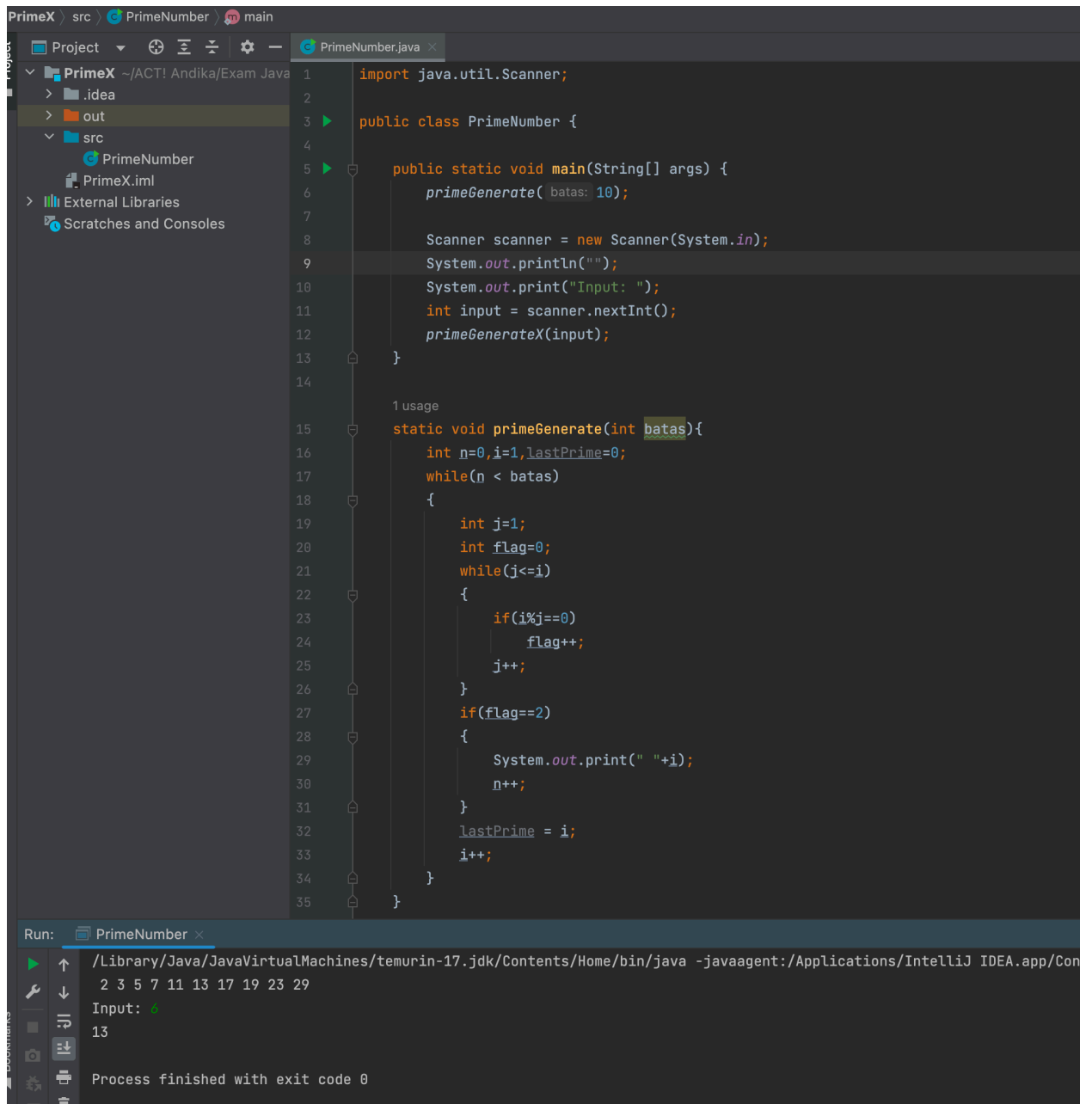


Recursive & Number Theory

1. PrimeX

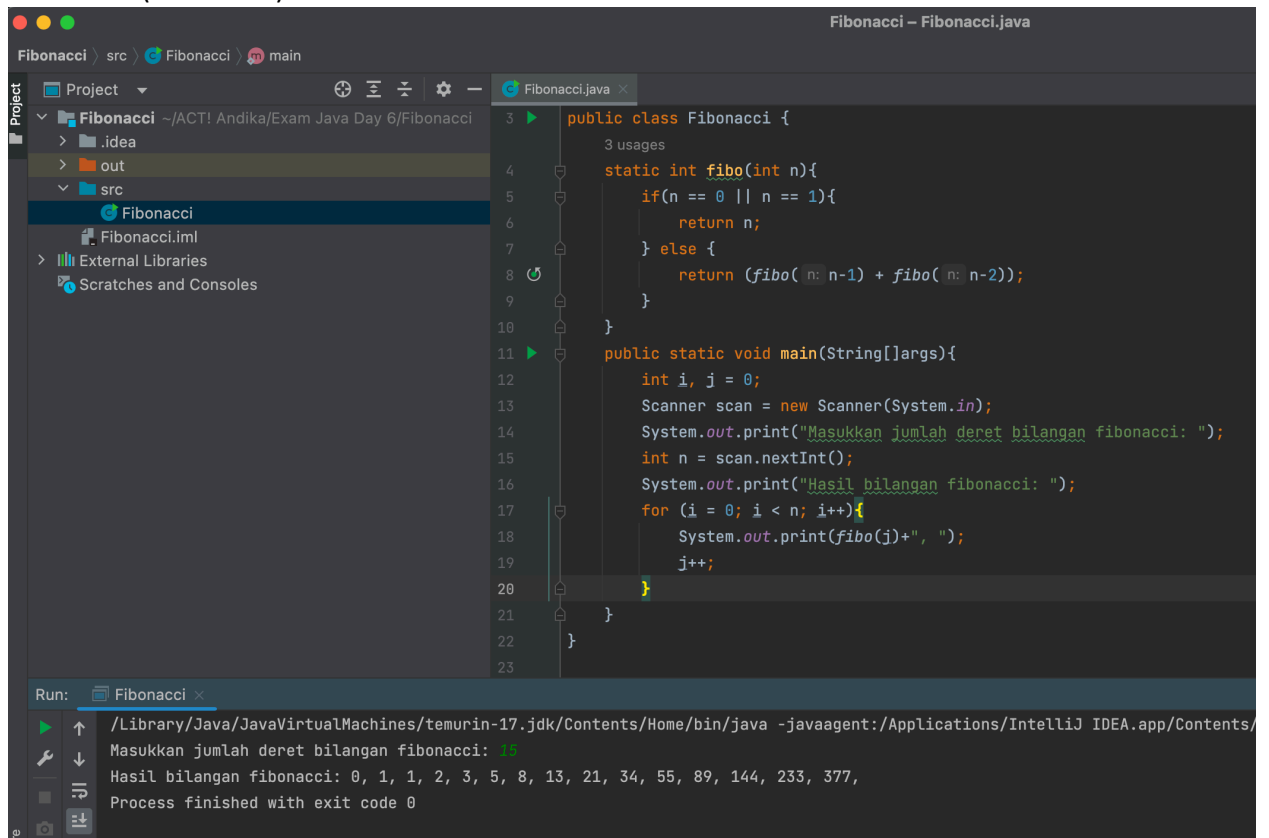


```
1 import java.util.Scanner;
2
3 public class PrimeNumber {
4
5     public static void main(String[] args) {
6         primeGenerate(batas: 10);
7
8         Scanner scanner = new Scanner(System.in);
9         System.out.println("");
10        System.out.print("Input: ");
11        int input = scanner.nextInt();
12        primeGenerateX(input);
13    }
14
15    1 usage
16    static void primeGenerate(int batas){
17        int n=0,i=1,lastPrime=0;
18        while(n < batas)
19        {
20            int j=1;
21            int flag=0;
22            while(j<=i)
23            {
24                if(i%j==0)
25                    flag++;
26                j++;
27            }
28            if(flag==2)
29            {
30                System.out.print(" "+i);
31                n++;
32            }
33            lastPrime = i;
34            i++;
35        }
36    }
```

Run: PrimeNumber x

```
/Library/Java/JavaVirtualMachines/temurin-17.jdk/Contents/Home/bin/java -javaagent:/Applications/IntelliJ IDEA.app/Con
2 3 5 7 11 13 17 19 23 29
Input: 6
13
Process finished with exit code 0
```

2. Fibonacci (Recursive)



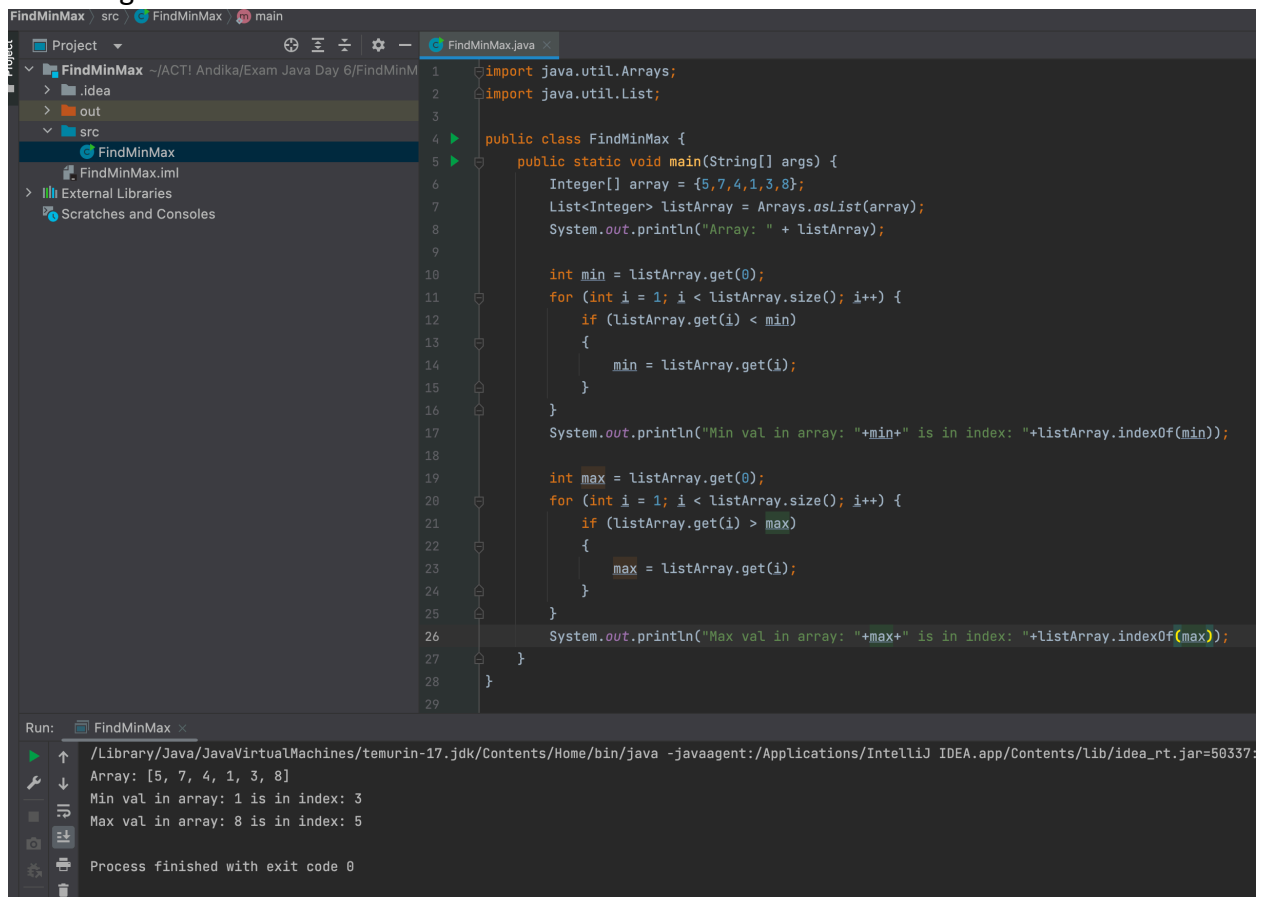
The screenshot displays the IntelliJ IDEA IDE interface for a project named 'Fibonacci'. The project structure on the left includes 'src' and 'out' directories, with 'Fibonacci' as the main source folder. The main editor shows the 'Fibonacci.java' file with the following code:

```
3 public class Fibonacci {
4     3 usages
5     static int fibo(int n){
6         if(n == 0 || n == 1){
7             return n;
8         } else {
9             return (fibo(n-1) + fibo(n-2));
10        }
11    }
12    public static void main(String[] args){
13        int i, j = 0;
14        Scanner scan = new Scanner(System.in);
15        System.out.print("Masukkan jumlah deret bilangan fibonacci: ");
16        int n = scan.nextInt();
17        System.out.print("Hasil bilangan fibonacci: ");
18        for (i = 0; i < n; i++){
19            System.out.print(fibo(i)+", ");
20            j++;
21        }
22    }
23 }
```

The Run window at the bottom shows the execution of the program. The command used is `/Library/Java/JavaVirtualMachines/temurin-17.jdk/Contents/Home/bin/java -javaagent:/Applications/IntelliJ IDEA.app/Contents/`. The output is as follows:

```
Masukkan jumlah deret bilangan fibonacci: 15
Hasil bilangan fibonacci: 0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144, 233, 377,
Process finished with exit code 0
```

3. Searching => find min and max



The screenshot shows an IDE with a project named 'FindMinMax'. The main file, 'FindMinMax.java', contains the following code:

```
1 import java.util.Arrays;
2 import java.util.List;
3
4 public class FindMinMax {
5     public static void main(String[] args) {
6         Integer[] array = {5,7,4,1,3,8};
7         List<Integer> listArray = Arrays.asList(array);
8         System.out.println("Array: " + listArray);
9
10        int min = listArray.get(0);
11        for (int i = 1; i < listArray.size(); i++) {
12            if (listArray.get(i) < min)
13            {
14                min = listArray.get(i);
15            }
16        }
17        System.out.println("Min val in array: "+min+" is in index: "+listArray.indexOf(min));
18
19        int max = listArray.get(0);
20        for (int i = 1; i < listArray.size(); i++) {
21            if (listArray.get(i) > max)
22            {
23                max = listArray.get(i);
24            }
25        }
26        System.out.println("Max val in array: "+max+" is in index: "+listArray.indexOf(max));
27    }
28 }
29
```

The Run console shows the output of the program:

```
Run: FindMinMax
/Library/Java/JavaVirtualMachines/temurin-17.jdk/Contents/Home/bin/java -javaagent:/Applications/IntelliJ IDEA.app/Contents/lib/idea_rt.jar=50337:
Array: [5, 7, 4, 1, 3, 8]
Min val in array: 1 is in index: 3
Max val in array: 8 is in index: 5
Process finished with exit code 0
```

4. Maximum buy product

5. Most Appear Item