

CSCI 1011 – Lab 4

Learning Outcomes

- Alter the flow of the control in a program using branching statements.
- Construct Boolean expressions using comparison and logical operators.

Required Reading

Savitch - 3.1

Instructions

The office hours for Professor X in Spring 2021 are as follows:

- Monday 3:00pm - 5:00pm
- Thursday 3:30pm – 5:00pm
- Friday 3:00pm – 4:30pm

Note that all office hours are in the late afternoon. For this lab assignment, you will write a program that will take the day of the week and a time (XX:XXam/pm) as inputs, and will output whether the professor is available during that time on that day.

1. Start NetBeans.
2. Create a new project called Lab4 with a main class called YournameLab4 with your name.
3. Declare a String variable to represent the day of the week.
4. Prompt the user for the day of the week and store it in the variable from step 3. The result should look like this:

Enter the day of the week: **Monday**

5. Declare a String variable to represent the time of day.
6. Prompt the user for the time of day in the format XX:XXam/pm (e.g., 10:45am, 3:30pm), and store it in the variable from step 5. The result should look like this:

Enter a time (XX:XXam/pm): **4:15pm**

7. Declare two `int` variables to represent the hour and minute, and a `String` variable to represent a value of "am" or "pm".
8. Use the `String` class `length`, `indexOf`, and `substring` methods to process time to extract the hour, minute, and am/pm information. Store the results in the three variables from step 7. You will need to use the `Integer.parseInt` method to convert a `String` to an `int`.

```
int number = Integer.parseInt("42"); // converts "42" to 42
```

9. Use `if-else` statements to display the entered day of the week in the following format:

Day of the week: Monday

Use the `String` class `equalsIgnoreCase` method to identify the entered input in different format (e.g. "Mon", "mon", "MON", "Monday", "monday", "MONDAY"). Use the logical OR operator `||` to build the Boolean expressions.

10. For each day when the professor does not have office hour (Tuesday, Wednesday, Saturday, Sunday), add an additional statement that displays "Not Available".
11. For days, when the professor has office hours (Monday, Thursday, and Friday), write nested `if-else` statements within the respective `if-else` statements described in step 9 to check whether the professor is available at that particular time. There are 3 cases to consider.
 - If the time entered is AM, display "Not Available" since the professor's office hours are in the late afternoon.
 - If the time entered is PM, and it's within the office hour time, then display "Available"
 - If the time entered is PM, but it's not within the office hour time, then display "Not Available".

Use the `String` class `equals` method to check whether the entered time is "am" or "pm". To check the whether the entered time is during the office hours, use Java comparison and logical operators.

12. The output from your program should look like the following:

Sample output 1:

```
Enter the day of the week:
Monday
Enter a time (XX:XXam/pm):
3:45pm
Day of the week: Monday
Available
```

Sample output 2:

```
Enter the day of the week:  
Friday  
Enter a time (XX:XXam/pm):  
04:45pm  
Day of the week: Friday  
Not Available
```

Sample output 3:

```
Enter the day of the week:  
thu  
Enter a time (XX:XXam/pm):  
2:00pm  
Day of the week: thu  
Not Available
```

Sample output 4:

```
Enter the day of the week:  
wed  
Enter a time (XX:XXam/pm):  
9:00am  
Day of the week: wed  
Not Available
```

Sample output 5:

```
Enter the day of the week:  
MON  
Enter a time (XX:XXam/pm):  
10:30am  
Day of the week: MON  
Not available
```

13. Add logic to your program to perform input validation for the hour, minute, and day. If any of these have invalid input, display an error message. The output of your program in these cases should look like this:

Sample output 1:

```
Enter the day of the week:  
MON  
Enter a time (XX:XXam/pm):  
4:63am  
Invalid time
```

Sample output 2:

```
Enter the day of the week:  
Flursday  
Enter a time (XX:XXam/pm):  
11:12pm  
Invalid day
```

14. Make sure your code is indented properly and you have CSCI 1011 Lab 4, your name, and a brief description of your program in the Javadoc comments before the class declaration.
15. Upload the file YournameLab4.java to the drop box folder labeled Lab Assignment 4.