

Java Fundamentals

5-2: Control Statements

Practice Activities

Lesson Objectives:

- Create a while loop
- Create a do-while loop
- Create a for loop

Vocabulary:

Identify the vocabulary word for each definition below.

Do While	A post-test loop that executes an unknown number of times until a condition is met, but always executes the first time through the loop.
for loop	A pre-test loop that uses an iterator to keep track of how many times a loop will execute.
continue	A keyword used to skip over the remaining code in a loop and return program control to the beginning of the loop to execute again.
while loop	A pre-test loop that executes an unknown number of times until a condition is met.
break	A keyword used to terminate a loop from executing before the loop condition is met.

Try It/Solve It:

1. Consider you are asked to decode a secret message. The coded message is in numbers and each number stands for a specific letter. You discover enough of the secret code to decode the current message. So far, you know:
 - 1 represents "D"
 - 2 represents "W"
 - 3 represents "E"
 - 4 represents "L"
 - 5 represents "H"
 - 6 represents "O"
 - 7 represents "R"

Write a program that prompts the user for 10 numbers, one at a time, and prints out the decoded message. If the user enters a number that is not one of those already deciphered, prompt him/her for a new number.

Test your code with the following input: 5 3 4 4 6 2 6 7 4 1

2. Suppose you are implementing a search routine that searches through a String, character by character, until it finds a space character. As soon as you find the first space character, you decide that you do not want to continue searching the string. If you are using a WHILE loop and your loop will continue to execute until you have gone through the entire string, should you use the keyword `break` or `continue` when you find the first space character? Why? Why would you not use the other keyword?

Since you want to stop searching entirely after finding the first space the 'break' is your go-to keyword. It exits the loop so you don't waste time going through all the other characters in the loop.

3. Imagine you are writing a program that prints out the day of the week (Sunday, Monday, Tuesday, etc.) for each day of the year. Before the program executes, can you tell how many times the loop will execute? Assume the year is not a Leap year. Given your answer, which type of loop would you need to implement? Explain your reasoning.

If you are going to print out everyday of the week it will be 365 days. You will need to use a for loop to implement this because you know exactly how many times you want to loop.

4. An anagram is a word or a phrase made by transposing the letters of another word or phrase; for example, "parliament" is an anagram of "partial men," and "software" is an anagram of "swear oft." Write a program that figures out whether one string is an anagram of another string. The program should ignore white space and punctuation.