Homework Week 2 Code

Exercise 1

```
public class Divisors {
   public static void main(String[] args) {
      int a = Integer.parseInt(args[0]);
      int divisor = 1;
      while (divisor <= a) {
         if (a % divisor == 0) {
            System.out.println(divisor);
         }
         divisor++;
      }
   }
}
```

Exercise 2

```
public class Reverse {
   public static void main (String[] args) {
     String a = (args[0]);
     String flip = "";
     int l = a.length();
     for (int i = (l-1) ; i == 0 ; i--){
       flip = flip + a.charAt(i);
     }
     char b;
     b =  flip.charAt((flip.length()-1)/2);
     System.out.println(flip);
     System.out.println("The middle character is" + b);
     }
   }
```

Exercise 3

```
public class InOrder {
   public static void main (String[] args) {
      int x = 0;
      int y = (int)(Math.random() * 10);
      while (y >= x) {
         System.out.println(y);
         x = y;
         y = (int)(Math.random() * 10);
      }
   }
}
```

Exercise 4

```
public class Perfect {
   public static void main (String[] args) {
     int a = Integer.parseInt(args[0]);
     int divisor = a - 1;
     int sum = 0;
     String AllDivisor = "";
     while (divisor > 0){
       if (a % divisor == 0) {
         if (AllDivisor != ""){
           AllDivisor = AllDivisor + "+";
         }
         sum = sum + divisor;
         AllDivisor = AllDivisor + divisor;
       }
       divisor = divisor - 1;
     }
     if (sum == a){
       System.out.println(a + " is a perfect number since " + a + "=" + AllDivisor);
     }
     else{
       System.out.println(a + " is not a perfect number");
     }
   }
}
```

Exercise 5

```
public class DamkaBoard {
   public static void main(String[] args) {
     int damka = Integer.parseInt(args[0]);
     int count = 0;
     for (int i = damka; i != 0; i--) {
       System.out.println();
       if (count % 2 != 0) {
         System.out.print(" ");
       }
       for (int j = damka; j != 0; j--) {
         System.out.print("* ");
       }
       count ++;
     }
   }
}
```

Exercise 6

```
public class OneOfEach {
   public static void main (String[] args) {
     boolean girl = false;
     boolean boy = false;
     int count = 0;
     String children = "";
     while ((girl == false) || (boy == false)) {
       double rnd = (double)Math.random();
       if (rnd < 0.5) {
         boy = true;
         children = children + "b ";
       }
       else {
         girl = true;
         children = children + "g ";
       }
       count++;
     }
     System.out.println(children);
     System.out.println("You made it... and you now have " + count + " children");
   }
}
```

Exercise 7

```
public class OneOfEachStats1 {
   public static void main(String[] args) {
      int T = Integer.parseInt(args[0]);
      boolean girl = false;
      boolean boy = false;
      int count = 0;
      double totalchildrencount = 0.0;
      int f2 = 0;
      int f3 = 0;
      int f4 = 0;
      for (int i = 0; i < T; i++) {
         while ((girl == false) | (boy == false)) {
            double rnd = (double) Math.random();
            if (rnd < 0.5) {
               boy = true;
            } else {
               girl = true;
            }
            count++;
            totalchildrencount++;
         }
         if (count == 2) f2++;
         else if (count == 3) f3++;
         else f4++;
         count = 0;
         boy = false;
         girl = false;
      }
      int common = 0;
      if ((f2 >= f3) && (f2 >= f4)) common = f2;
      else if (f3 >= f4) common = f3;
      else common = f4;
      System.out.println("Average: " + (totalchildrencount / T) + " children to get at least one of each
gender.");
      System.out.println("Number of families with 2 children: " + f2);
      System.out.println("Number of families with 3 children: " + f3);
      System.out.println("Number of families with 4 or more children: " + f4);
      if ((f2 >= f3) && (f2 >= f4)) {
         System.out.println("The most common number of children is 2.");
      }
   }
}
```

Exercise 8

```
public class OneOfEachStats {
   public static void main (String[] args) {
     int T = Integer.parseInt(args[0]);
     int seed = Integer.parseInt(args[1]);
     boolean girl = false;
     boolean boy = false;
     int count = 0;
     double totalchildrencount = 0.0;
     int f2 = 0;
     int f3 = 0;
     int f4 = 0;
     Random generator = new Random(seed);
     for (int i = 0; i < T; i++) {
       while ((girl == false) | (boy == false)) {
         double rnd = generator.nextDouble();
         if (rnd <= 0.5) {
           boy = true;
         } else {
           girl = true;
         }
         count++;
         totalchildrencount++;
       }
       if (count == 2) f2++;
       else if (count == 3) f3++;
       else f4++;
       count = 0;
       boy = false;
       girl = false;
     }
     int common = 0;
     if ((f2 >= f3) && (f2 >= f4)) common = f2;
     else if (f3 >= f4) common = f3;
     else common = f4;
     System.out.println("Average: " + (totalchildrencount / T) + " children to get at least one of each
gender.");
     System.out.println("Number of families with 2 children: " + f2);
     System.out.println("Number of families with 3 children: " + f3);
     System.out.println("Number of families with 4 or more children: " + f4);
     if ((f2 >= f3) && (f2 >= f4)) {
       System.out.println("The most common number of children is 2.");
     }
   }
}
```