ICS 3U1 EXAM REVIEW

Basic Syntax (more to come)

- use the following in a program (correctly, ie. so that you know what they do)
  - x++;
  - x--;
  - num += 3;
  - the symbols for new line, double quotes and tab (when printing output)
  - What is the difference between a char and a String?
    Give an example where they use both of them.
  - List three differences in math between ints and doubles.
  - If you have "double x;", what is wrong with
    `if (x == 10.0) {...}` ?
    How then do you check to see if a double is equal to a number?
  - Modulus: check if a number is even, check if a number is a multiple of 7.
  - Tracing values of variables

If statements

- if - else
- if - else if - else
- independent conditions
- conditions where the order matters
- nested if
- how to use AND, OR and NOT

1. Write if statements that print "yes" if n is positive, "no" if it is negative, and "what?" if it is zero.
2. Write a program to get a word from the user.
   a. If the word begins with "M" they get 100 points.
   b. If the word is 6 letters long, they get 200 points.
   c. However, if they type in the word "monkey" they get 500 points.
   d. The user can only win in one of these categories. Organize things so that they win the most amount of points. (e.g. check for Monkey first).

3. Write a program that does the following:
   a. checks to see if the location = "store"
   b. if so, check to see if you have enough money (player.money) to buy the item (item.price)
   c. if you have enough, buy the item and subtract the money from the player
   d. if you don't have enough, print a message saying this
   e. if you're not in the store, print a message saying that you can only buy things in stores.

4. Get a number from the user
   a. if the number is between 10 and 20 or between 100 and 200, then print "you win"
   b. if it is any other positive number, print "play again"
   c. if it is 0 or negative, print "you lose"

5. Write an if statement to check if a number is between 100 and 200, but it cannot be a multiple of 10. so 101 is a good number, but 110 is a bad number.

Methods

- how to write methods that take parameters and return a number or a Boolean.
- CodingBat is good for this.

6. Write a method that gets 3 ints and returns true if they are all equal or false if they are not all equal.
7. Write a method that takes two numbers and a boolean.
    a. if the boolean is true, then return the sum of the two numbers
    b. if the boolean is false, then return the different of the two numbers

For Loops

* *Assume that* print( ) *means* System.out.print() *and* println() *means* System.out.println()
* *You should know how to use break, continue; and return; in FOR loops and WHILE loops.*

8. What is the output of this program?

```
print("A");
print("B");
for (int C = 1; C < 4; C++) {
print("D");
print("E");
}
print("F");
print("G");
```

9. Are the outputs of the following the same or different? Explain why.

for (int a = 0; a < 5; a ++) {
println("OX");
}
	for (int a = 10; a < 15; a ++) {
	println("OX");
	}

10. Are the outputs of the following the same or different? Explain why.

for (int a = 0; a < 5; a ++) {
print(a + " ");
}
	for (int a = 10; a < 15; a ++) {
	print(a + " ");
	}

11. What numbers will print from these loops?

```
a. for (int i=0; i < 5;   i++)     println( i ) ;
b. for (int i=0; i <= 5;  i++)     println( i ) ;
c. for (int i=0; i > 5;   i++)     println( i ) ;
d. for (int i=5; i > 0;   i--)     println( i ) ;
e. for (int i=0; i < 5;   i += 2)  println( i ) ;
```

Random numbers:

- make random consecutive integers that are between A and B.
  e.g random numbers between 1 and 100, or between 181 and 360.
- Do this many times in a for loop (printing out the results)
- use Math.random() to have a 20% chance of you killing a monster

ArrayLists

- see the People/Person program that you did
  - how to make an array list of objects (or strings)
  - how to add things to an array list
  - how to search through it and find a specific object
  - how to print out all of the objects

Arrays

12. Given some sort of array of integers *e.g. myArray = {5, 7, 1, 4, 9, 8, 0, 4, 2}*

a. Print out all of the elements
b. Print out only the second and third elements
c. Find the first '4' and print it out and the next element
d. Write a program to see if any element in the array is equal to 9 (print "YES 9" or "NO 9")
e. Write a program to see if every single element is equal to 8 (print "ALL 8" or "NOT ALL 8")
f. Make the last element equal to the first element (copy the first one to the last one)

Scanner

- how to make a scanner for the keyboard
- how to get ints and words (don't worry about any other type of input)

While Loops

13. Write a while loop that

a. gets a number from the keyboard
b. adds that number to a total
c. exits if the input is equal to 0

14. Make a copy of the previous program

a. use "continue" if the number entered is 3 (so that no 3s ever get added to the total)
b. use "break" if anyone ever enters a 13. (so that the loop will end this way too)

15. Write a while loop that uses a boolean to see when to end.

a. if the same number is typed in twice in a row, then set the boolean (T or F, however your program works) to end the loop.

16. Explain what this while loop does:

```
case "attack":
  while (attackMonster() == true) { }
  break;
```

Switch

17. Write a program that asks the user to type in a colour.

a. make the colour upper case
b. for each colour print out a season
c. make this work for 7 (or 9) colours and all 4 seasons
   (you can decide which colours print out which seasons. e.g. "orange --> fall"
d. use a **switch** statement instead of **if** statements
e. if someone types in a colour that is not one of the 7, e.g. turquoise, then print "try another colour"
f. This program does not have to be in a loop.

Strings

- does a string equal something
- does a string contain a word
- make a string uppercase
- print out the 3rd letter from the string
- join two strings together (duh)
- find the length of a string
- know what trim() does
- split a string up into words and print out the second word, then the first word.

~~*HTML and CSS (part 2 of the exam)*~~

- ~~know how to set up an HTML page.~~
  - ~~add in title~~
  - ~~set the text colour~~
  - ~~add an image~~
  - ~~format bold and italic~~
  - ~~bulleted list~~
  - ~~use H1, H2 .... headings~~
  - ~~make a table. Know how to use colspan, rowspan, and colour cells and rows~~
- ~~know how to make CSS page and attach it~~
- ~~use CSS to change formatting of a HTML tag~~
- ~~use CSS to make your own formatting class (e.g. .funky) and add it into the HTML~~
- ~~use CSS to make borders~~
- ~~know how to use margins and padding in CSS~~