

(20 pts) Approx. 2 days

This unit is all about controlling the *flow* of a program. Old programming languages from the early days of computers ran purely *sequentially* – from one line of code, on to the next, then the next, etc. Eventually programmers developed ways to jump around within their code, creating a mess of programming lines often referred to as “spaghetti code”. The most useful tools for controlling the order in which the computer thinks through problems ended up being *if*, *if-else*, *else-if*, *while*, and *for* structures. The first part of this unit is about the **conditionals** that let us make choices between what to do in the program.

1. Start by watching the three introductory videos on our website. These videos provide another simple overview of different kinds of if statements and how they can work with primitives, strings, or multiple Boolean questions.
2. Take a full page of good notes on the different details discussed in the videos. Make sure that your notes include information about how if, if-else, and else-if differ from one-another!
3. Now, complete the next 4 Java Tasks below that all require making decisions!
 - a. JAVA TASK 12: Write a program that lets the user indicate whether they have bread, peanut butter, jelly, milk, and a knife in their cupboard. Based on the results, your program should tell the user whether or not they have what they need for a minimally acceptable PB&J sandwich. The logic in your program should be based on one *if-else* statement.
 - b. JAVA TASK 13: Use a series of *if* statements to make a program that lets the user enter a positive integer less than 20, and then tell the user all of the prime factors of that number. Remember that % can help you see what numbers evenly divide each other.
 - c. JAVA TASK 14: Use a series of *else-if* statements to make your own daily reminder. The user should be able to enter the day of the week as a *String*. Your program should then have an output that tells them when they need to get up in the morning, what the school schedule is like for that day (if any), and one special thing happening that day.
 - d. JAVA TASK 15: Go back and add a fourth equation to your calculator program from Unit 2. This new equation should have multiple variables in it, and should allow the user to solve for any of those variables. This will require a few extra *if* statements.
4. **Choose your own adventure!** Now, create a (simple) 3-step “choose your own adventure” story. The story should be complete up to three reader-decisions. If each decision has 2 options, that means there will be 8 different story paths you’ll need to create.

Part 1: Tasks	5 points	4-3 points	2-1-0 points
 Conditionals Notes	+ Watch all presentations + You took a full page of notes on conditionals in Java + Your notes include detailed differences between the three conditional formats	- Less than a full page of conditionals notes - No notes on differences in conditionals	- Very brief or no notes in your notebook
	10 points	9-4 points	3-0 points
 Java Tasks 12-15	+ You completed all 4 Java Tasks from this section	- You did not complete all 4 tasks	- You did not complete any tasks
	5 points	4-3 points	2-1-0 points
 Choose Your Own Adventure!	+ You created a 3-step Choose Your Own Adventure!	- Your adventure does not have 3 full steps	- You did not create a choose your own adventure.

