Java Fundamentals
2-14: Java Methods and Classes
Practice Activities

Lesson Objectives:

- Describe a method, class, and instance
- Describe a scenario where an IF control structure would be used
- Describe a scenario where a WHILE control structure would be used
- Recognize the syntax for a method, class, function, and procedure
- Describe input and output

Vocabulary:

Identify the vocabulary word for each definition below.

	Statements that allow you to select and execute specific blocks of code while skipping other sections.
	An object of a class.
	A specification, such as a blueprint or pattern and a set of instructions, of how to construct something.
	A piece of code that sends a message to an object asking it to perform an action.
	Control structure that allows you to execute specific sections of the code a number of times.

Try It/Solve It:

1. In Alice 3, you will create an animation of a child exercising. You will set variables and define a while control statement. You will ask the end user for input and have the child say something (similar to creating output). **Note:** If you already created the first part of the "Child Exercising" animation in a previous practice activity, open that animation and skip to **step 8** of these instructions.
    a. Create a world with a child. Save the project as "Child Exercising".
    b. Have the child wave. Assign the value of the wave to "I'm happy".
    c. Have the child say "I would like to exercise today."
    d. Have the child do several exercises (side stretches, touch toes, jumping jacks). After exercising, have the child stand and say, "I'm all done exercising."
    e. Change the code so that before the child exercises, you declare a variable of type Integer called numSets. Set the default value to 3. Save your animation.
    f. Use this value to control how many sets of exercises the child does.
    g. Have the child wave and say goodbye at the end of the animation.
    h. Modify the numSets variable so that it asks the user how many sets the child should do. (Hint: use the getIntegerfromUser function.)

i. Using a while loop have the child say the number of sets remaining. When there is one set remaining, the child should say “Last set.” (Hint: use an IF control statement.)

j. Save your animation.

2. Build on the previous animation from practice activity #1 above and add two other children to the animation with different variables (numset, numset2, numset3) to control their number of sets. Save your animation.

3. If you look at the code for the exercise program you can see that there is a lot of duplication in the myFirstMethod.
   a. Create a procedure called exercise and move the code block that has the while loop and the “I’m done exercising” statement from myFirstMethod to the new exercise procedure. Do this through the clipboard.
   b. Create a parameter called numSets of type wholenumber
   c. Add a local variable to the exercise procedure named sets of type wholenumber set its initial value equal to numsets.
   d. Change the instances of numsets in the code to sets
   e. Replace the line that says numsets = numsets -1 to use the sets variable instead.
   f. Save your animation.

4. Implement your new exercise method
   a. Add a doTogether statement under the variable declaration section in myFirstMethod
   b. Add an exercise call for each of the children using their associated variable (numset, numset2, numset3)
   c. Disable the existing code that makes the children exercise.
   d. Run your animation to test it.
   e. Delete the code that is no longer required.
   f. Save your animation.

5. In Alice 3, create an animation that uses both the IF and WHILE control structures to control an object's movement.

6. Complete the following Java Syntax Review Sheet:

Construct	**Syntax**
IF ELSE syntax	
WHILE syntax	