

Please read Sections 4.10 through 4.13, and Sections 5.1 through 5.5 of the textbook and then answer the following, trying not to look at your notes or at the textbook. Quiz #6, on Fri. 7 Oct., will consist exclusively of questions taken from the Part 1 of this homework.

Part I — Questions

Ex. 1. What is a flag?

Ex. 2. Give three relational operators, and then two logical operators.

Ex. 3. Is the character Z greater than or inferior to the character a? What about c and g?

Ex. 4. Give five methods of the `String` class.

Ex. 5. Write a boolean expression that return `true` if a variable `x` is greater than 3 and less than or equal to 5.

Ex. 6. Write the resulting value of

1. `x || y && z`
2. `!x || y && z`
3. `!(x || y) && (z && y)`
4. `(!x && x) || (!x || x)`

when `x`, `y` and `z` are all set to `true`. Do the same when they are all set to `false`.

Ex. 7. Rewrite, if possible, the three following `if-else-if` statements as `switch` statements:

```
if (myLang == 'f'){System.out.print("Vous parlez Français ?");}
else if (myLang == 'e'){System.out.print("Do you speak English?");}
else if (myLang == 'd'){System.out.print("Sprechen Sie Deutsch?");}
else {System.out.print("I don't know your language!");}
```

```
if (myCity.equals("Boone")){System.out.print("I also live here!");}
else if (myCity.equals("Paris") || myCity.equals("Marseille")){
    System.out.print("I used to live there!");}
else {System.out.print("I never lived there.");}
```

```
if (temp == 100.0){System.out.print("It's ready!");}
else if (wtime > 1 ){System.out.print("You should buy another oven.");}
else {System.out.print("We just have to wait.");}
```

If you think it is not possible or not feasible, explain why.

Ex. 8. Consider the following piece of code:

```
switch (hour)
{
    case 1:
    case 2:
        System.out.print("That's too early.");}
```

```
        break;
    case 3:
    case 4:
        System.out.print("Welcome!");
    case 5 :
        System.out.print("You're too late.");
    default:
        System.out.print("Let me check my schedule.");
    }
```

Assuming we have a variable `hour`, what would be printed if `hour` equals 2? If `hour` equals 3? Use `_` and `\n` to represent *all* spaces and new lines.

Ex. 9. Assuming we have a `Random` object called `rNum`, write a statement that initialized an `int` variable named `attempt1` with a random number between `-20` and `20`.

Ex. 10. Given an `int` variable `counter`, write three different statements that decrements its value by 1.

Ex. 11. What will be printed on the screen?

```
int x = 3, y = 7;
System.out.print (x++ +" and "+ --y);
```

Ex. 12. What would be printed by the following program?

```
int counter = 2;
while (counter != 5)
{System.out.print(counter + "\n");
 counter ++;}
```

Ex. 13. What would be printed by the following program?

```
int counter = 10;
while (counter != 5);
    System.out.print(counter + "\n");
counter --;
```

Ex. 14. What would be printed by the following program?

```
int counter = 7;
while (counter != 2)
    System.out.print(counter + "\n");
counter --;
```

Ex. 15. What is input validation? Do you know any structure that can be used to perform it? Why is it important?

Ex. 16. What would be printed by the following program?

```
int myCounter = 7;
do{
    System.out.print(myCounter + "\n");
    myCounter ++;
} while (myCounter != 12);
```

Ex. 17. What would be printed by the following program?

```
int t = 3;
do{
    System.out.print(t + "\n");
    t *= 2;
} while (t != 24);
```

Part II — Programming Exercises

Ex. 1. Spot as many errors as you can: programming errors (i.e., that would prevent this program from compiling) and style errors (i.e., that would make Checkstyle complains). Can you also think of a logical error?

```
\\ Here comes my program!
```

```
public Static MyClass{ public void static main (Streng[] args){

int myvar == 8;
Systemout.Print(My value is + myVar);

String myString = new String(That's my name!);
char myInitial = myString.charAt();
    if (myInitial = 'C')

System.out.Print("We have the same initial!")
}
```

Once you think you spotted them all, type, compile and execute the correct program in BlueJ.

Ex. 2. Write a program that

- initializes a Random object,
- declares an int variable named luck,
- assigns to luck a number between 1 and 10, randomly generated thanks to your Random object,
- assign another random number between 1 and 10 to luck and prints it as long as luck is different from 10.

You should use a while loop for this later point.

Can you think of a way to print the number of attempt before a 10 is assigned to luck?

When you think your program is ready, type it, compile it, and execute it into BlueJ.

