

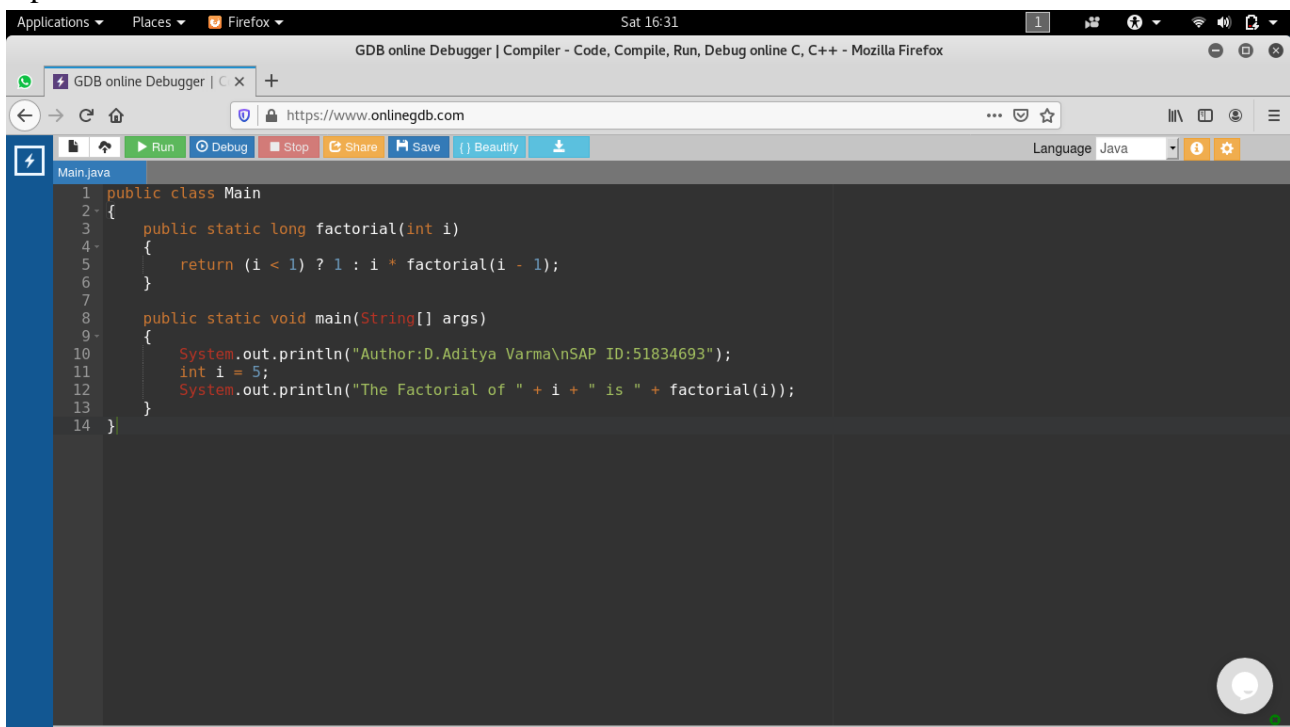
```

1)public class Main
{
    public static long factorial(int i)
    {
        return (i < 1) ? 1 : i * factorial(i - 1);
    }

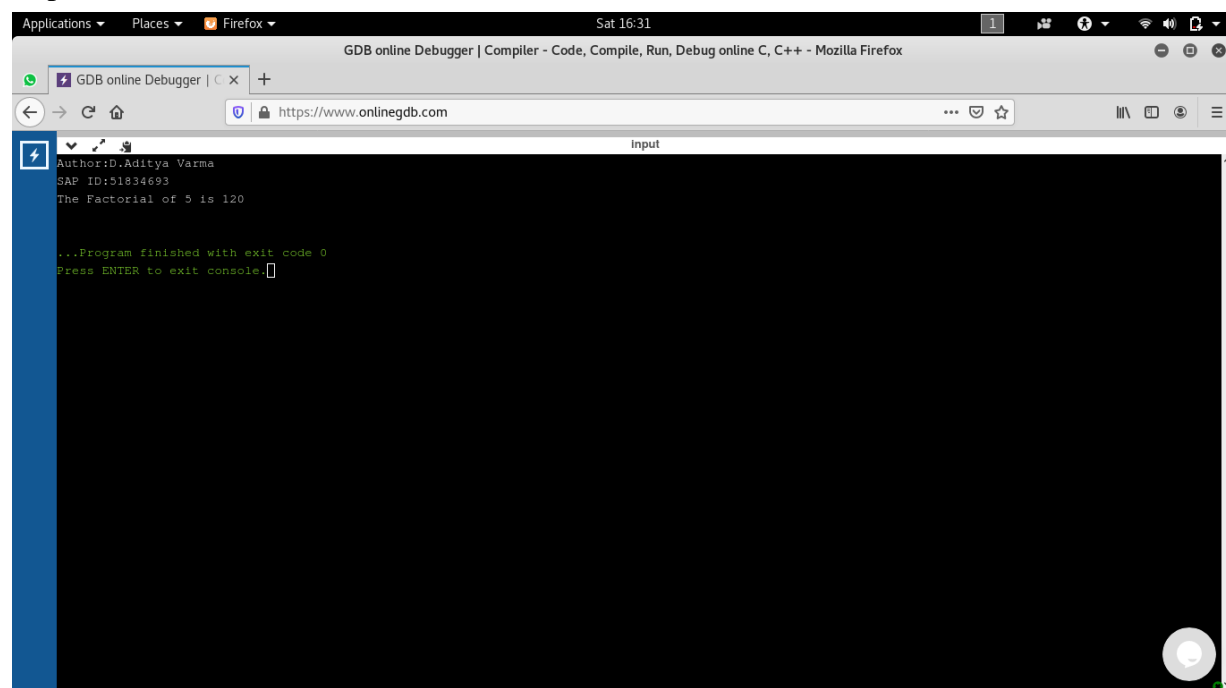
    public static void main(String[] args)
    {
        System.out.println("Author:D.Aditya Varma\nSAP ID:51834693");
        int i = 5;
        System.out.println("The Factorial of " + i + " is " + factorial(i));
    }
}

```

input:



output:



3) abstract class Bank {
abstract int

```

getBalance();
}
class BankA extends Bank
{
    int deposit=100;
    int getBalance()
    {
        return deposit;
    }
}
class BankB extends Bank
{
    int deposit=150;
    int getBalance()
    {
        return deposit;
    }
}
class BankC extends Bank
{
    int deposit=200;
    int getBalance()
    {
        return deposit;
    }
}
class Main
{
    public static void main(String args[])
    {
        System.out.println("Author:D.Aditya Varma\nSAP ID:51834693");
        //object for Bank A
        BankA i=new BankA();
        System.out.println("Balance in Bank A: "+i.getBalance());

        //object for Bank B
        BankB j=new BankB();
        System.out.println("Balance in Bank B: "+j.getBalance());

        //object for Bank C
        BankC k=new BankC();
        System.out.println("Balance in Bank C: "+k.getBalance());

    }
}

```

input:

The screenshot shows the GDB online Debugger interface in a Mozilla Firefox browser. The address bar displays <https://www.onlinegdb.com>. The code editor contains the following C++ code:

```
1 // Main.cpp
2 #include <iostream>
3 using namespace std;
4
5 abstract class Bank
6 {
7     abstract int getBalance();
8 }
9
10 class BankA extends Bank
11 {
12     int deposit=100;
13     int getBalance()
14     {
15         return deposit;
16     }
17 }
18
19 class BankB extends Bank
20 {
21     int deposit=150;
22     int getBalance()
23     {
24         return deposit;
25     }
26 }
27
28 class BankC extends Bank
29 {
30     int deposit=200;
31     int getBalance()
32     {
33         return deposit;
34     }
35 }
36
37 class Main
38 {
39     public static void main(String args[])
40     {
41         System.out.println("Author:D.Aditya Varma\nSAP ID:51834693");
42         //Object for Bank A
43         BankA i=new BankA();
44         System.out.println("Balance in Bank A: "+i.getBalance());
45
46         //Object for Bank B
47         BankB j=new BankB();
48         System.out.println("Balance in Bank B: "+j.getBalance());
49
50         //Object for Bank C
51         BankC k=new BankC();
52         System.out.println("Balance in Bank C: "+k.getBalance());
53     }
54 }
```

output:

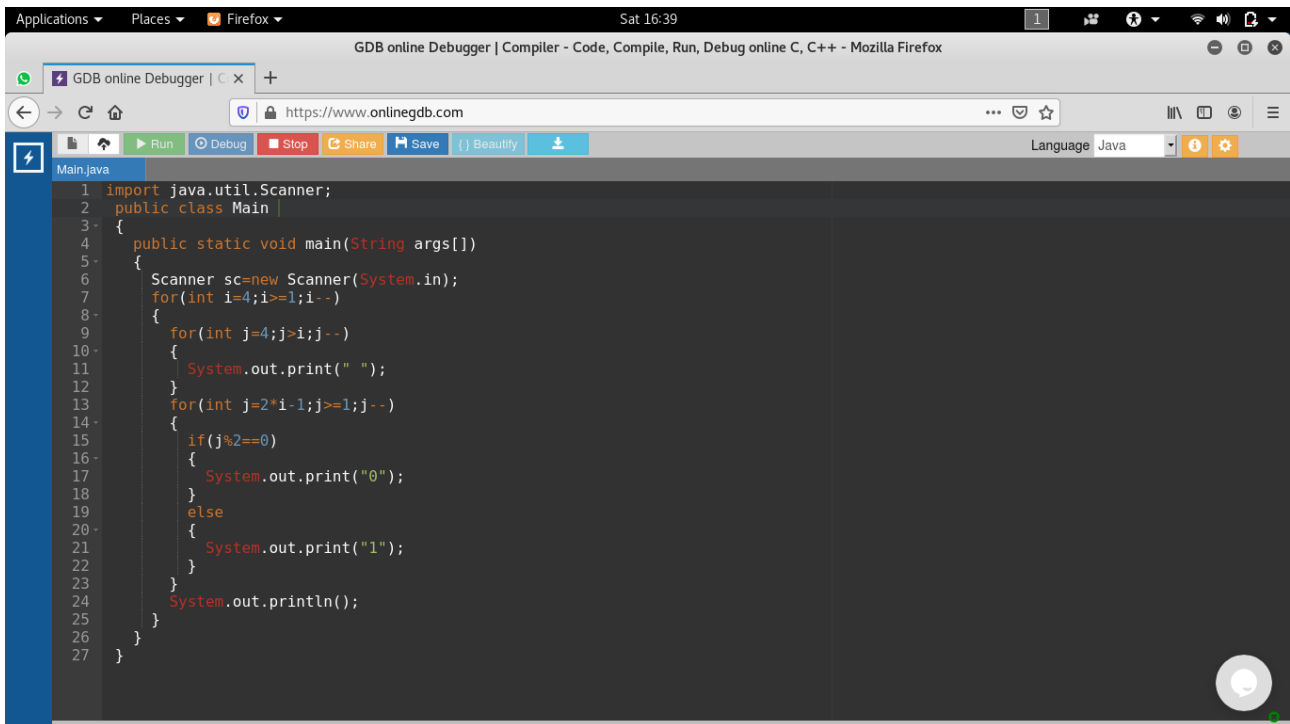
The screenshot shows the GDB online Debugger interface with the program's output displayed in the console. The output is as follows:

```
Author:D.Aditya Varma
SAP ID:51834693
Balance in Bank A: 100
Balance in Bank B: 150
Balance in Bank C: 200

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

```
import java.util.Scanner;
class Pattern
{
    public static void main(String args[])
    {
        Scanner sc=new Scanner(System.in);
        for(int i=4;i>=1;i--)
        {
            for(int j=4;j>i;j--)
            {
                System.out.print(" ");
            }
            for(int j=2*i-1;j>=1;j--)
            {
                if(j%2==0)
                {
                    System.out.print("0");
                }
                else
                {
                    System.out.print("1");
                }
            }
            System.out.println();
        }
    }
}
```

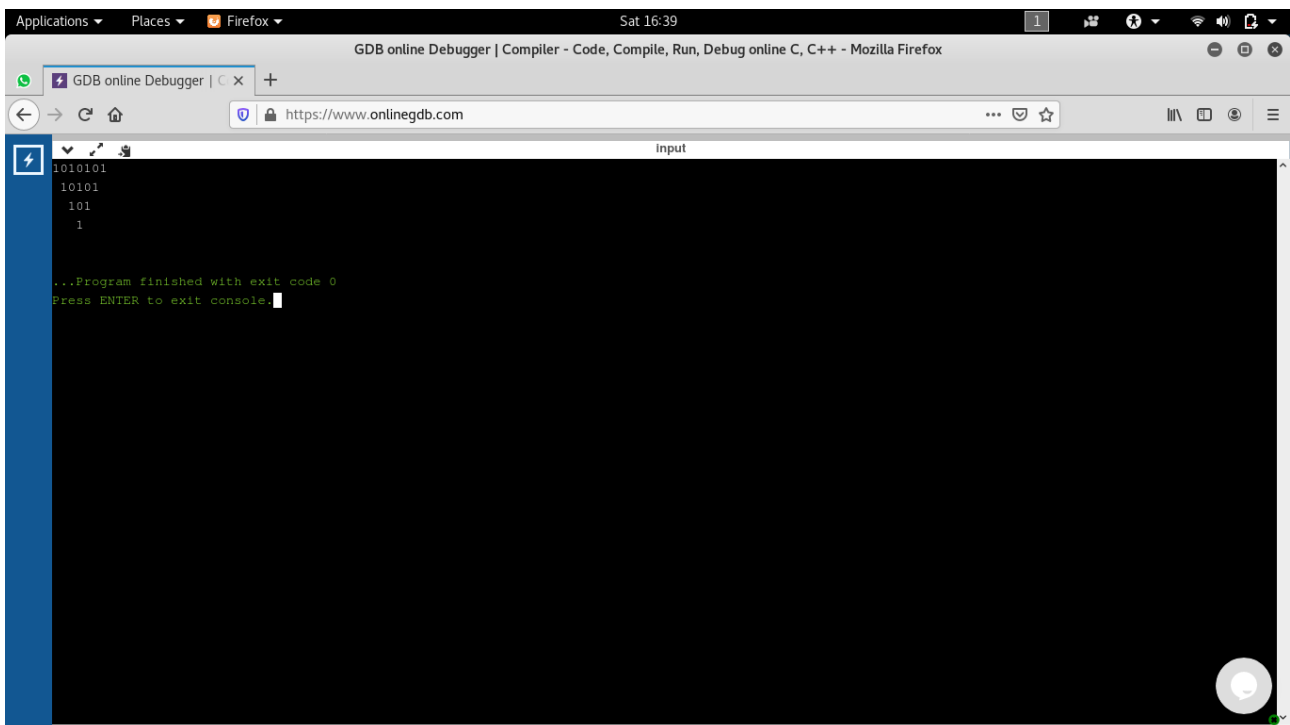
input:



The screenshot shows the GDB online Debugger interface in a Mozilla Firefox browser. The address bar displays <https://www.onlinegdb.com>. The interface includes a toolbar with buttons for Run, Debug, Stop, Share, Save, and Beautify. The source code for `Main.java` is displayed in a dark-themed editor. The code is as follows:

```
1 import java.util.Scanner;
2 public class Main {
3     {
4         public static void main(String args[])
5         {
6             Scanner sc=new Scanner(System.in);
7             for(int i=4;i>=1;i--)
8             {
9                 for(int j=4;j>=1;j--)
10                {
11                    System.out.print(" ");
12                }
13                for(int j=2*i-1;j>=1;j--)
14                {
15                    if(j%2==0)
16                    {
17                        System.out.print("0");
18                    }
19                    else
20                    {
21                        System.out.print("1");
22                    }
23                }
24                System.out.println();
25            }
26        }
27    }
```

output:



The screenshot shows the GDB online Debugger interface with the output of the program. The output is displayed in a dark-themed console window. The output is as follows:

```
1010101
10101
101
1

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