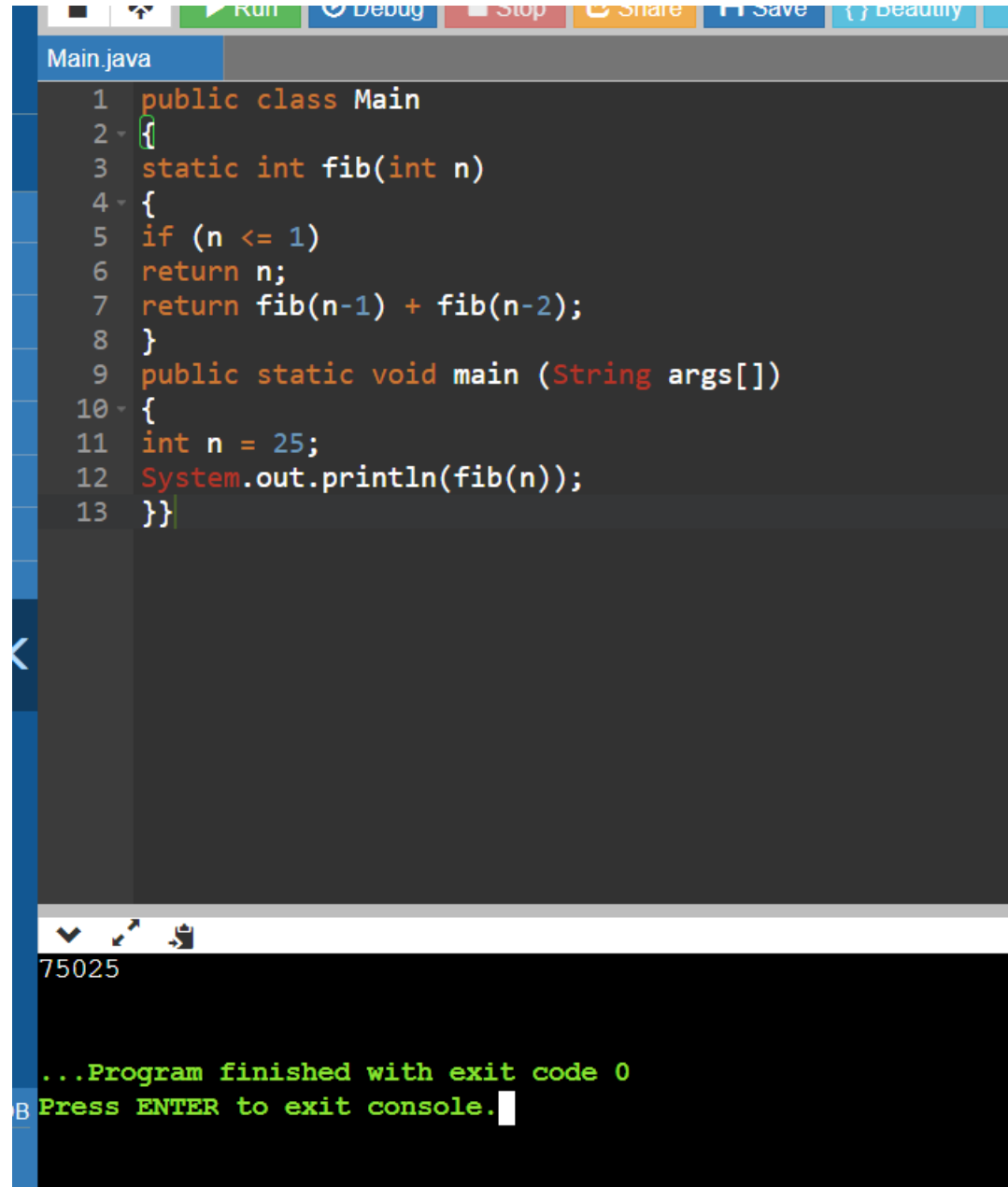


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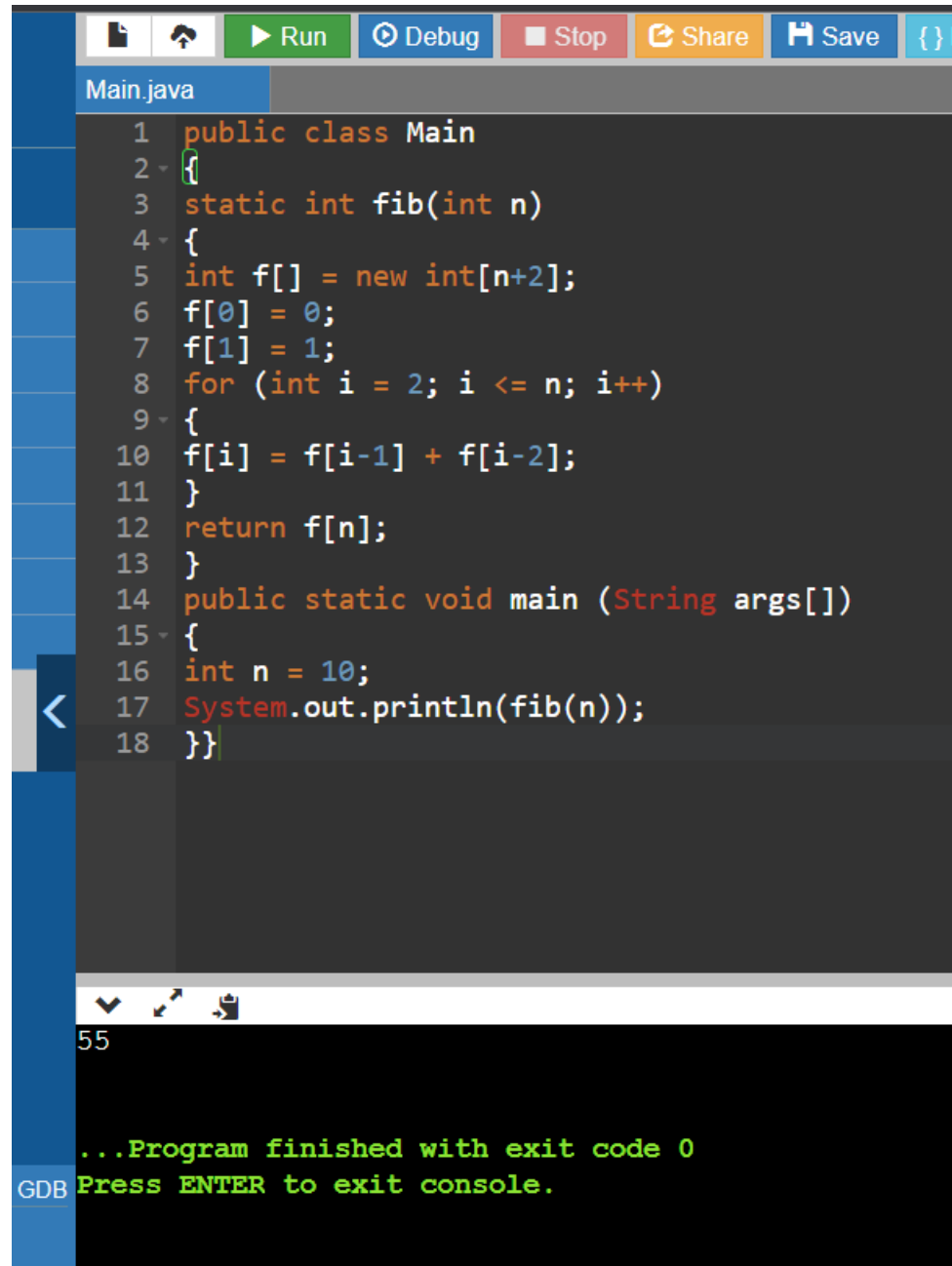


```
1 public class Main
2 {
3     static int fib(int n)
4     {
5         if (n <= 1)
6             return n;
7         return fib(n-1) + fib(n-2);
8     }
9     public static void main (String args[])
10    {
11        int n = 25;
12        System.out.println(fib(n));
13    }
```

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...Program finished with exit code 0
Press ENTER to exit console.

EFFICIENCY:



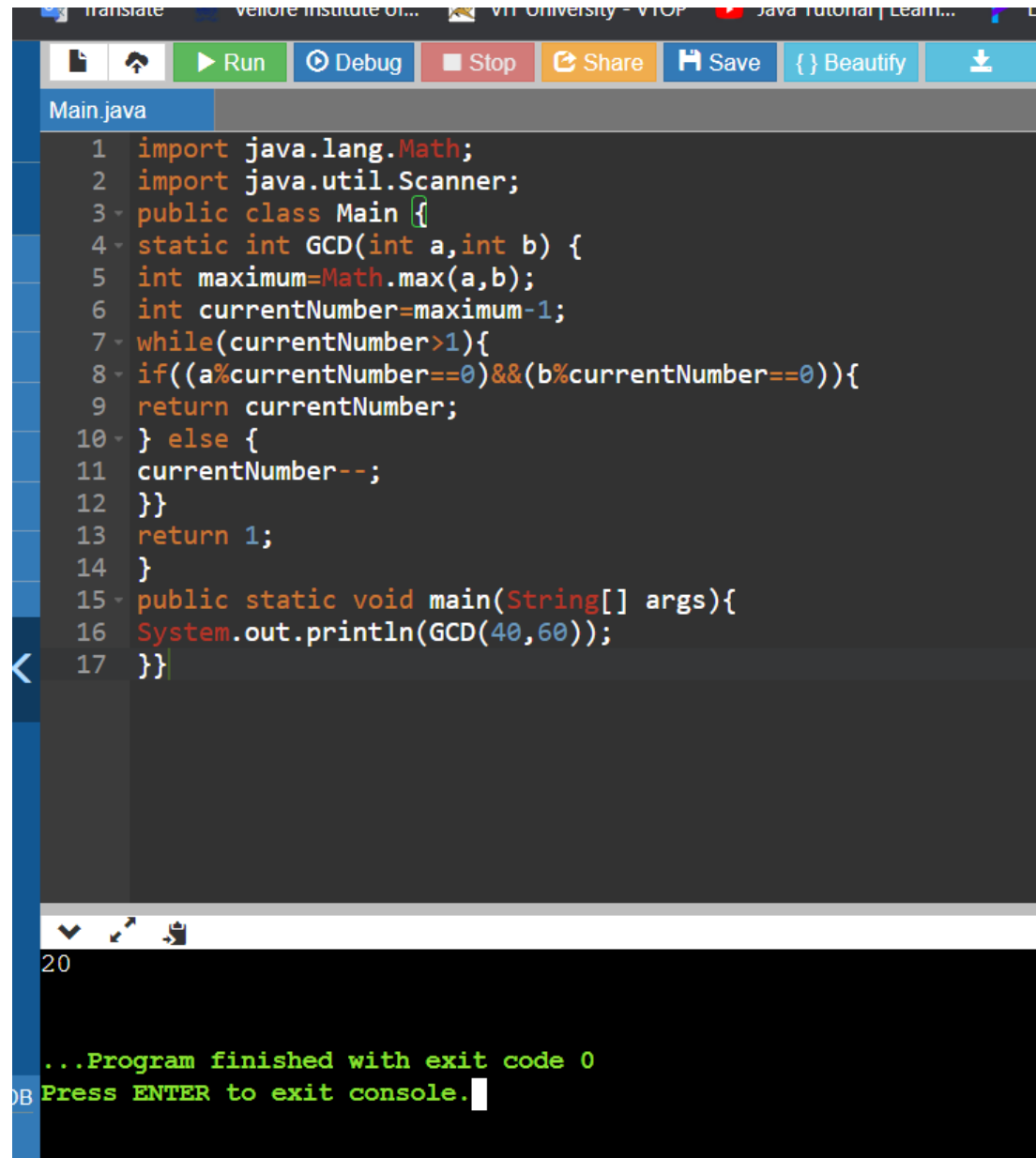
The image shows a screenshot of a Java IDE. The top toolbar includes icons for file operations and buttons for Run, Debug, Stop, Share, Save, and a code editor icon. The editor window is titled 'Main.java' and contains the following code:

```
1 public class Main
2 {
3     static int fib(int n)
4     {
5         int f[] = new int[n+2];
6         f[0] = 0;
7         f[1] = 1;
8         for (int i = 2; i <= n; i++)
9         {
10            f[i] = f[i-1] + f[i-2];
11        }
12        return f[n];
13    }
14    public static void main (String args[])
15    {
16        int n = 10;
17        System.out.println(fib(n));
18    }}
```

Below the code editor is a console window. It displays the number '55' on the first line. The second line shows the message '...Program finished with exit code 0'. The third line shows 'Press ENTER to exit console.' The console window is labeled 'GDB' on the left side.

ANALYSIS:

1) Here (DP) we are saving the values of $f(5), f(4)$..etc in array so we call it at $O(n)$ times

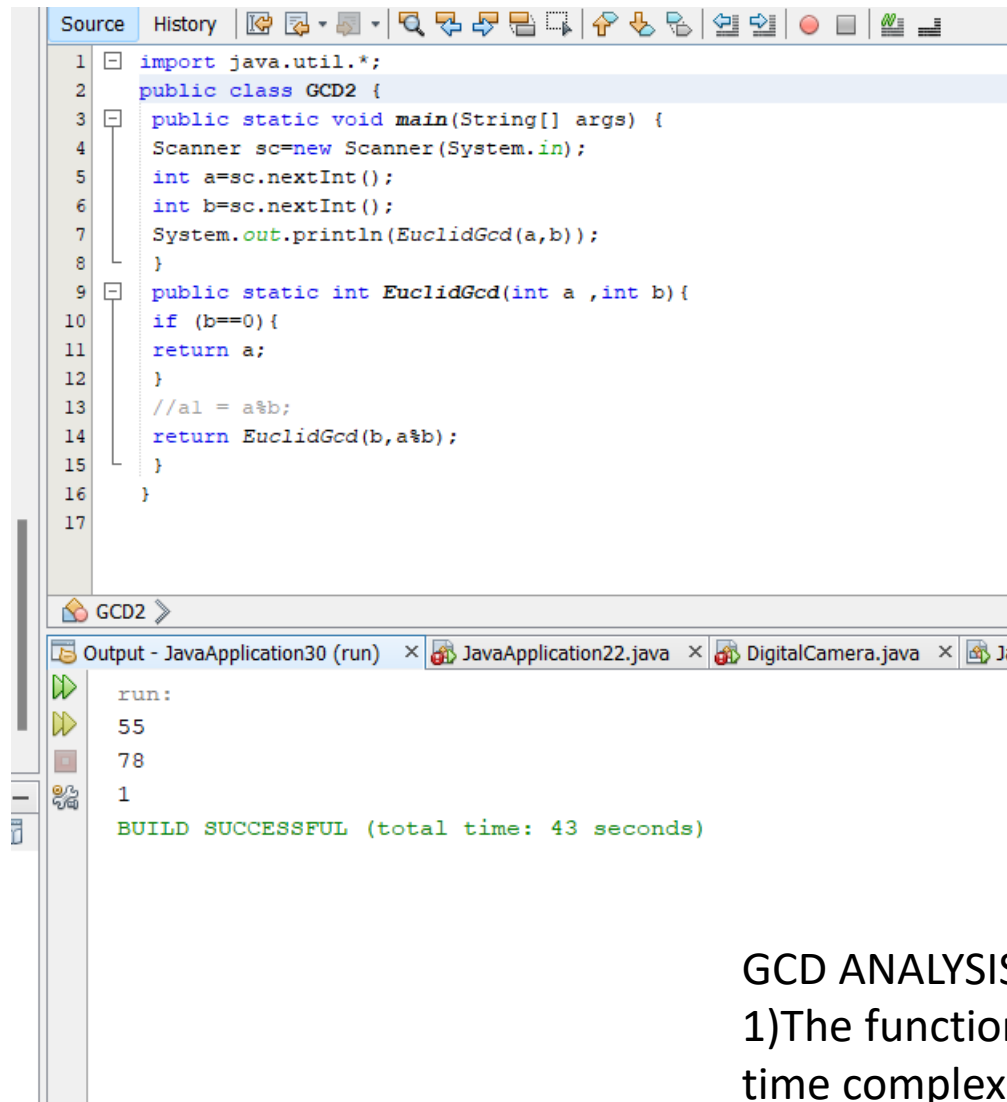


The screenshot shows a Java IDE with a file named 'Main.java'. The code implements a GCD function using a while loop. The IDE interface includes a toolbar with 'Run', 'Debug', 'Stop', 'Share', 'Save', 'Beautify', and a download icon. The code is as follows:

```
1 import java.lang.Math;
2 import java.util.Scanner;
3 public class Main {
4     static int GCD(int a,int b) {
5         int maximum=Math.max(a,b);
6         int currentNumber=maximum-1;
7         while(currentNumber>1){
8             if((a%currentNumber==0)&&(b%currentNumber==0)){
9                 return currentNumber;
10            } else {
11                currentNumber--;
12            }
13        }
14        return 1;
15    }
16    public static void main(String[] args){
17        System.out.println(GCD(40,60));
18    }
19 }
```

Below the code editor, the console output is visible, showing the program finished with exit code 0 and a prompt to press ENTER to exit the console.

```
20
...Program finished with exit code 0
Press ENTER to exit console.
```



The screenshot shows an IDE with a source editor and an output console. The source editor contains the following Java code:

```
1 import java.util.*;
2 public class GCD2 {
3     public static void main(String[] args) {
4         Scanner sc=new Scanner(System.in);
5         int a=sc.nextInt();
6         int b=sc.nextInt();
7         System.out.println(EuclidGcd(a,b));
8     }
9     public static int EuclidGcd(int a ,int b){
10        if (b==0){
11            return a;
12        }
13        //a1 = a%b;
14        return EuclidGcd(b,a%b);
15    }
16 }
17
```

The output console shows the following text:

```
run:
55
78
1
BUILD SUCCESSFUL (total time: 43 seconds)
```

GCD ANALYSIS:

- 1)The function is called n times in this case(navie) the time complexity is $O(n)$
- 2)here the time complexity is $O(\log n)$