



Faculty of Engineering and Technology

Department of Electrical and Computer Engineering

ENCS4370

COMPUTER ARCHITECTURE

Project 1

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Table of Contents

Calendar Project.....	1
Option One	2
Per day	2
Per set of days.....	3
A given slot in a given day	3
Option 2.....	4
Number of Lectures	4
Number of Office Hour	4
Number of Meetings.....	5
Average of Lectures per day.....	5
Ratio between Number of Lectures and Number of OH	5
Option Three	6
Add at Empty Day	6
Add at Middle.....	7
Add at Start.....	8
Add at End	9
Conflict	10
Option Four	10
Delete at Start	10
Delete from Empty Day.....	11
Delete at Middle	12
Delete at End	13
Conflict	14
Option 5.....	14

Table of Table

Table 1: File before Start Testing 1

Table of Figure

Figure 1: Option Menu.....	2
Figure 2: Option 1 Menu.....	2
Figure 3: Per Day Result.....	2
Figure 4: Option 1: Start and End Hour.....	3
Figure 5: Resulted Values.....	3
Figure 6: Option 2 Menu.....	4
Figure 7: Resulted Value	4
Figure 8: Resulted Value	4
Figure 9: Resulted Value	5
Figure 10: Average of Lectures per day	5
Figure 11: Ratio between Number of Lectures and Number of OH.....	5
Figure 12: Needed Information.....	6
Figure 13: Resulted Day Reservation	6
Figure 14: Modified Calendar.....	6
Figure 15: Entered Value at Day number 2	7
Figure 16: Middle insert.....	7
Figure 17: Modified Calendar.....	7
Figure 18: Entered Values at Day number 5.....	8
Figure 19: Resulted Reservation Slot	8
Figure 20: Modified Calendar.....	8
Figure 21: Entered Information of day number 1	9
Figure 22: Resulted Reservation Slot	9
Figure 23: Modified Calendar.....	9
Figure 24: Addition Conflict.....	10
Figure 25: Required information to delete 8-9L slot	10
Figure 26: Resulted day Reservation	10
Figure 27: Modified Calendar.....	11
Figure 28: Delete from Empty Day	11
Figure 29: Delete Information	12
Figure 30: Deleted Slot	12
Figure 31: Modified Calendar.....	12
Figure 32: Delete Information	13
Figure 33: Deleted Slot	13
Figure 34: Modified Calendar.....	13
Figure 35: Delete Conflict	14
Figure 36: No Change in Conflict.....	14
Figure 37: Exit	14

Calendar Project

In this project, we construct a calendar program that saved in a file, as shown below

Table 1: File before Start Testing

1:8-9L,10-12M,1-3OH
2:8-9L,10-12OH,12-3M
3:
4:8-9M,11-2OH
5:4-5M
6:
7:
8:
9:
10:8-9L,2-4M
11:8-9L,10-12OH,2-4M
12:8-9L,10-11OH,3-4M
13:
14:
15:
16:
17:
18:
19:
20:
21:8-9L,10-12OH
22:
23:
24:
25:
26:
27:
28:
29:
30:
31:

The project support view, add and delete options as shown:

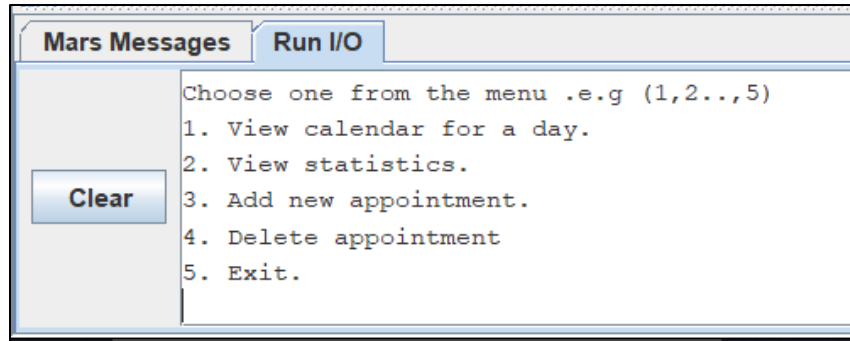


Figure 1: Option Menu

Option One

If we choose option 1, this options will appears

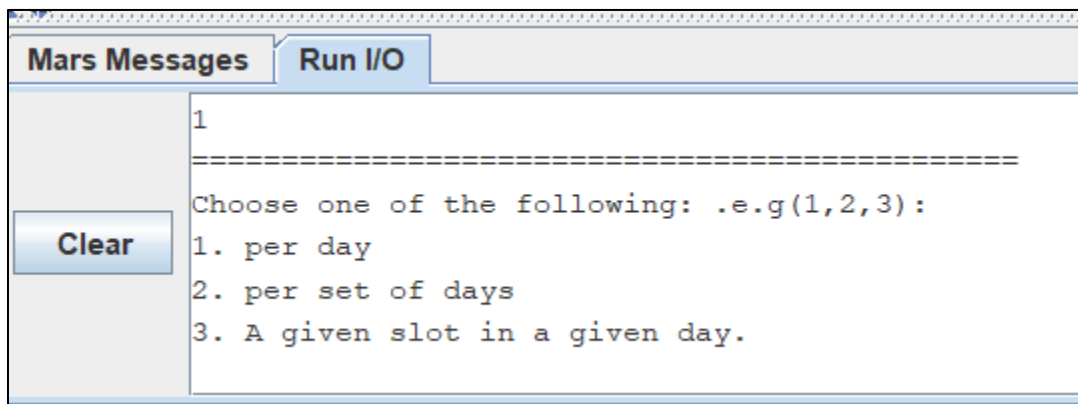


Figure 2: Option 1 Menu

Per day

For example, if we want to print day number 1, this result will appear:

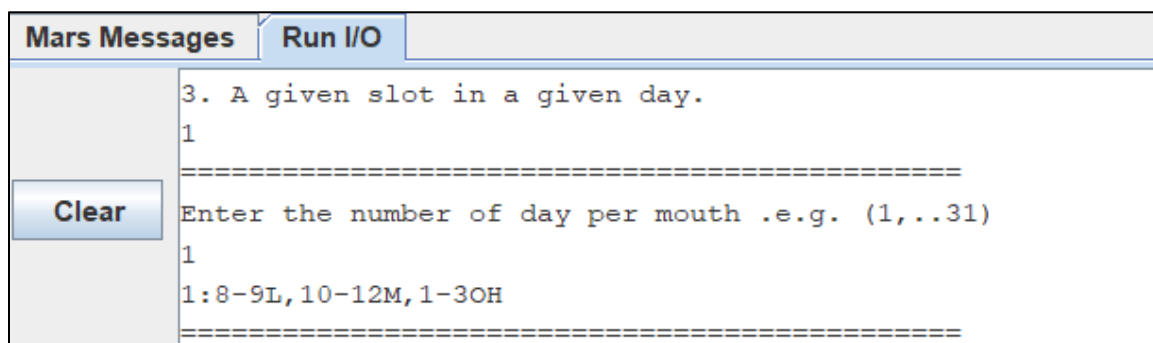
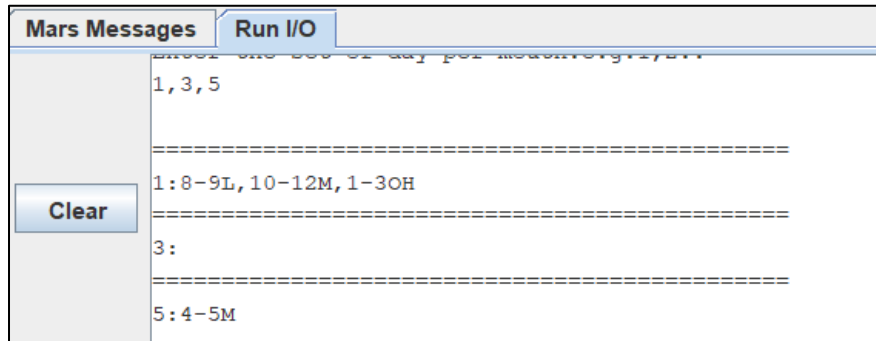


Figure 3: Per Day Result

Per set of days

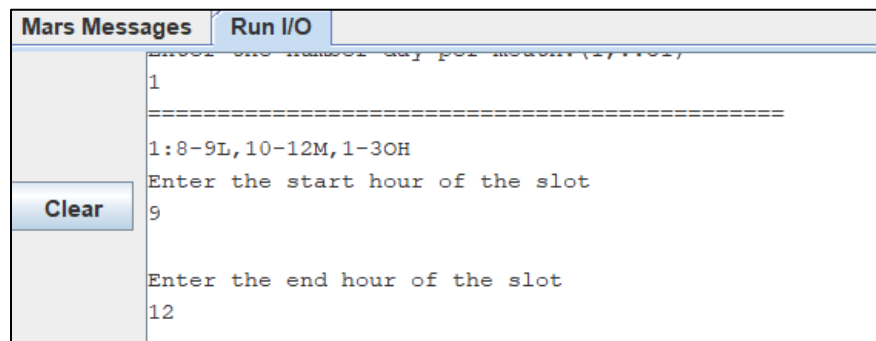
For example, if we want to print set of day with numbers 1, 3, 5, this result will appear



The screenshot shows the Mars Messages application with the 'Run I/O' tab selected. The input field contains '1, 3, 5'. The output field displays the following text: '1, 3, 5', followed by a separator line '=====', then '1: 8-9L, 10-12M, 1-3OH', another separator line '=====', then '3:', a separator line '=====', and finally '5: 4-5M'.

A given slot in a given day

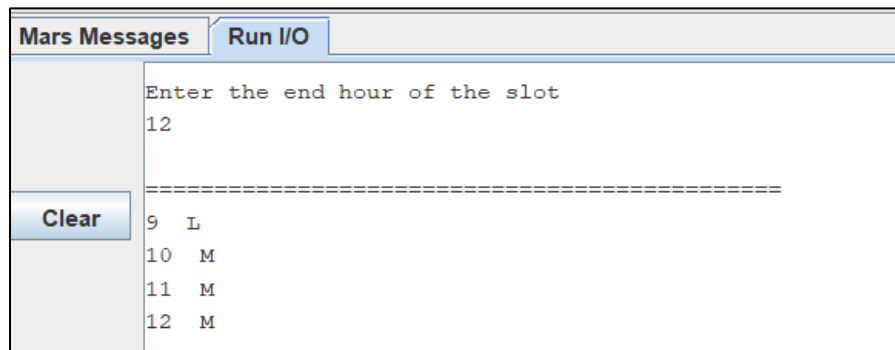
For example if we want to know what we have form [9-12] as shown below.



The screenshot shows the Mars Messages application with the 'Run I/O' tab selected. The input field contains '1'. The output field displays the following text: '1', followed by a separator line '=====', then '1: 8-9L, 10-12M, 1-3OH', then the prompt 'Enter the start hour of the slot', the input '9', then the prompt 'Enter the end hour of the slot', and the input '12'.

Figure 4: Option 1: Start and End Hour

This result will appear as expected.



The screenshot shows the Mars Messages application with the 'Run I/O' tab selected. The input field contains '12'. The output field displays the following text: 'Enter the end hour of the slot', '12', followed by a separator line '=====', then '9 L', '10 M', '11 M', and '12 M'.

Figure 5: Resulted Values

Option 2

If we choose option 2, this options will appears

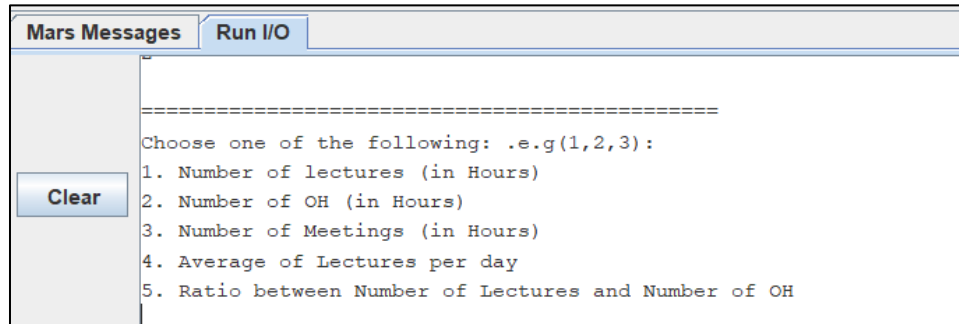


Figure 6: Option 2 Menu

Number of Lectures

Figure7 shows he resulted number of lecture as expected since we have a lecture in these days (1, 2, 10, 11, 12, 21) which shown in Table 1 (File).

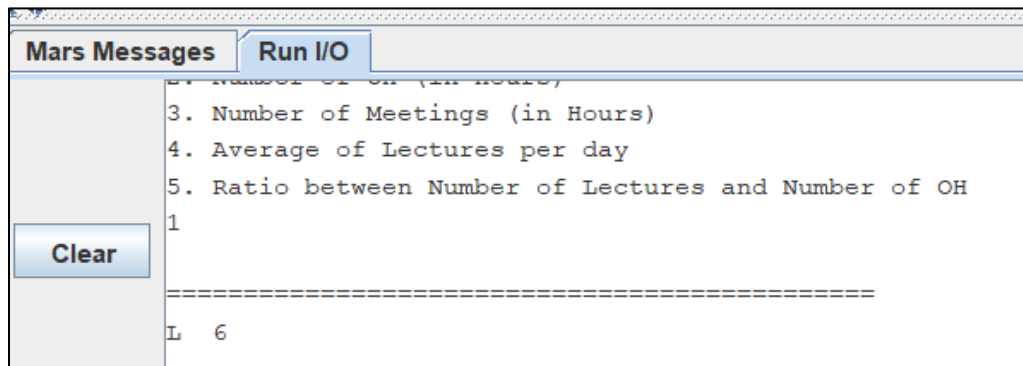


Figure 7: Resulted Value

Number of Office Hour

Figure 8 shows he resulted number of office hours as expected as shown in Table 1 (File).

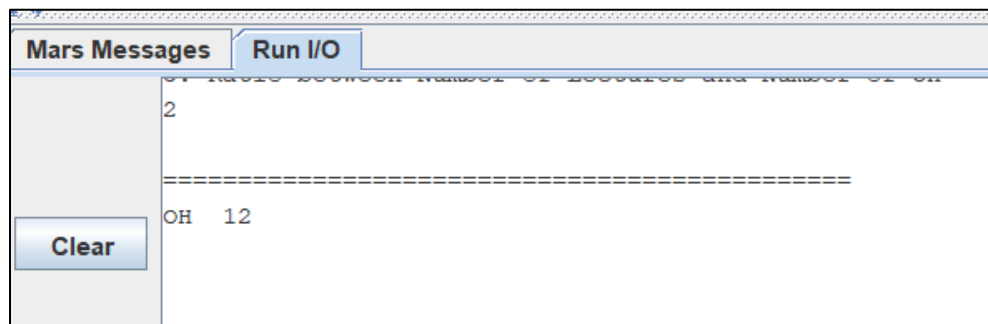


Figure 8: Resulted Value

Number of Meetings

Figure 9 shows the resulted number of office hours as expected as shown in Table 1 (File).

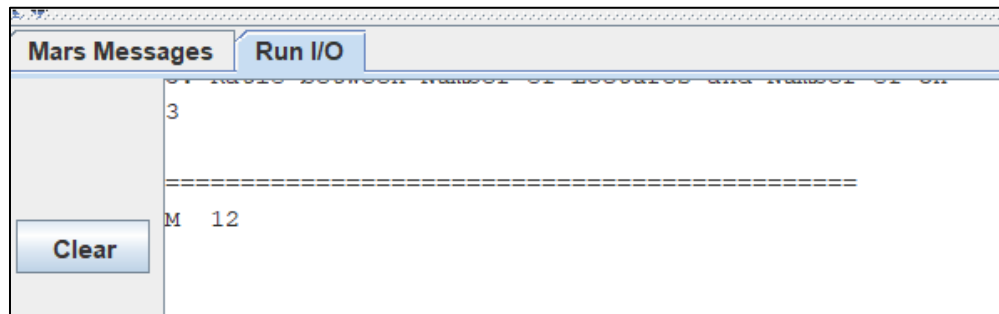


Figure 9: Resulted Value

Average of Lectures per day

Figure 10 shows Average of Lectures per day since we have 8 reserved days and 6 lectures $6/8 = 0.75$.

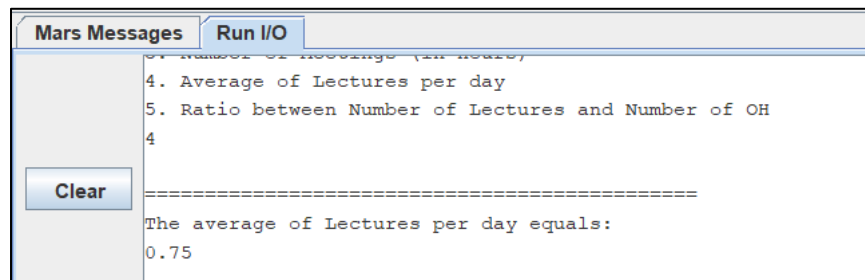


Figure 10: Average of Lectures per day

Ratio between Number of Lectures and Number of OH

Since $L=6$ and $OH=12$ then $L/OH = 0.5$ as shown below.

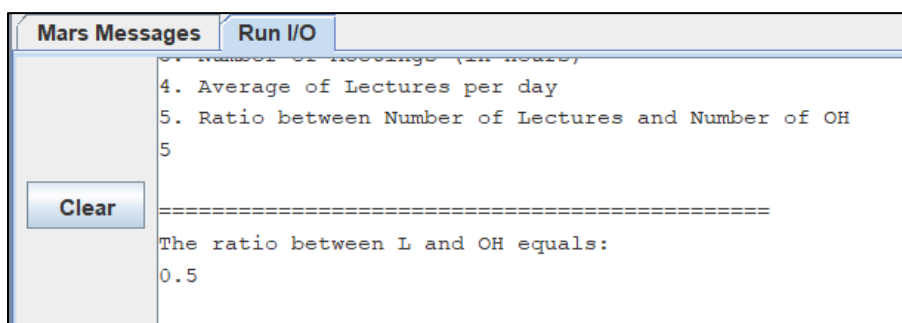
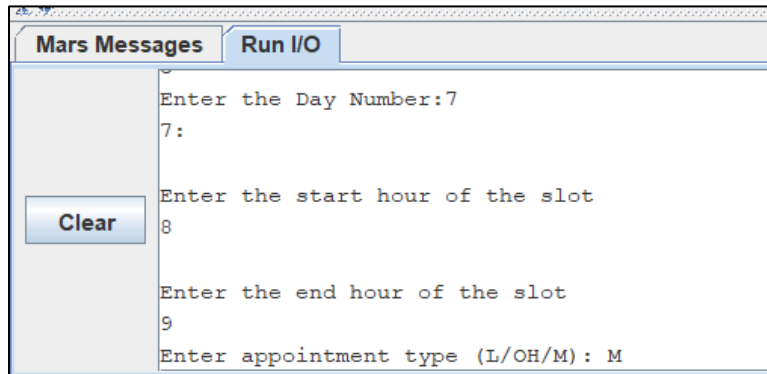


Figure 11: Ratio between Number of Lectures and Number of OH

Option Three

Add at Empty Day

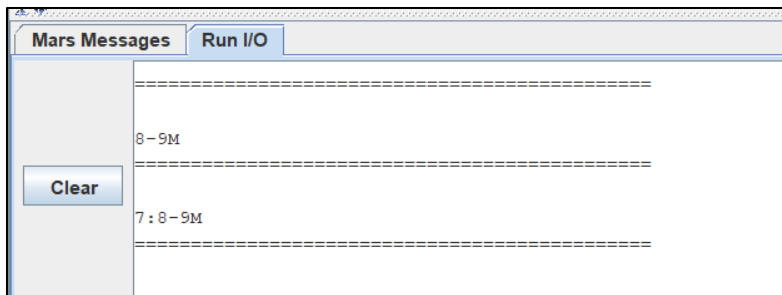
Figure 12 shows the information needed to add 8-9M to empty day (day number 7)



The screenshot shows a window titled "Mars Messages" with a "Run I/O" tab. On the left is a "Clear" button. The main area contains the following text and input fields:

- Enter the Day Number: 7
- 7:
- Enter the start hour of the slot
- 8
- Enter the end hour of the slot
- 9
- Enter appointment type (L/OH/M): M

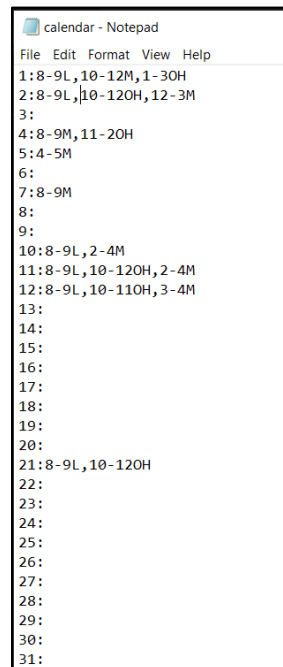
Figure 12: Needed Information



The screenshot shows the same "Mars Messages" window. The main area now displays the reservation information:

- 8-9M
- 7: 8-9M

Figure 13: Resulted Day Reservation



The screenshot shows a Notepad window titled "calendar - Notepad". The text inside is as follows:

```
File Edit Format View Help
1: 8-9L, 10-12M, 1-30H
2: 8-9L, 10-12OH, 12-3M
3:
4: 8-9M, 11-20H
5: 4-5M
6:
7: 8-9M
8:
9:
10: 8-9L, 2-4M
11: 8-9L, 10-12OH, 2-4M
12: 8-9L, 10-11OH, 3-4M
13:
14:
15:
16:
17:
18:
19:
20:
21: 8-9L, 10-12OH
22:
23:
24:
25:
26:
27:
28:
29:
30:
31:
```

Figure 14: Modified Calendar

Add at Middle

For Example if we want to add 9-10M to day number 2, as shown below

Mars Messages Run I/O

Enter the Day Number:2
2:8-9L,10-12OH,12-3M

Clear Enter the start hour of the slot
9

Enter the end hour of the slot
10

Enter appointment type (L/OH/M): M

Figure 15: Entered Value at Day number 2

Figure below shows the insertion at middle which successfully happened.

Mars Messages Run I/O

9-10M

Clear

2:8-9L,9-10M,10-12OH,12-3M

Figure 16: Middle insert

calendar - Notepad

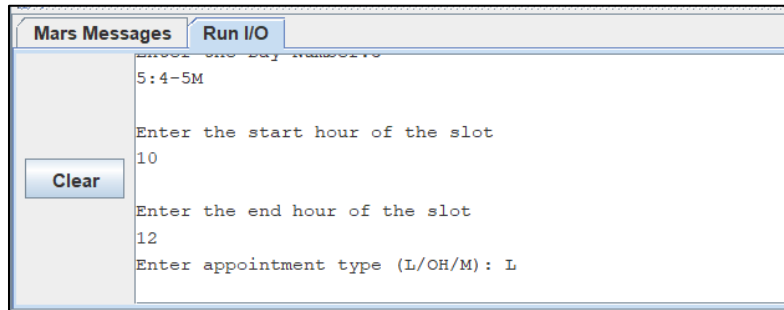
File Edit Format View Help

1:8-9L,10-12M,1-30H
2:8-9L,9-10M,10-12OH,12-3M
3:
4:8-9M,11-20H
5:4-5M
6:
7:8-9M
8:
9:
10:8-9L,2-4M
11:8-9L,10-12OH,2-4M
12:8-9L,10-11OH,3-4M
13:
14:
15:
16:
17:
18:
19:
20:
21:8-9L,10-12OH
22:
23:
24:
25:
26:
27:
28:
29:
30:
31:

Figure 17: Modified Calendar

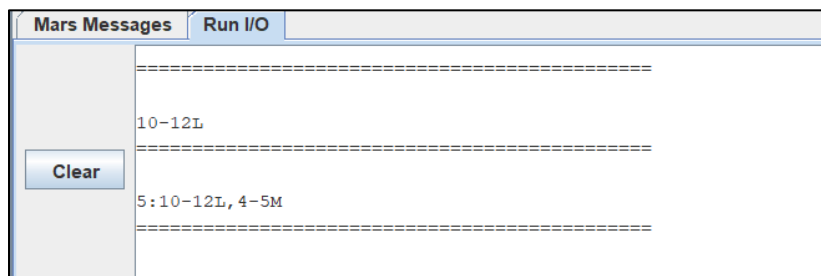
Add at Start

Figure 18 shows the required information to add a new slot 10-12L to day number 5.



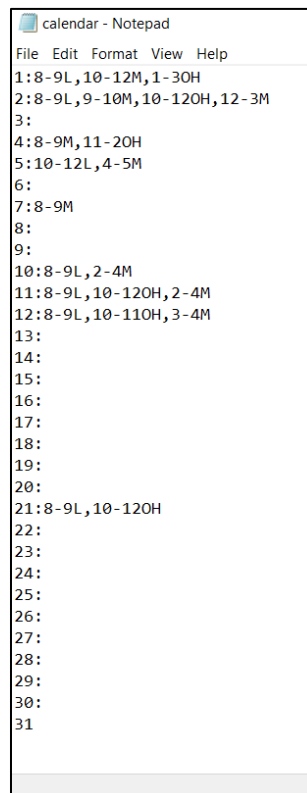
The screenshot shows a window titled "Mars Messages" with a "Run I/O" tab. The window contains a text area with the following text: "5:4-5M", "Enter the start hour of the slot", "10", "Enter the end hour of the slot", "12", and "Enter appointment type (L/OH/M): L". A "Clear" button is located on the left side of the text area.

Figure 18: Entered Values at Day number 5



The screenshot shows the same "Mars Messages" window with the "Run I/O" tab. The text area now displays "10-12L" and "5:10-12L, 4-5M" separated by a horizontal line. The "Clear" button is still present on the left.

Figure 19: Resulted Reservation Slot



The screenshot shows a Notepad window titled "calendar - Notepad". The text area contains a list of reservation slots for each hour of the day, from 1:8-9L,10-12M,1-30H to 31. The slots are listed as follows: 1:8-9L,10-12M,1-30H; 2:8-9L,9-10M,10-12OH,12-3M; 3:; 4:8-9M,11-20H; 5:10-12L,4-5M; 6:; 7:8-9M; 8:; 9:; 10:8-9L,2-4M; 11:8-9L,10-12OH,2-4M; 12:8-9L,10-11OH,3-4M; 13:; 14:; 15:; 16:; 17:; 18:; 19:; 20:; 21:8-9L,10-12OH; 22:; 23:; 24:; 25:; 26:; 27:; 28:; 29:; 30:; 31.

Figure 20: Modified Calendar

Add at End

Figure 21 shows the required information to add a new slot 10-12L to day number 5.

The screenshot shows a window titled "Mars Messages" with a "Run I/O" tab. The main text area contains the following text:
1:8-9L,10-12M,1-3OH
Enter the start hour of the slot
4
Enter the end hour of the slot
5
Enter appointment type (L/OH/M): M
A "Clear" button is visible on the left side of the window.

Figure 21: Entered Information of day number 1

The screenshot shows the same "Mars Messages" window. The main text area now displays:
=====
4-5M
=====
1:8-9L,10-12M,1-3OH,4-5M
=====
The "Clear" button remains on the left.

Figure 22: Resulted Reservation Slot

The screenshot shows a Notepad window titled "calendar - Notepad". The text content is as follows:
File Edit Format View Help
1:8-9L,10-12M,1-3OH,4-5M
2:8-9L,9-10M,10-12OH,12-3M
3:
4:8-9M,11-20H
5:10-12L,4-5M
6:
7:8-9M
8:
9:
10:8-9L,2-4M
11:8-9L,10-12OH,2-4M
12:8-9L,10-11OH,3-4M
13:
14:
15:
16:
17:
18:
19:
20:
21:8-9L,10-12OH
22:
23:
24:
25:
26:
27:
28:
29:
30:
31:

Figure 23: Modified Calendar

Conflict

Figure 24 shows a conflict.

Mars Messages	Run I/O
	Enter the Day Number: 2:8-9L, 9-10M, 10-12OH, 12-3M
Clear	Enter the start hour of the slot 8
	Enter the end hour of the slot 9
	Sorry, Conflict is happend
	Enter the Day Number:

Figure 24: Addition Conflict

Option Four

Delete at Start

Figure 25 shows the required information for delete 8-9L slot.

Mars Messages	Run I/O
	Enter the Day Number: 1:8-9L, 10-12M, 1-3OH, 4-5M
Clear	Enter the start hour of the slot 8
	Enter the end hour of the slot 9
	Enter appointment type (L/OH/M): L

Figure 25: Required information to delete 8-9L slot

Mars Messages	Run I/O
	9
Clear	Enter appointment type (L/OH/M): L
	=====
	1:10-12M, 1-3OH, 4-5M

Figure 26: Resulted day Reservation

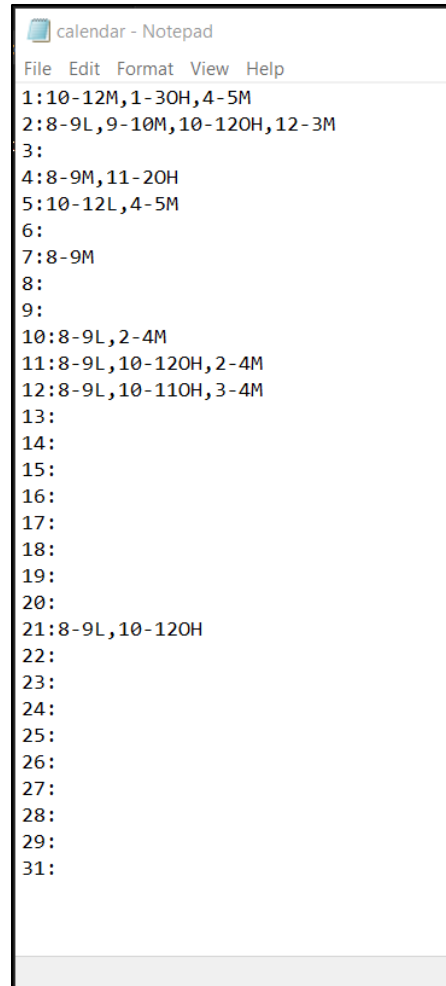


Figure 27: Modified Calendar

Delete from Empty Day

Figure 28 shows the deletion from an empty day.

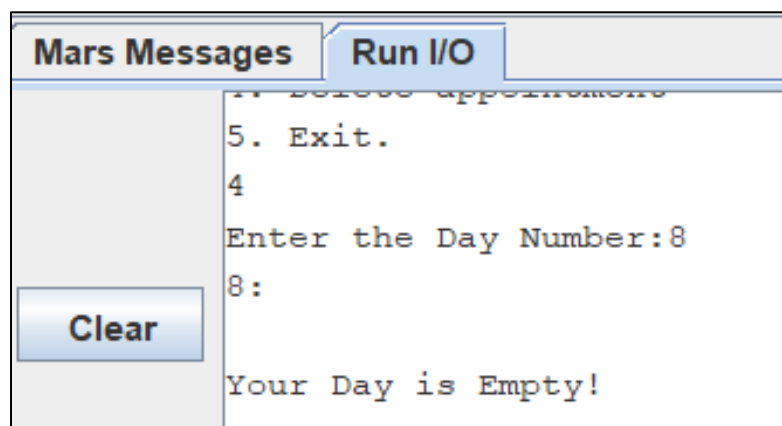


Figure 28: Delete from Empty Day

Delete at Middle

Figure 29 shows the required information for delete 10-11OH slot.

The screenshot shows a window titled "Mars Messages" with a "Run I/O" tab. The window contains a text area with the following text: "12:8-9L,10-11OH,3-4M", "Enter the start hour of the slot", "10", "Enter the end hour of the slot", "11", and "Enter appointment type (L/OH/M): OH". A "Clear" button is located on the left side of the window.

Figure 29: Delete Information

Figure 30 shows the deleted slot as expected.

The screenshot shows the same "Mars Messages" window with the "Run I/O" tab. The text area now shows "11", "Enter appointment type (L/OH/M): OH", a line of equals signs, and "12:8-9L,3-4M". The "Clear" button is still present on the left.

Figure 30: Deleted Slot

The screenshot shows a Notepad window titled "calendar - Notepad". The text area contains a list of time slots: "1:10-12M,1-30H,4-5M", "2:8-9L,9-10M,10-12OH,12-3M", "3:", "4:8-9M,11-20H", "5:10-12L,4-5M", "6:", "7:8-9M", "8:", "9:", "10:8-9L,2-4M", "11:8-9L,10-12OH,2-4M", "12:8-9L,3-4M", "13:", "14:", "15:", "16:", "17:", "18:", "19:", "20:", "21:8-9L,10-12OH", "22:", "23:", "24:", "25:", "26:", "27:", "28:", "29:", "31:".

Figure 31: Modified Calendar

Delete at End

Figure 32 shows the required information for delete 2-4M slot.

The screenshot shows a window titled "Mars Messages" with a "Run I/O" tab. The window contains a text area with the following text: "11:8-9L,10-12OH,2-4M", "Enter the start hour of the slot", "2", "Enter the end hour of the slot", "4", and "Enter appointment type (L/OH/M): M". A "Clear" button is visible on the left side of the window.

Figure 32: Delete Information

The screenshot shows the same "Mars Messages" window with the "Run I/O" tab. The text area now displays "4", "Enter appointment type (L/OH/M): M", a line of equals signs, and "11:8-9L,10-12OH". The "Clear" button remains on the left.

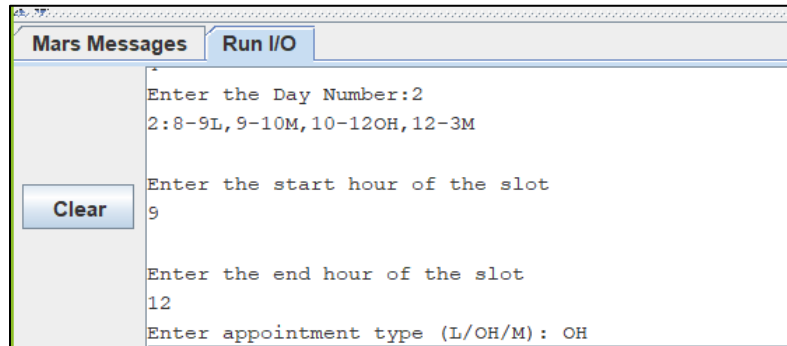
Figure 33: Deleted Slot

The screenshot shows a Notepad window titled "calendar - Notepad". The text area contains a list of time slots: "1:10-12M,1-3OH,4-5M", "2:8-9L,9-10M,10-12OH,12-3M", "3:", "4:8-9M,11-20H", "5:10-12L,4-5M", "6:", "7:8-9M", "8:", "9:", "10:8-9L,2-4M", "11:8-9L,10-12OH", "12:8-9L,3-4M", "13:", "14:", "15:", "16:", "17:", "18:", "19:", "20:", "21:8-9L,10-12OH", "22:", "23:", "24:", "25:", "26:", "27:", "28:", "29:", and "31:".

Figure 34: Modified Calendar

Conflict

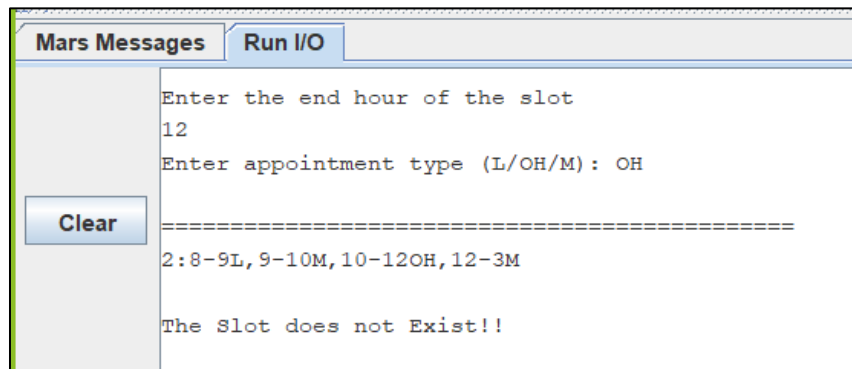
Figure 36 shows a delete conflict.



The screenshot shows a window titled "Mars Messages" with a "Run I/O" tab. The window contains a text area with the following text: "Enter the Day Number:2", "2:8-9L,9-10M,10-12OH,12-3M", "Enter the start hour of the slot", "9", "Enter the end hour of the slot", "12", and "Enter appointment type (L/OH/M): OH". A "Clear" button is visible on the left side of the window.

Figure 35: Delete Conflict

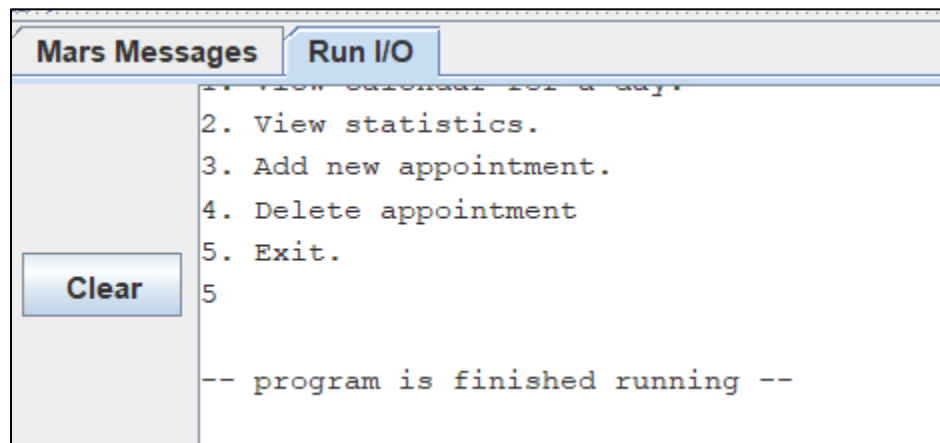
Note that the day reservation is still the same as shown below.



The screenshot shows a window titled "Mars Messages" with a "Run I/O" tab. The window contains a text area with the following text: "Enter the end hour of the slot", "12", "Enter appointment type (L/OH/M): OH", a separator line of equals signs, "2:8-9L,9-10M,10-12OH,12-3M", and "The Slot does not Exist!!". A "Clear" button is visible on the left side of the window.

Figure 36: No Change in Conflict

Option 5



The screenshot shows a window titled "Mars Messages" with a "Run I/O" tab. The window contains a text area with the following text: "1. View calendar for a day.", "2. View statistics.", "3. Add new appointment.", "4. Delete appointment", "5. Exit.", "5", and "-- program is finished running --". A "Clear" button is visible on the left side of the window.

Figure 37: Exit