CS 1301 – Intro to CS
Data Type Exercise

1. **What is abstraction? Don't look up the definition. Describe abstraction with your own words.**

Abstraction is the level of detail used when describing something.

2. **Why is abstraction important?**

Abstraction is important because if something is described with little detail, it could be misinterpreted as something else.

3. **What's the output of the following code snippet?**

```
public static void main (String[] args){

      String firstName = "Alan";
      String lastName = "Turing";

      System.out.println("Hi, " + firstName + " " + lastName);
}
```

Hi, Alan Turing

4. **What's the output of the following code snippet?**

```
public static void main (String[] args){
      int x = 2;
```

```
        int y = 4;

        int sum = x + y;

        System.out.println("sum = " + sum);
    }
```

x	y	sum
2	4	6

sum = 6

5. **What's the output of the following code snippet?**

```
public static void main (String[] args){
        int x = 3;
        int y = 11;

        int division = y / x;

        System.out.println("division = " + division);
}
```

x	y	div.
3	11	3.67

division = 3

6. **What's the output of the following code snippet?**

```
public static void main (String[] args){
        int x = 10;
        int y = 5;

        int division = y / x;

        System.out.println("division = " + division);
}
```

x	y	div.
10	5	.5

division = 0

7. **What's the output of the following code snippet?**

```
public static void main (String[] args){
        double x = 10;
        double y = 5;

        double division = y / x;

        System.out.println("division = " + division);
}
```

x	y	div
10	5	2

division= 0.5

8. **What's the output of the following code snippet?**

```
public static void main (String[] args){
        double division = 5 / 10;

        System.out.println("division = " + division);
}
```

division = 0.0

9. **What's the output of the following code snippet?**

```
public static void main (String[] args){
        double division = 5.0 / 10;

        System.out.println("division = " + division);
}
```

division = 0.5

10. **What's the output of the following code snippet?**

```
public static void main (String[] args){
      boolean x = false;

      System.out.println("x = " + x);
}
```

x = false

11. **The following code snippet prints two values. Will they be the same? Why / why not? – Feel free to Google this one!**

```
public static void main (String[] args){
      float  x = 1.12345678901234567890f;
      double y = 1.1234567890123456789O;
      System.out.println(x);
      System.out.println(y);
}
```

They will not be the same because since y is a double, it will have more decimal places than x (since x is a float).

12. **What's the output of the following code snippet?**

```
public static void main (String[] args){
      char letter = 'b';

      System.out.println("letter = " + letter);
}
```

letter = b

skip.

13. **What's the output of the following code snippet?**

```
public static void main (String[] args){
      char letter = 'b' + 2;
```

```
        System.out.println("letter = " + letter);
}
```

skip!

computer answer:

letter = d

14. **What's the output of the following code snippet?**

```
public static void main (String[] args){
        String semester = "Fall";
        int year = 2023;

        System.out.println(semester + year);
}
```

Fall2023
(no spaces)

15. **What's the output of the following code snippet?**

```
public static void main (String[] args){
        int x = 5;
        x = x * 2;
```

```
        int y = 4;
        y = y + x;

        y = x + y;
        x = x + y;

        System.out.println("x = " + x);
        System.out.println("y = " + y);
    }
```

x	y
8	~~4~~
~~10~~	~~14~~
34	24

x = 34

y = 24

16. **Did you work with another person (people)?**

    a. **Who did you work with?**

I worked alone.