CPSC1150 Exercise

1. Develop a pseudo code algorithm to calculate and display the result of 1 + 2 + 3 +…….+ 100

2. Develop a pseudo code algorithm to find all positive integers less than 1000 which do not end in zero and have the property that if the rightmost digit is deleted, the integer obtained divides into the original evenly.
   For example, 39 is such an integer since 3 remains after deleting the rightmost digit, and 3 divides 39 evenly.
   Translate the algorithm into a Java application.

3. Develop a Java method which accepts an integer value as input. The application displays each digit of the given number on a separate line. For example if the input is 749 the output will be
   9
   4
   7

4. Write a Java application to get an integer as input (e.g. 5) and print the following output:
   A
   A B
   A B C
   A B C D
   A B C D E

5. Write a Java program that displays the first 50 *prime* numbers. An integer greater than 1 is *prime* if its only positive divisor is 1 or itself. For example, 2, 3, 5, and 7 are prime numbers, but 4, 6, 8, and 9 are not.

6. Write a Java program that displays the first 50 prime numbers in five lines, each of which contains 10 numbers.

7. Convert to Java expression using the pre-defined functions:

$$\sqrt{x+7} \qquad x^{y+7} \qquad \frac{-b+\sqrt{b^2-4ac}}{2a}$$

$$\frac{\sqrt{time+tide}}{nobody} \qquad \frac{\frac{x+y}{3}-\frac{x-y}{5}}{4x} \qquad \left(x+\sqrt{y}\right)^7$$

8. Write a Java application that converts a Celsius temperature to its Fahrenheit equivalent. The formula is:

$$Fahrenheit = \frac{9}{5}Celsius + 32$$

9. Write a Java application that takes a floating point number from keyboard and print its fractional part.

10. Write a method called ConvertTime that converts a time of day given in seconds to a 24 hour format (hh:mm:ss) time. The time given in seconds gives the number of seconds between the current time and midnight. The program should display the result on the screen.
    For example, if the given time is 55210, your java program should display 15:20:10 on the screen.

11. What is the output of the following java code segment?

```
for (int i = 1; i <= 5; i++)
 {
        for (int j = 1; j <= (5 - i) ; j++ )
        {
                System.out.print(" ");
        }
        for (int k = 0; k < i; k++)
        {
                System.out.print((char)('A' + i));
         }
         System.out.println();
  }
```