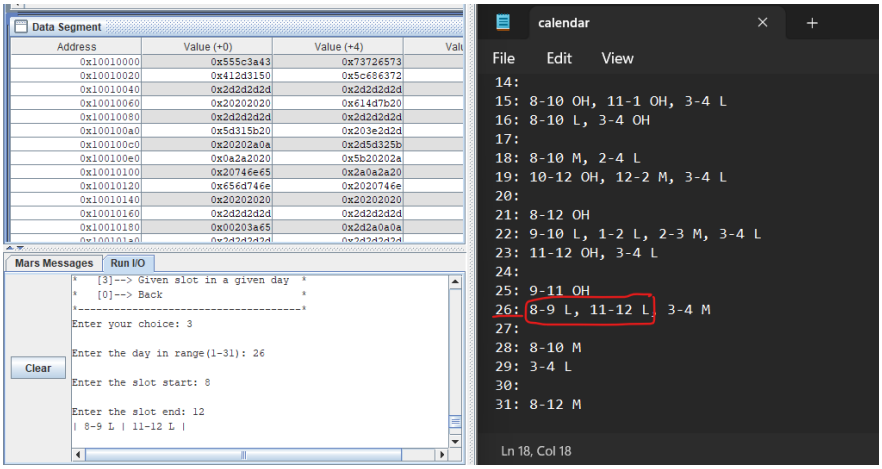

Figure 5-9: View slot 8-12 in day 26

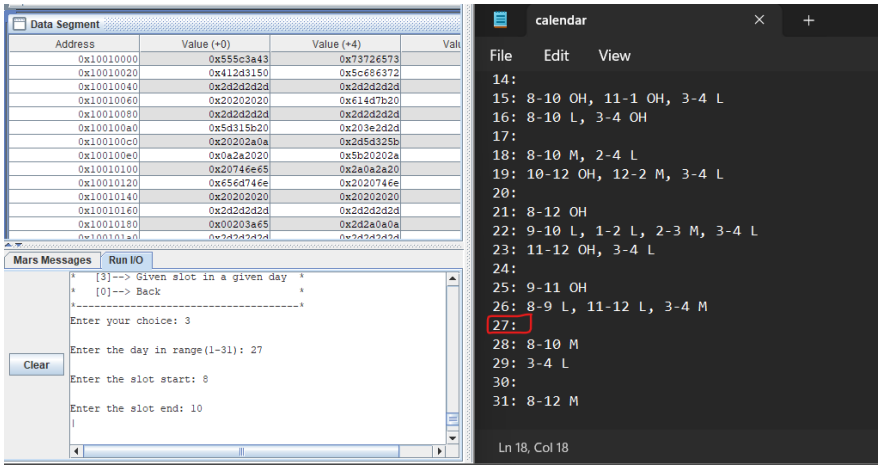

Figure 5-10: View slot 8-10 in day 27 (empty day)

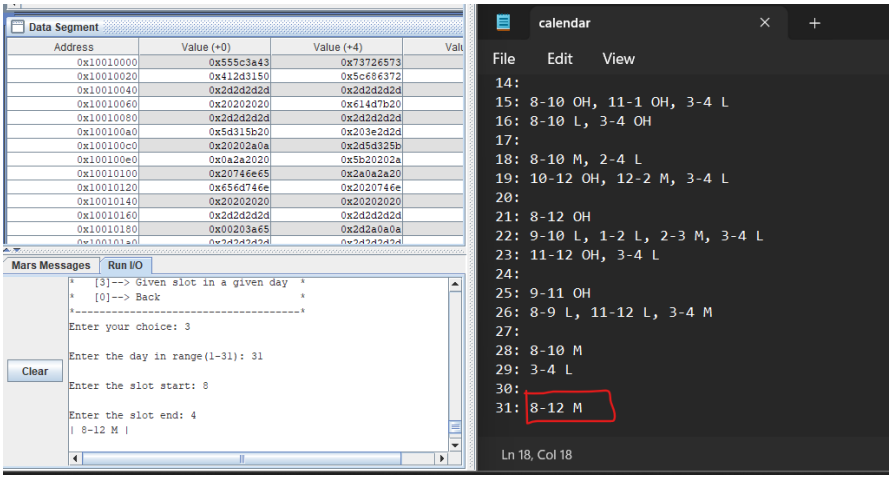

Figure 5-11: View slot 8-4 in day 31

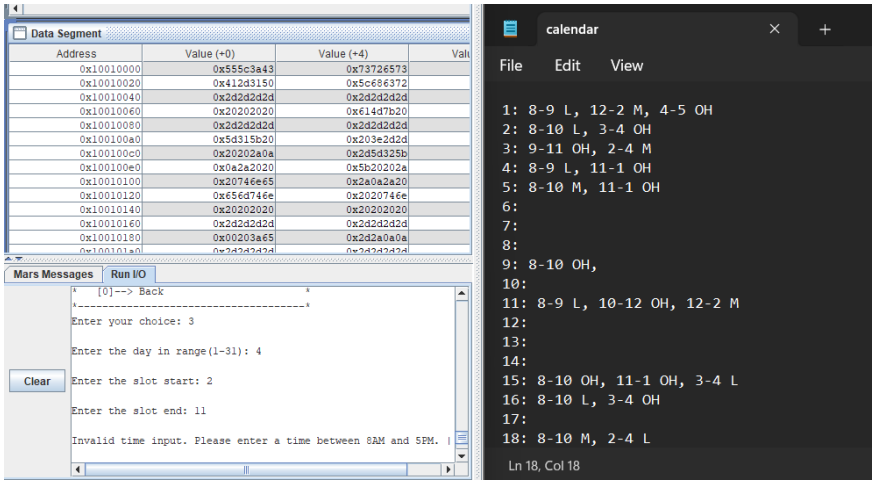

Figure 5-12: View slot (invalid input)

5.2.4. Back to main menu

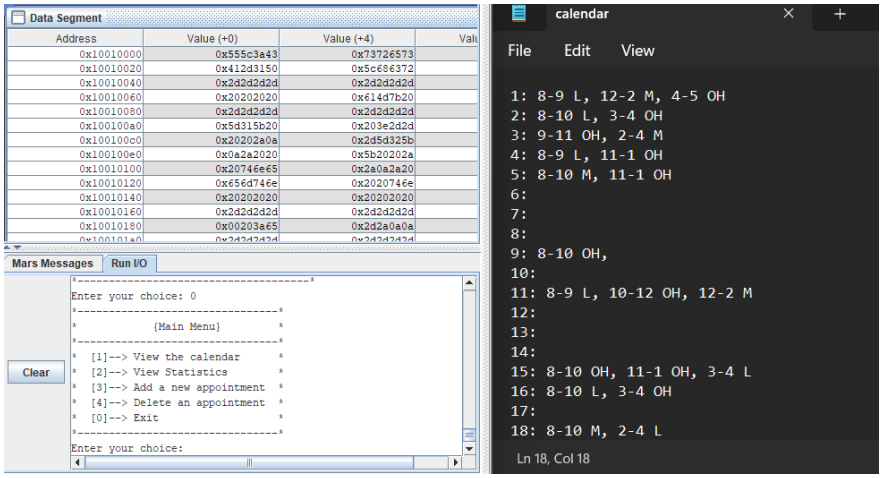

Figure 5-13: Back to main menu

5.3. View Statistics

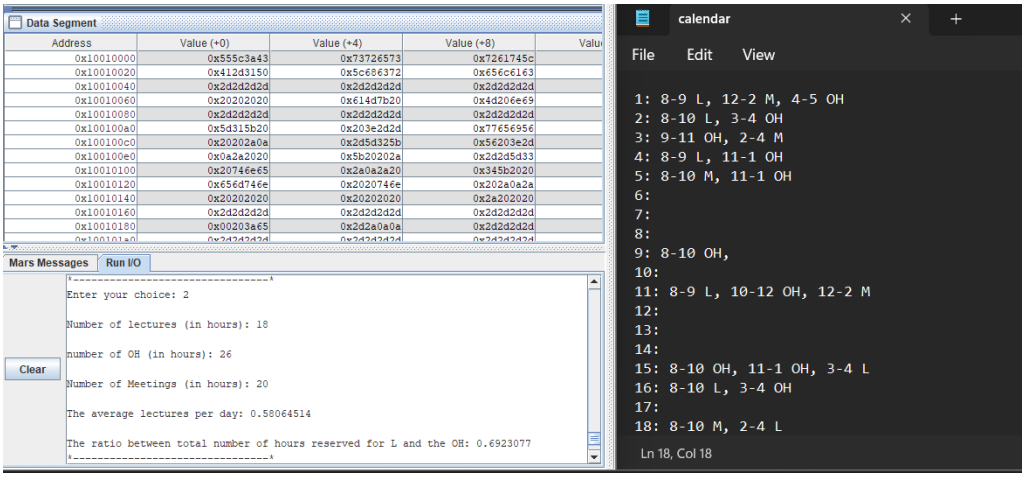

Figure 5-14: View Statistics

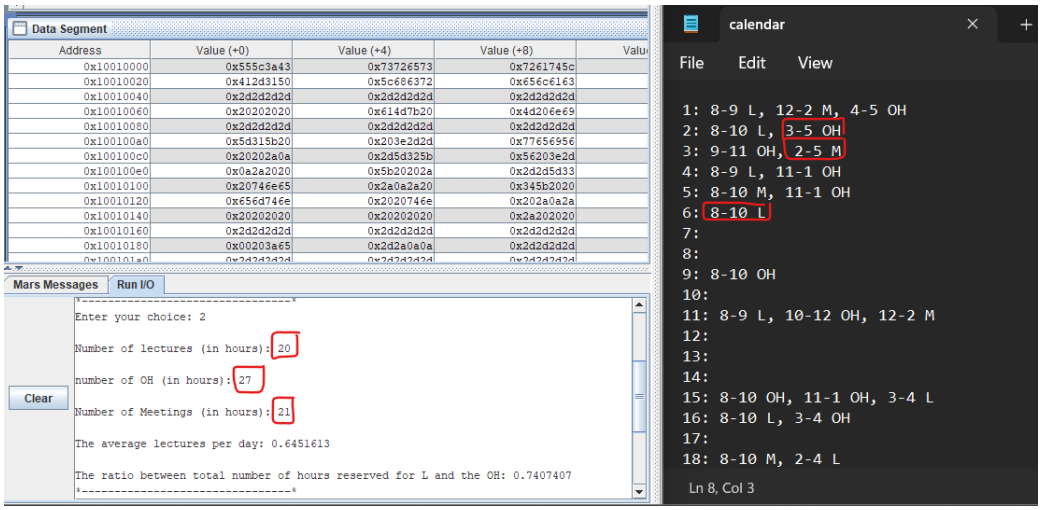

Figure 5-15: View Statistics after edit

5.4. Add a new appointment

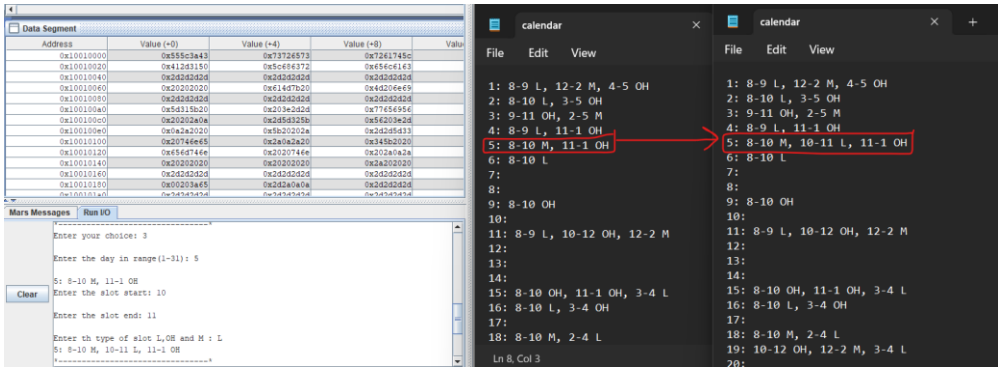

Figure 5-16: Add a new appointment in the middle of day

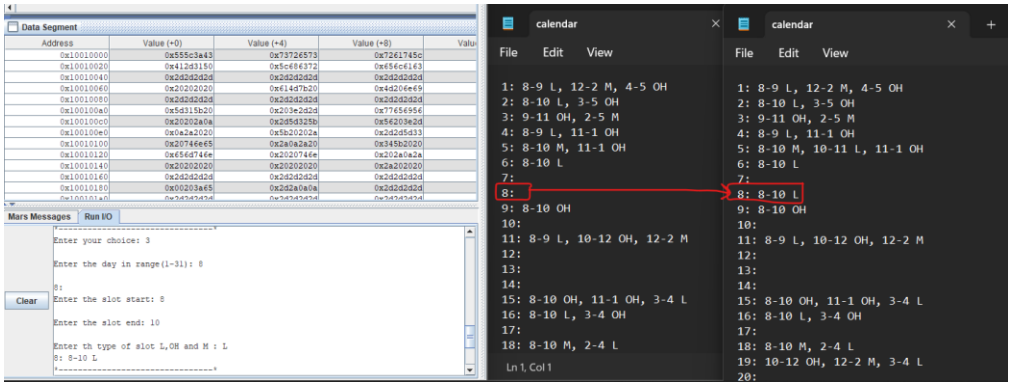

Figure 5-17: Add a new appointment in empty day

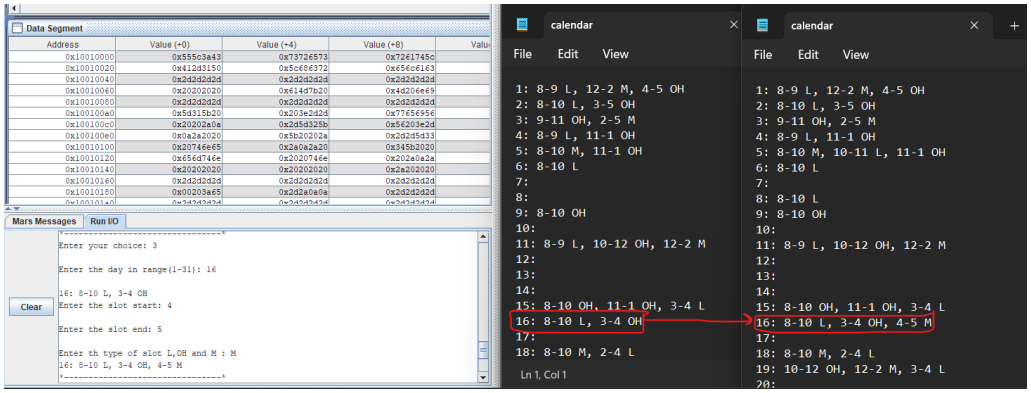

Figure 5-18: Add a new appointment in end of the day

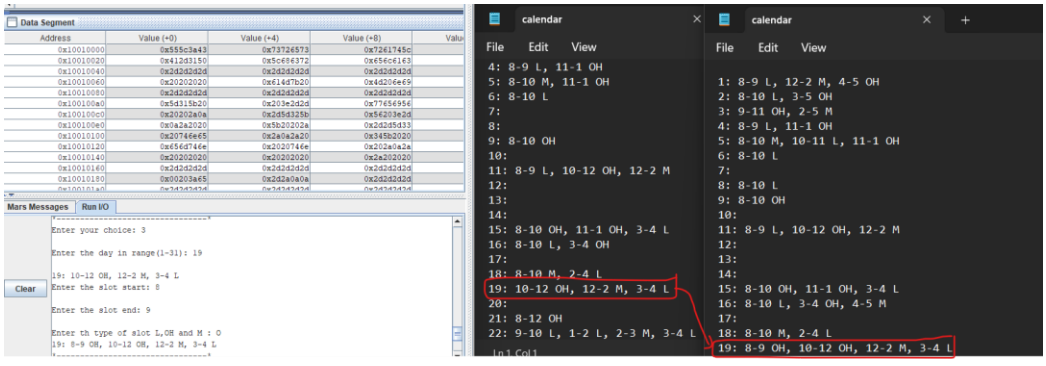

Figure 5-19: Add a new appointment in start of the day

5.5. Delete an appointment

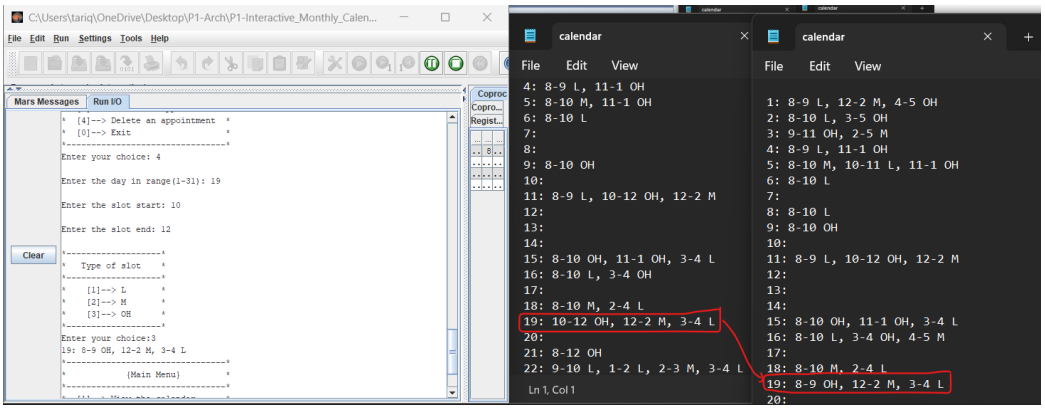

Figure 5-20: Delete specific slot

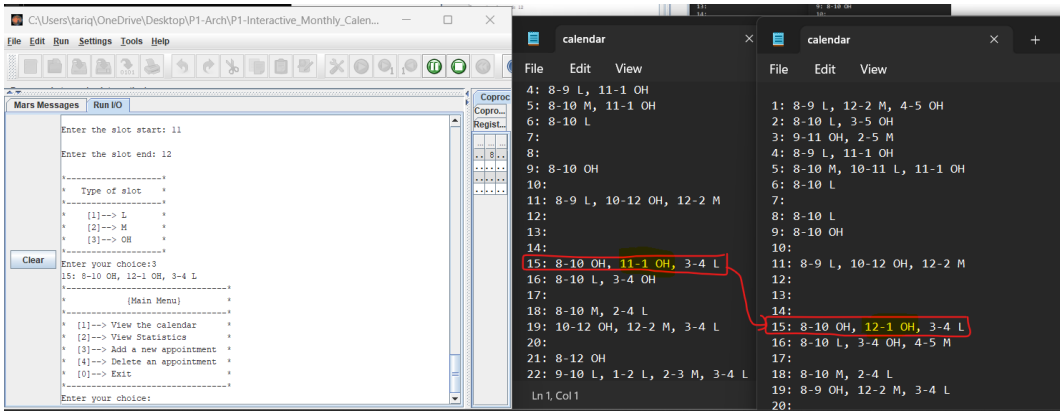

Figure 5-21: Delete from start of slot

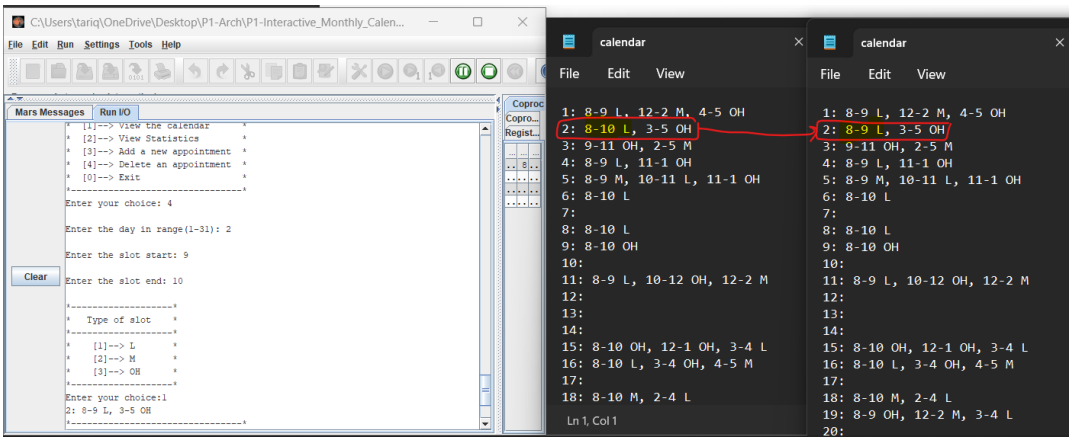

Figure 5-22: Delete from end of slot

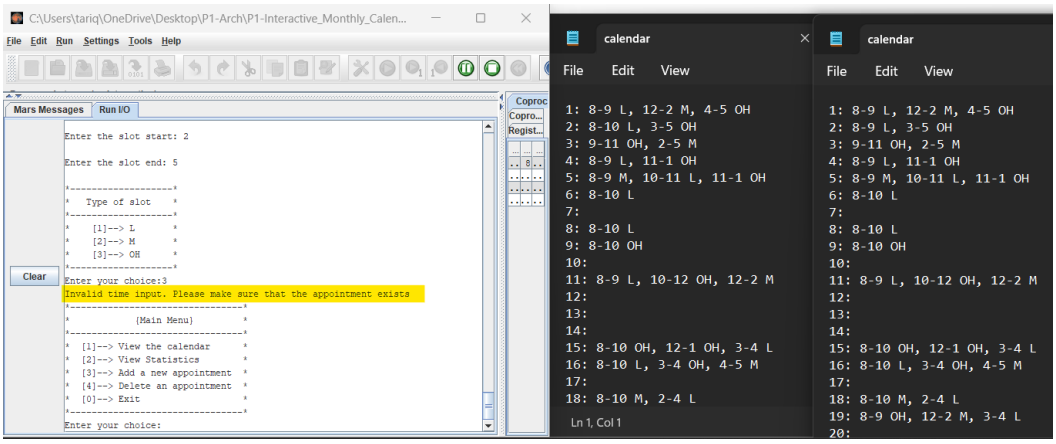

Figure 5-23: Delete from slot (invalid input)

5.6. Exit

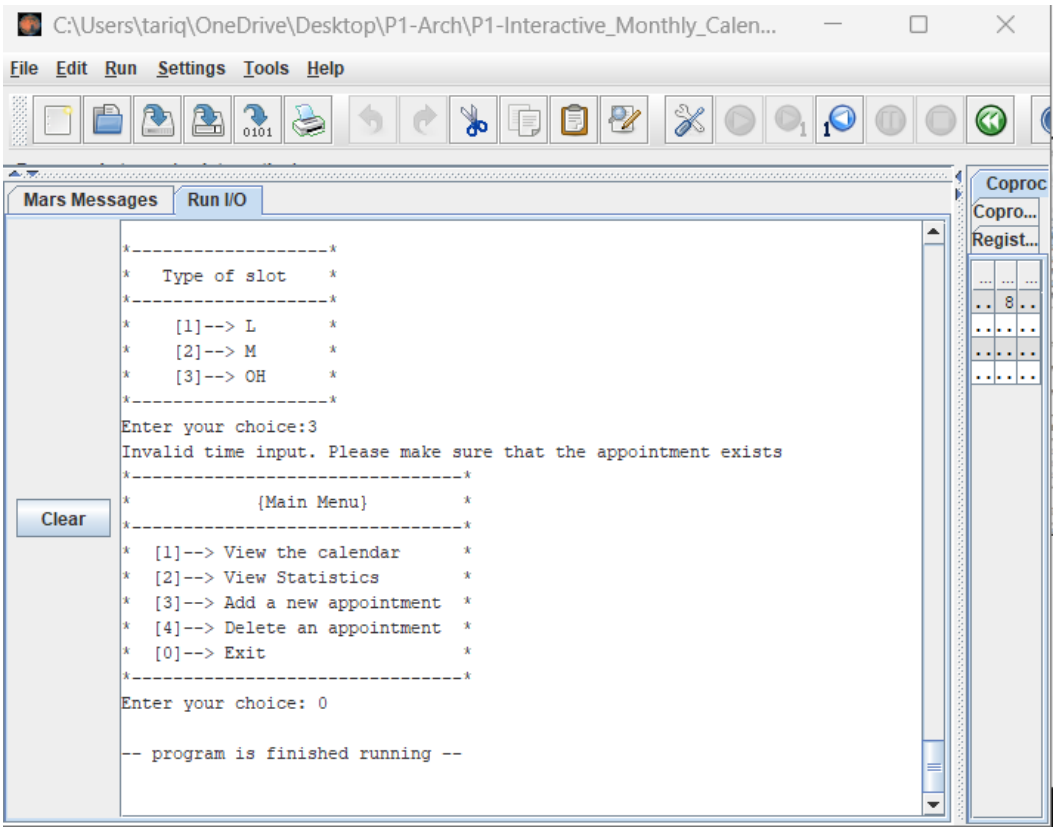

Figure 5-24: Exit from prgram

6. **Appendix**

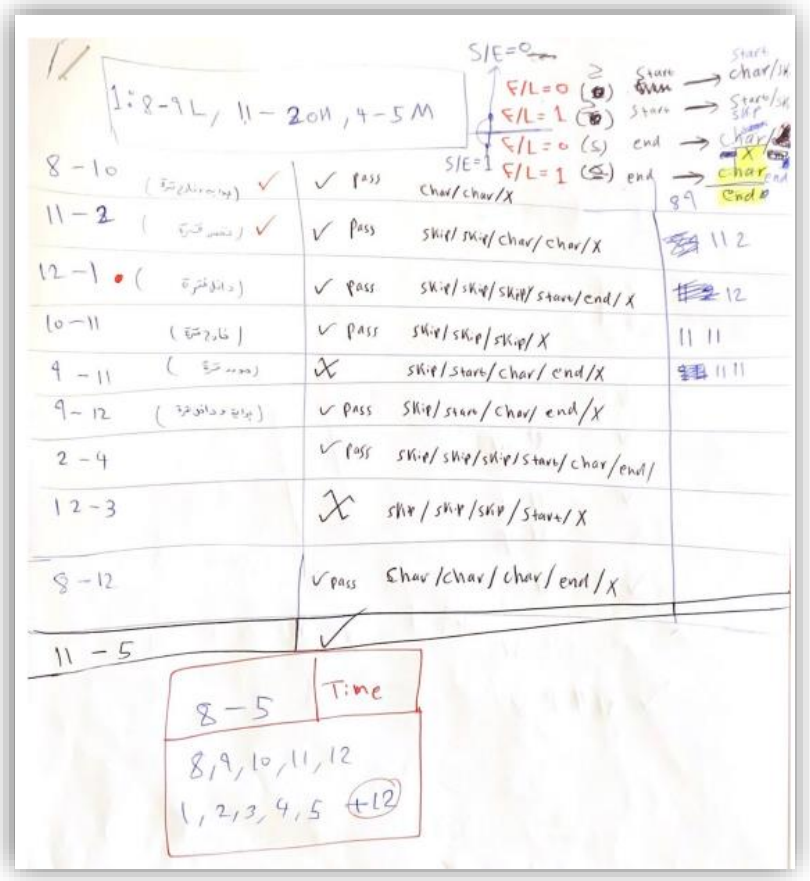

Figure 6-1: Design view algorithm -1

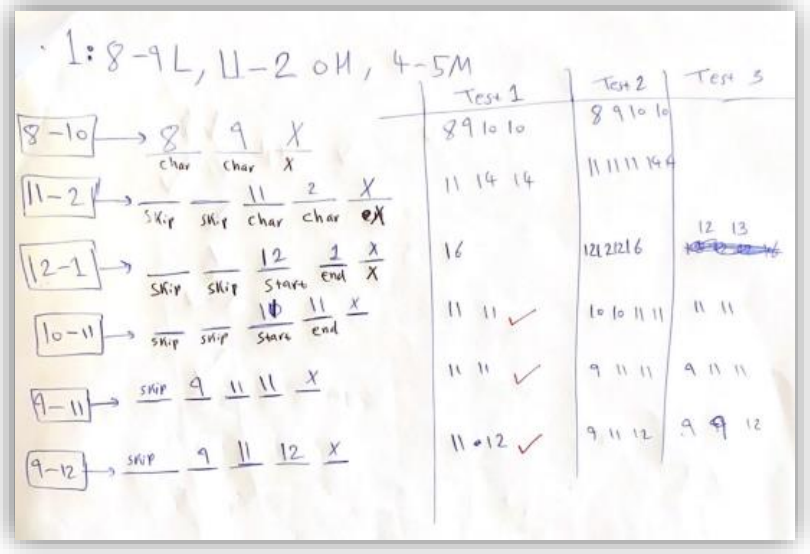

Figure 6-2: Design view algorithm -2

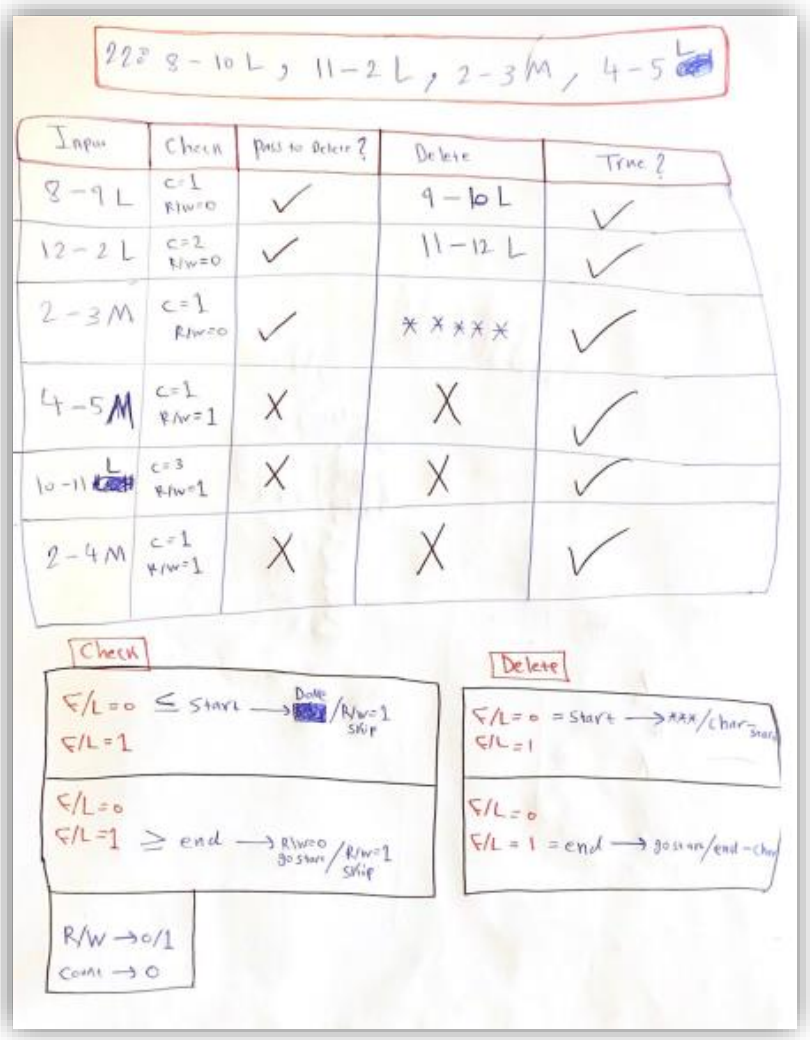

Figure 6-3: Design delete algorithm