Assignment 1:

1) **Write a program to calculate factorial of a number.**

```
class Factorial{
    public static void main(String[] args){
        int n, fact = 1;
        n = Integer.parseInt(System.console().readLine());
        for(int i = 1; i <= n; i++){
            fact = fact * i;
        }
        System.out.println("Factorial of the given number is " + fact);
    }
}
```

2) **Write a program that accepts an integer as input and prints the table of that integer up to 12.**

```
public class Table {
    public static void main(String[] args) {
        int n, result = 1;
        n = Integer.parseInt(System.console().readLine());
        for (int i = 1; i <= 12; i++) {
            result = i * n;
            System.out.println(n + " x " + i + " = " + result);
        }
    }
}
```

3) **Write a program that reads in a number from the user and then displays the Hailstone sequence for that number. The problem can be expressed as follows:**

- **Pick some positive integer and call it n.**
- **If n is even, divide it by two.**
- **If n is odd, multiply it by three and add one.**
- **Continue this process until n is equal to one.**

```java
class Hailstone{
    public static void main(String[] args){
        int n = Integer.parseInt(System.console().readLine());
        int count = 0;
        while(n != 1){
            if(n % 2 == 0){
                System.out.print(n + " is even, so i take half: " + n/2 +
"\n");
                n = n / 2;
            }
            else{
                System.out.print(n + " is odd, so i make 3n + 1: " + (3*n + 1)
+ "\n");
                n = 3 * n + 1;
            }
            count++;
        }
        System.out.println("There are total " + count + " steps to reach 1");
    }
}
```