PGCert IT: Programming for Industry

Control Flow - Answers - Exercise One ~ Six

Exercise One: if statements on paper

Do the following **on paper**!

1. Write a Java `"if"` statement that prints out `"Healthy weight"` if the value of the variable, `bmi`, is between 19 and 25 (inclusive).

```
if (bmi >= 19 && bmi <= 25) {
            System.out.println("Healthy weight");
}
```

2. Write a line of Java code which declares a boolean variable named `hasFinished` with an initial value of false. Then, write some Java code which calls the `printResults()` method if the boolean variable `hasFinished` is true. You may assume that the `printResults()` method has been implemented elsewhere.

```
boolean hasFinished = false;
if (hasFinished) {
      printResults();
}
```

Exercise Two: boolean expressions on paper

Do the following **on paper**!

1. Write a Java `boolean` expression which tests whether the value of the `char` variable, `userResponse`, is equal to either `'y'` or `'Y'`.
   `userResponse == 'y' || userResponse == 'Y'`
2. Write a Java `boolean` expression which tests whether the value of the `int` variable, `amount`, is odd (i.e. not evenly divisible by 2).
   `amount % 2 == 1`
3. Write a Java `boolean` expression which tests whether the `String` variable, `firstName`, begins with the letter `'A'` or `'a'`.
   `firstName.charAt(0) == 'A'`

4. Write a Java `boolean` expression which tests whether the `String` variable, `singer`, is equal to `"Taylor Swift"`. (Hint: remember that `Strings` are objects, not primitive types.)
   `singer.equals("Taylor Swift")`
5. Write a Java `boolean` expression which tests whether the value of the `int` variable `yearBorn`, is greater than 1978 but is not equal to 2013.
   `yearBorn > 1978 && yearBorn != 2013`

Exercise Three: if … else if statements on paper

Do the following **on paper**!

Complete the `getGender()` method below so that it assigns the correct value to the `gender` variable according to the `code` passed in as a `char` parameter.

The gender will be determined as follows:

- If `code` is equal to `'F'` or `'f'` the method should assign `"Female"` to `gender`
- else if the `code` is equal to `'M'` or `'m'`, then the method should assign `"Male"` to `gender`
- else the method should assign `"Unknown"` to the `gender` variable.

```
private String getGender (char code) {
   String gender;
   // TODO write your code here
   if (code == 'F' || code == 'f') {
            gender = "Female";
   } else if (code == 'M' || code == 'm') {
            gender = "Male";
   } else {
            gender = "Unknown";
   }

   return gender;
}
```

Exercise Four: while loops on paper

What is the output produced by the following code fragment? Do this exercise **on paper!**

```
int number = 5;
while (number < 15) {
      System.out.print (3 * number + "  ");
      number += 4;
}
```

```
System.out.println();
System.out.println("Number is now: " + number);

15 27 39
Number is now 17
```

Exercise Five: for loops on paper

Do the following **on paper**!

Using a `for` loop, complete the `printRowOfAmpersands()` method so that it prints a row of ampersands (&). The number of ampersands it should print is passed via the `int` parameter, `howMany`.

For example, when called by: `printRowAmpersands(5);`
The method prints: &&&&&

```
private void printRowOfAmpersands (int howMany) {
	// Write your code here

	for (int i = 0; i < howMany; i++){
		System.out.print("&");
	}

	System.out.println();
}
```

Exercise Six: Converting a while loop into a for loop

Do the following **on paper**!

Translate the following **while** loop into a **for** loop.

```
int i = 0;
while (i < 7) {
	System.out.print(2 * i + 3);
	i++;
}

for (int i = 0; i < 7; i++){
	System.out.print(2 * i + 3);
}
```