1.

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

    int number = Integer.parseInt(args[0]);

    for ( int i = 1; i <= number; i++ ) {

    if( number % i == 0) {
    System.out.println(i);

        }

      }
    }
  }
```

2.

```
public class Reverse {
        public static void main (String[] args){
        String s = args[0];
        for (int i = s.length() - 1; i >= 0; i--) {
        System.out.print(s.charAt(i));
        }
        System.out.println();
        int middleIndex = (s.length()- 1) / 2;
        char middleCharacter =  s.charAt(middleIndex);

  System.out.println("The middle character is "+middleCharacter);

        }
}
```

3.

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

    int x = (int)(Math.random( ) * 10);
    System.out.print(x);

    int y = (int)(Math.random( ) * 10);
    while( y >= x ) {

 System.out.print(" "+y);
 x = y;
 y = (int)(Math.random( ) * 10);

         }

    }
 }
```

4.

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

         int N = Integer.parseInt(args[0]);
         int sum = 1;
         String s = N+" is a perfect number since "+N+" = 1";

   for(int i = 2; i < N; i++) {
   if(N % i == 0) {
   s = s+" + "+i;
   sum = sum + i;
     } }
   if(sum == N) {
         System.out.println(s);
   } else
   System.out.println(N+" is not a perfect number ");



          }

  }
```

5.

```
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();
                        }
                      }
                   }
```

6.

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

        int sum = 0;
        boolean hasBoy = false;
        boolean hasGirl = false;

          while( !hasBoy || !hasGirl ) {
          boolean isBoy = Math.random() < 0.5;

              if (isBoy) {
              System.out.print("b ");
              hasBoy = true;
              sum = sum + 1;

                } else {
                 System.out.print("g ");
                 hasGirl = true;
                 sum = sum + 1;
                     } }

  System.out.println();
  System.out.println("you made it... and you now have "+sum+" children.");


     }

  }
```

7.

```
public class OneOfEachStats1 {
public static void main (String[] args) {

        int T = Integer.parseInt(args[0]);
        int totalChildren = 0;
        int familyWith2Children = 0;
        int familyWith3Children = 0;
        int familywith4OrMoreChildren = 0;
        int commonNumberOfChildren = 0;

          for(int i = 0; i < T; i++) {

              boolean hasBoy = false;
              boolean hasGirl = false;
              int sum = 0;

                 while( !hasBoy || !hasGirl ) {
                 boolean isBoy = Math.random() < 0.5;

                   if(isBoy) {
                  hasBoy = true;

                    } else {
                    hasGirl = true;
                 }
                 sum++;
             }
                   totalChildren = totalChildren + sum;

                  if(sum == 2) {
                  familyWith2Children++;
                 }else if(sum == 3) {
                 familyWith3Children++;
                 }else if( sum >= 4) {
                 familywith4OrMoreChildren++;
                     }
               }

 int max = Math.max(Math.max(familyWith2Children, familyWith3Children),
familywith4OrMoreChildren);
```

```
  if(max == familyWith2Children){
  commonNumberOfChildren = 2;
 } else if(max == familyWith3Children) {
  commonNumberOfChildren = 3;
 } else if(max == familywith4OrMoreChildren) {
         commonNumberOfChildren = 0;
 }


  double averageChildren = (double) totalChildren / T;


  System.out.println("Average: "+averageChildren+" children to get at least one of each
gender.");
  System.out.println("Number of families with 2 children: "+familyWith2Children);
  System.out.println("Number of families with 3 children: "+familyWith3Children);
  System.out.println("Number of families with 4 or more children:
"+familywith4OrMoreChildren);
  System.out.println("The most common number of children is "+((commonNumberOfChildren
== 0) ? "4 or more" : commonNumberOfChildren)+" .");


        }

      }
```

8.

```
import java.util.Random;

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

    int T = Integer.parseInt(args[0]);
    int seed = Integer.parseInt(args[1]);
     Random generator = new Random(seed);

        int totalChildren = 0;
        int familyWith2Children = 0;
        int familyWith3Children = 0;
        int familywith4OrMoreChildren = 0;
        int commonNumberOfChildren = 0;

  for(int i = 0; i < T; i++) {

  boolean hasBoy = false;
  boolean hasGirl = false;
  int sum = 0;

  while( !hasBoy || !hasGirl ) {
  double rnb = generator.nextDouble();
  boolean isBoy = rnb < 0.5;

  if(isBoy) {
  hasBoy = true;

 } else {
  hasGirl = true;
 }
  sum++;
}
 totalChildren = totalChildren + sum;

  if(sum == 2) {
  familyWith2Children++;
  }else if(sum == 3) {
         familyWith3Children++;
  }else if( sum >= 4) {
         familywith4OrMoreChildren++;
    }
   }
```

```
    int max = Math.max(Math.max(familyWith2Children, familyWith3Children),
familywith4OrMoreChildren);
    if(max == familyWith2Children){
    commonNumberOfChildren = 2;
  } else if(max == familyWith3Children) {
    commonNumberOfChildren = 3;
  } else if(max == familywith4OrMoreChildren) {
             commonNumberOfChildren = 0;
  }


    double averageChildren = (double) totalChildren / T;


    System.out.println("Average: "+averageChildren+" children to get at least one of each
gender.");
    System.out.println("Number of families with 2 children: "+familyWith2Children);
    System.out.println("Number of families with 3 children: "+familyWith3Children);
    System.out.println("Number of families with 4 or more children:
"+familywith4OrMoreChildren);
    System.out.println("The most common number of children is "+((commonNumberOfChildren
== 0) ? "4 or more" : commonNumberOfChildren)+".");


            }

         }
```