

CS161: Introduction to Computer Science

Homework Assignment 6

Due: 3/6 by 11:59pm

Diagnosing A Fever

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 Association's (AMA) diagram for diagnosing a fever ¹. Using the flowchart, your program should ask the necessary questions to determine the cause of the fever as indicated by the chart.

The goal of this homework is to give you practice using (nested) conditionals and writing private methods.

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.

Before you submit your assignment, make sure your code adheres to the CS161 Style Guide (which you can find on the course webpage or in your course packet). This includes having complete Javadoc comments for all public methods, using constants, ensuring that instance variables truly need to be instance variables, the correct naming of variables and methods, and the use of blank space to make your code easier to read.

Submitting your homework assignment

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

¹The flowchart is taken from *Java: Programming Design* by James Cohoon and Jack Davidson who themselves took it from *The American Medical Family Medical Guide: Third Edition*, C. B. Clayman (medical editor), 1994.

Figure 5.11 Procedure to diagnose the cause of a fever.

