1.

```
public class Divisors {
   public static void main(String[] args) {
   int a = Integer.parseInt(args[0]);
   int j = 1;

      while (j<=a){
      if(a%j == 0){
      System.out.println(j);
      j++;}
      else {j++;}
       }
   }
}
```

2.

```
public class Reverse {
   public static void main(String[] args) {
      String s = args[0];
      int left = 0;
      int right = s.length() - 1;
      String new1 = "";
      int mid1 = s.length()/2;

         while (right >= left) {
            char r = s.charAt(right);
            new1 = new1 + r;
            right--;
            }

      System.out.println(new1);

     if(s.length()%2 == 0){
         char mid = s.charAt(mid1-1);
         System.out.println("The middle character is "+mid);
      }else{
         char mid = s.charAt(mid1);
```

```
            System.out.println("The middle character is "+mid);
        }

    }
}
```

3.

```
public class InOrder {
    public static void main(String[] args) {
    int f = (int)(Math.random()*9);
    System.out.print(f);
    int i = (int)(Math.random()*9)+1;
    while (f<=i) {
        System.out.print(" "+i);
        f = i;
        i = (int)(Math.random()*9)+1;
        }

    }
}
```

4.

```
public class Perfect {
    public static void main(String[] args) {
    int a = Integer.parseInt(args[0]);
    int j = 1;
    int sum = 0;
    String print=1+"";


        while (sum<a){
            if(a%j == 0){
                sum = sum + j;}
            if (a%j == 0 && j>1){
                print = print +" + "+ j;}
            j++;}

        if (sum == a){
```

```
      System.out.print(a + " is a perfect number since "+a+ " = " + print);
   }

      if (sum > a) {System.out.print(a + " is not a perfect number");
      }
   }
}
```

5.

```
public class DamkaBoard {
   public static void main(String[] args) {
   int rn = Integer.parseInt(args[0]);
   String s = "* ";
   String s1 = " *";
   for(int j=0; j<rn; j++){
      for(int i=0; i<rn; i++){
         if(j%2==0){
         System.out.print(s);}
         else {
            System.out.print(s1);}
         }
      System.out.println();
      }
   }
}
```

6.

```
public class OneOfEach {
   public static void main(String[] args) {
   double ran1 = Math.random();
   double ran2 = Math.random();
   String kid = "";
   int num = 1;

   if (ran1 >= 0.5) {
      kid = kid + "g";}
   else {kid = kid + "b";}
```

```
   while ((ran1 < 0.5 && ran2 < 0.5) || (ran1 >= 0.5 && ran2 >= 0.5)){
      if(ran2>=0.5){
         kid = kid + " g";}
      else{kid = kid + " b";}
         ran2 = Math.random();
         num++;}

   if(ran2>=0.5){
      kid = kid + " g";
      num++;}
   else{kid = kid + " b";
      num++;}

   System.out.println(kid);
   System.out.println("You made it.. and now you have "+ num +" children.");
   }
}
```

7+8

```
import java.util.Random;

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

      int T = Integer.parseInt(args[0]);
      String kid = "";
      int num = 1;
      int x = 0;
      int fam2 = 0;
      int fam3 = 0;
      int fam4 = 0;
      int y = 0;

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

      while (x < T) {
```

```
x++;
double ran1 = generator.nextDouble();
double ran2 = generator.nextDouble();

//////////////////////////////
if (ran1 >= 0.5) {
   kid = kid + "g";
} else {
   kid = kid + "b";
}

while ((ran1 < 0.5 && ran2 < 0.5) || (ran1 >= 0.5 && ran2 >= 0.5)) {
   if (ran2 >= 0.5) {
      kid = kid + " g";
   } else {
      kid = kid + " b";
   }
   ran2 = generator.nextDouble();
   num++;
}

if (ran2 >= 0.5) {
   kid = kid + " g";
   num++;
} else {
   kid = kid + " b";
   num++;
}

//////////////////////////////////
if (num == 2) {
   fam2++;
}
if (num == 3) {
   fam3++;
}
if (num >= 4) {
   fam4++;
}
```

```
            y = y + num;
            num = 1;
        }

        double p = y;
        double av = p / T;

        System.out.println("Average: " + av + " children to get at least one of each
gender.");
        System.out.println("Number of families with 2 children: " + fam2);
        System.out.println("Number of families with 3 children: " + fam3);
        System.out.println("Number of families with 4 or more children: " + fam4);

        if (fam2 > fam3 && fam2 > fam4) {
            System.out.println("The most common number of children is " + 2 + ".");
        } else if (fam3 > fam2 && fam3 > fam4) {
            System.out.println("The most common number of children is " + 3 + ".");
        } else {
            System.out.println("The most common number of children is " + 4 + " or
more.");
        }
    }
}
```