CSIT121 – Lab 4
File name: YourName_XXX_Lab_4.java
where XXX is your class list no

Write a program that prompts the user to enter the time in 12 hours notation. The program then outputs the time in 24 hours notation. Your program must contain three exception classes:
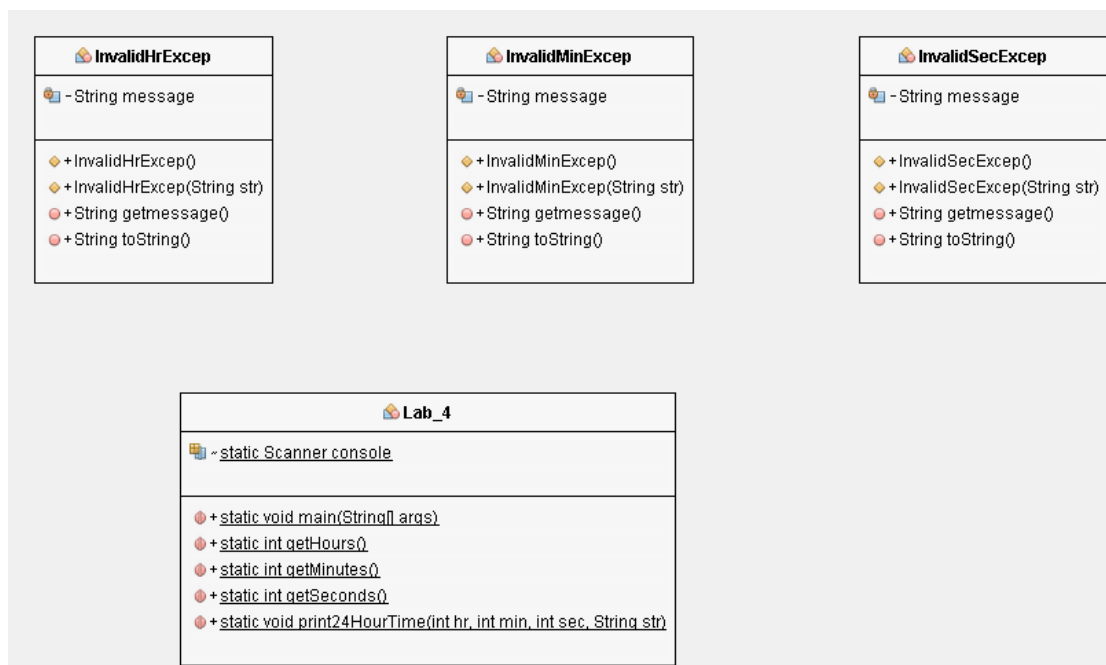
- `InvalidHrException`
- `InvalidMinException`
- `InvalidSecException.`

Note that 0 <= hours < 24, 0 <= minute, seconds < 60.

If the user enters an invalid value for hours, then the program should throw and catch an `InvalidHrException`, and prompt user to re-enter the value.

Similar conventions will be for the values of minutes and seconds.

The following shows the UML diagrams of all the classes and their relationship that you must implement them:

Convenient to your design, feel free to change some of the methods used in the main file.

Let us look at the run time analysis:

Case 1: Correct input

```
Enter hours: 8
Enter minutes: 28
Enter seconds: 38
Enter AM or PM: Am

24 hour clock time: 08:28:38
```

Case 2: Wrong hours / minutes / seconds

```
Enter hours: -3
The value of hours must be between 0 and 12.
Enter hours: 23
The value of hours must be between 0 and 12.
Enter hours: 9
```

```
Enter minutes: -8
The value of minutes must be between 0 and 60.
Enter minutes: 45
```

```
Enter seconds: -9
The value of seconds must be between 0 and 60.
Enter seconds: 90
The value of seconds must be between 0 and 60.
Enter seconds: 48
```

```
Enter AM or PM: pm

24 hour clock time: 21:45:48
```