HW1Code

1. AddTwo

Write a program (`AddTwo.java`) that adds two given integers and prints the result in a fancy way. The command line is `java AddTwo` *a b*. Here are two examples of the program's execution:

```
public class AddTwo
 {
        public static void main (String [] args) {
                int a = Integer.parseInt(args[0]);
       int b = Integer.parseInt(args[1]);
int sum = a + b ;
System.out.println(a+ " + " + b + " = "+ sum);
        }
}
```

2. Coins

Assume that there are two coins only: A coin of 25 cents, called a *quarter*, and a coin of a single cent, called a *cent*. Write a program (`Coins.java`) that gets a number of cents as a command-line argument and prints how to represent this quantity using as many quarters as possible plus the remainder in cents. Here are three independent examples of the program's execution:

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

 int total = Integer.parseInt(args[0]);
 int quarters = total/ 25;
 int remaining = total%25;

  System.out.println("Use " +quarters+ " quarters and " +remaining+ " cents");

 }
 }
```

3. Linear Equation Solver

Write a program (`LinearEq.java`) that solves linear equations of the form $a \cdot x + b = c$. The program gets a, b, and c as command-line arguments, computes x, and prints the result. Assume that a is not zero. The program treats the three arguments as well as the computed value as `double` values. The program prints the equation and its solution. Examples:

```
public class LinearEq
{

public static void main(String[] args)
{

    double a = Double.parseDouble(args[0]);
    double b = Double.parseDouble(args[1]);
    double c = Double.parseDouble(args[2]);
    double x = (c - b) / a;

System.out.println( a + " * " + "x" + " + " + b + " = " + c);
System.out.println( "x = " + x);


    }
    }
```

4. Triangle

Three sides can form a triangle if the sum of the lengths of any two sides is greater than the length of the remaining side. This is known as the *Triangle Inequality Theorem*. For example, the three numbers 3, 4, 5 form a triangle, and the three numbers 2, 3, 6 don't form a triangle. Write a program (`Triangle.java`) that tests if three given integers form a triangle. Examples:

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

      int a = Integer.parseInt(args[0]);
      int b = Integer.parseInt(args[1]);
      int c = Integer.parseInt(args[2]);


      boolean flag = (a + b > c) && (a + c > b) && (b + c > a);


      System.out.println(a + ", " + b + ", " + c + ": " + flag);
   }
}
```

5. Gen3

Write a program (`Gen3.java`) that generates three random integers, each in a given range $[a,b)$, i.e. greater than or equal to a and less than b, prints them, and then prints the minimal number that was generated. Examples:

```
public class GenThree {



   public static void main(String[] args) {

  int a = Integer.parseInt(args[0]);
      int b = Integer.parseInt(args[1]);


      int rand1 = (int) (Math.random() * (b - a)) + a;
      int rand2 = (int) (Math.random() * (b - a)) + a;
      int rand3 = (int) (Math.random() * (b - a)) + a;

      System.out.println(rand1);
      System.out.println(rand2);
      System.out.println(rand3);

      int min = Math.min(rand1, Math.min(rand2, rand3));
      System.out.println("The minimal generated number was " + min);



   }


}
```