In this week’s homework assignment you’ll be working with conditionals and private methods. Be sure to pull out any repeated code into private methods.

Written Exercises

Double click on the sheet of notebook paper icon in BlueJ. This will open a README file where you can type your answers to the following exercises:

Given the following variable declarations, what is the value of each of the following boolean expressions?

```java
int value1 = 13, value2 = 20;
boolean done = false;
```

1. value1 > value2
2. (value1 + 7) <= value2
3. value1 < (value2 - 7)
4. value1 != value2
5. !(value1 != value2)
6. !(value1 == value2) || !done
7. !(value1 == value2) && !done
8. done
9. done || !done
10. done && !done
11. !(done || done)
12. ((value1 <= value2) || !done) && (done || (value2 < value1))
One of the earliest forms of artificial intelligence (AI) were expert systems. An expert system is a system
designed to make decisions or arrive at diagnoses based on information it is given. The decisions it makes
are based on a sequence of conditionals.

For this assignment, you will create an expert system to diagnose the cause of a fever. The flowchart shown
on the next page is a simplification of the American Medical Associations’s (AMA) diagram for diagnosing
a fever. Using the flowchart, your program should ask the necessary questions to determine the cause of
the fever as indicated by the chart.

Getting Started

Create a new BlueJ project entitled hw6. Inside the project, create a Java class called FeverDiagnosis that
uses a Scanner to ask the user questions and diagnose the cause of the fever. Your FeverDiagnosis class
should have only two public methods: the constructor and a method called diagnose(). These methods
should take no input arguments and they should return no values.

The diagnose() method should be similar to the determineFilingStatus() method discussed in class –
i.e., calling this method should result in the user being asked a series of questions that ultimately leads to a
diagnosis for the cause of the fever. Just like we practiced in class, pull out all repeated code into private
methods to make your diagnose() method as short as possible.

You should also create a second Java class called FeverController that has a main(). Inside the main() method, you should create an object of type FeverDiagnosis and then call the diagnose() method.

Style Guide

Before you submit your assignment, go through the checklist below and make sure your code conforms to
the style guide.

Checklist

- All unused variables are deleted
- All instance variables are used in more than one method (if not, make them local)
- All instance variables are declared private
- All instance variables are initialized in the constructor
- Javadoc comment for all classes
- All methods have Javadoc comments (except for the main method)
- Proper capitalization of variables (final and non-final variables), methods, and classes
- All numbers have been replaced with constants (i.e. no magic numbers)
- Use white space to separate different sections of your code
- Code is correctly indented to improve readability

Read the “Style Guide” (under “Resources” on the course website) for more information.

Submitting your homework assignment

You should submit your hw6 folder with your FeverDiagnosis class and your FeverController class.

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Figure 5.11 Procedure to diagnose the cause of a fever.

Possibilities include pneumonia or infection of airways.

Yes

Possibilities include viral infection.

No

Yes

Possibilities include a throat infection.

No

Yes

Possibilities include menigitis.

No

Yes

Possibilities include digestive tract infection.

No

Yes

Possibilities include a urinary tract infection.

No

Yes

Possibilities sunstroke or heat exhaustion.

No

Insufficient information to list possibilities.