HW 2 intro to CS

```java
/**
 *  Gets a command-line argument (int), and prints all the divisors of the given number.
 */
public class Divisors {
    public static void main (String[] args) {
        int divisor= 1;
        int num= Integer.parseInt(args[0]);
        while (divisor <= num){
            if(num % divisor == 0){
                System.out.println(divisor);
                divisor++;
            }
            else {
                divisor++;
            }

        }

    }
}
```

```java
/**
 * Prints a given string, backward. Then prints the middle character in the string.
 * The program expects to get one command-line argument: A string.
 */
public class Reverse {
    public static void main (String[] args){
        String word= args[0];
        int midch = word.length()/2 - 1 ;

        for(int i = word.length()-1; i > -1;i--){
            System.out.print(word.charAt(i));
        }
            if(word.length()%2 == 0){
                midch = word.length()/2 - 1 ;
            }
                else{
                    midch = word.length()/2;
                }
        System.out.println();
        System.out.println("The middle character is " + word.charAt(midch));
    }
}
```

```java
/**
 *  Generates and prints random integers in the range [0,10),
 *  as long as they form a non-decreasing sequence.
 */
public class InOrder {
   public static void main (String[] args) {
      int num1 = 0;
      int numnew = -1;
      do {
         numnew = num1;
         num1= (int) (Math.random()*10);
         if(num1 >= numnew)
         {
            System.out.print(num1 + " ");
         }
      }while(num1>numnew);
   }
}
```

```java
/**
 *  Gets a command-line argument n (int), and prints an n-by-n damka board.
 */
public class DamkaBoard {
   public static void main(String[] args) {
      int n = Integer.parseInt(args[0]);

      for(int i = 0; i < n; i++)
      {
         for(int j = 0; j < n; j++)
         {
            if(i % 2 == 0)
               {
               System.out.print("* ");
               }
                  else
                     {
                     System.out.print(" *");
                     }
         }
         System.out.println();
      }
   }
}
```

```java
/**
 *  Gets a command-line argument (int), and chekcs if the given number is perfect.
 */
public class Perfect {
    public static void main (String[] args) {
    int N = Integer.parseInt(args[0]);
    String Perfect = N + " is a perfect number since " + N + " = 1";
    int divsum = 1;
    int divisor= 2;
        while (divisor < N){
            if(N % divisor == 0){
                Perfect = Perfect + " + " + divisor;
                divsum = divsum + divisor;
                divisor++;
            }
                else {
                        divisor++;
                }
        }
            if(N ==  divsum){
                System.out.println(Perfect);
            }
                else{
                        System.out.println(N + " is not a perfect number");
                }

    }
}
```

```
import java.util.Random;
public class OneOfEachStats {
   public static void main (String[] args) {
      // Gets the two command-line arguments
      int T = Integer.parseInt(args[0]);
      int seed = Integer.parseInt(args[1]);
      // Initailizes a random numbers generator with the given seed value
      Random generator = new Random(seed);
      int children=0;
      int chil2 = 0;
      int chil3 = 0;
      int chil4 = 0;
      double sumchildren = 0.0;
      double average;
      String b = "b ";
      String g = "g ";

      for(int i = 0; i < T; i++)
      {
         double rnd = generator.nextDouble();
         if(rnd < 0.5)
               {
                  while ( rnd < 0.5) {
                     //System.err.print(b);
                     children ++;
                     rnd =  generator.nextDouble();
                  }
                  children++;
                  //System.err.println(g);

               }
               else
               {
                  while ( rnd >= 0.5) {
                     //System.err.print(g);
                     children ++;
                     rnd =  generator.nextDouble();
                  }
                  children ++;
                  //System.err.println(b);
               }
         if (children == 2)
         {
            chil2++;
         }
         else if(children == 3)
         {
            chil3++;
         }
         else if (children >3)
```

```
            {
                chil4++;
            }
            sumchildren = sumchildren + children;
            children = 0;

        }
        average = (sumchildren/T);
        System.out.println("Average: "+ average +" children to get at least one of each
gender.");
        System.out.println("Number of families with 2 children: " + chil2);
        System.out.println("Number of families with 3 children: " + chil3);
        System.out.println("Number of families with 4 or more children: " + chil4);
        if(chil2 >= chil3 && chil2 >= chil4)
        {
            System.out.println("The most common number of children is 2.");
        }
        else if(chil3 >= chil2 && chil3 >= chil4)
        {
            System.out.println("The most common number of children is 3.");
        }
        else if(chil4 >= chil2 && chil4 >= chil3)
        {
            System.out.println("The most common number of children is 4 or more.");
        }

    }
}
```