

CS161: Introduction to Computer Science
Homework Assignment 7
Due: 3/14 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. Note that there are many cases of nested conditionals and there are some cases where more than one condition can lead to the same diagnosis. Try to write your program to be as concise as possible, and avoid duplicating code.

Getting Started

Create a new BlueJ project entitled `hw7`. 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. Feel free to add private methods to your class to make your code concise and to avoid duplicating code.

You should also create a second Java class called `FeverController` that simply creates an object of type `FeverDiagnosis` and calls the `diagnose` method. You can look at the `BestTaxHelper.java` and the `TaxHelperController.java` methods as examples.

Before you submit your assignment, go through the checklist from homework 6 and make sure your code conforms to our course's style guide.

Submitting your lab assignment

You should submit your `hw7` 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 5.1 | Procedure to diagnose the cause of a fever.

