```java
1)import java.util.Scanner;

class Adityatickets {

    private String move_name;
    private String thetre_name;

    private int cost;

    void movies() {

        System.out.println("the movies available are");
        System.out.println(" 1.Sahoo -------- Rs.180 \n 2.DIl Bechara - Rs.150 \n 3.Extraction ----
Rs.190 \n 4.Ala Vaikuntapuramlo ----- Rs.200 ");


    }

}

class sruju extends Adityatickets {
private int no_f_tickets;
    void th() {
        System.out.println("**the theaters available are** \n 1.Jagadamba  th \n 2.Melody th");
        int k;
        int an;
        Scanner sc = new Scanner(System.in);
        int n = sc.nextInt();
        if (n == 1) {
            System.out.println("**Jagadamba theater**");
            System.out.println("**select a movie**");
            System.out.println("movie available are \n 1.Sahoo \n 2.DIl Bechara ");
            Scanner a = new Scanner(System.in);
            int o = a.nextInt();
            if (o == 1) {
                System.out.println("Sahoo movie @ kaurnya theater");
                System.out.println("enter the number of tickets to be booked");
                Scanner j = new Scanner(System.in);
                int r = j.nextInt();
                int left= no_f_tickets-r;
                int amount=180*r;
                System.out.println("to continue to book for this movie prees 1");
                Scanner d = new Scanner(System.in);
                int h = d.nextInt();
                System.out.println("\n\n\n");
                if (h == 1) {
                    System.out.println("*****************");
                    System.out.println("theater ------------------ Jagadamba  theater");
                    System.out.println("movie -------------------- Sahoo");
                    System.out.println("cost --------------------- Rs."+amount);
                    System.out.println("*****************");
                }
```

```java
    }
    if (o == 2) {
        System.out.println("DIl Bechara @Jagadamba  theater");
         System.out.println("enter the number of tickets to be booked");
        Scanner j = new Scanner(System.in);
        int r = j.nextInt();
        int left= no_f_tickets-r;
        int amount=150*r;
        System.out.println("to continue to book for this movie prees 1");
        Scanner d = new Scanner(System.in);
        int h = d.nextInt();
        System.out.println("\n\n\n");
        if (h == 1) {
            System.out.println("*****************");
            System.out.println("theater ------------------- Jagadamba  theater");
            System.out.println("movie -------------------- Dil Bechara");
            System.out.println("cost --------------------- Rs"+amount);
            System.out.println("*****************");
        }

    }

}
if (n == 2) {
    System.out.println("**Melody theater**");
    System.out.println("**select a movie**");
    System.out.println("movie available are \n 3.Extraction movie \n 4.Ala vaikuntapuramalo movie");
    Scanner b = new Scanner(System.in);
    int p = b.nextInt();
    Scanner a = new Scanner(System.in);
    int o = a.nextInt();
    if (o == 1) {
        System.out.println("Extraction movie @ Melody theater");
         System.out.println("enter the number of tickets to be booked");
        Scanner j = new Scanner(System.in);
        int r = j.nextInt();
        int left= no_f_tickets-r;
        int amount=190*r;
        System.out.println("to continue to book for this movie prees 1");
        Scanner d = new Scanner(System.in);
        int h = d.nextInt();
        System.out.println("\n\n\n");
        if (h == 1) {
            System.out.println("*****************");
            System.out.println("theater ------------------- Melody theater");
            System.out.println("movie -------------------- Extraction movie");
            System.out.println("cost --------------------- Rs."+amount);
            System.out.println("*****************");
        }
```

```java
            }
        if (o == 2) {
            System.out.println("Ala vaikuntapuramalo @Melody theater");
             System.out.println("enter the number of tickets to be booked");
            Scanner j = new Scanner(System.in);
            int r = j.nextInt();
            int left= no_f_tickets-r;
            int amount=200*r;
            System.out.println("to continue to book for this movie prees 1");
            Scanner d = new Scanner(System.in);
            int h = d.nextInt();
            System.out.println("\n\n\n");
            if (h == 1) {
                System.out.println("*****************");
                System.out.println("theater ------------------- Melody theater");
                System.out.println("movie -------------------- Ala vaikuntapuramalo movie");
                System.out.println("cost --------------------- Rs."+amount);
                System.out.println("*****************");
            }

        }
    }

    }
}

public class Main {

    public static void main(String[] args) {
        Adityatickets ob = new Adityatickets();

        Adityatickets[] moviename = new Adityatickets[2];
        moviename[0] = ob;
        sruju a = new sruju();
        moviename[1] = a;

        System.out.println("Author:D.Aditya Varma\nSAP ID:51834693");
        System.out.println("1.list of movies and their prices\n2.acces and book tickets through theaters");

        Scanner d = new Scanner(System.in);
        int h = d.nextInt();
        switch (h) {
            case 1: {
                ob.movies();
                break;
            }
            case 2: {

                a.th();
            }
        }
```

}

}

Output:

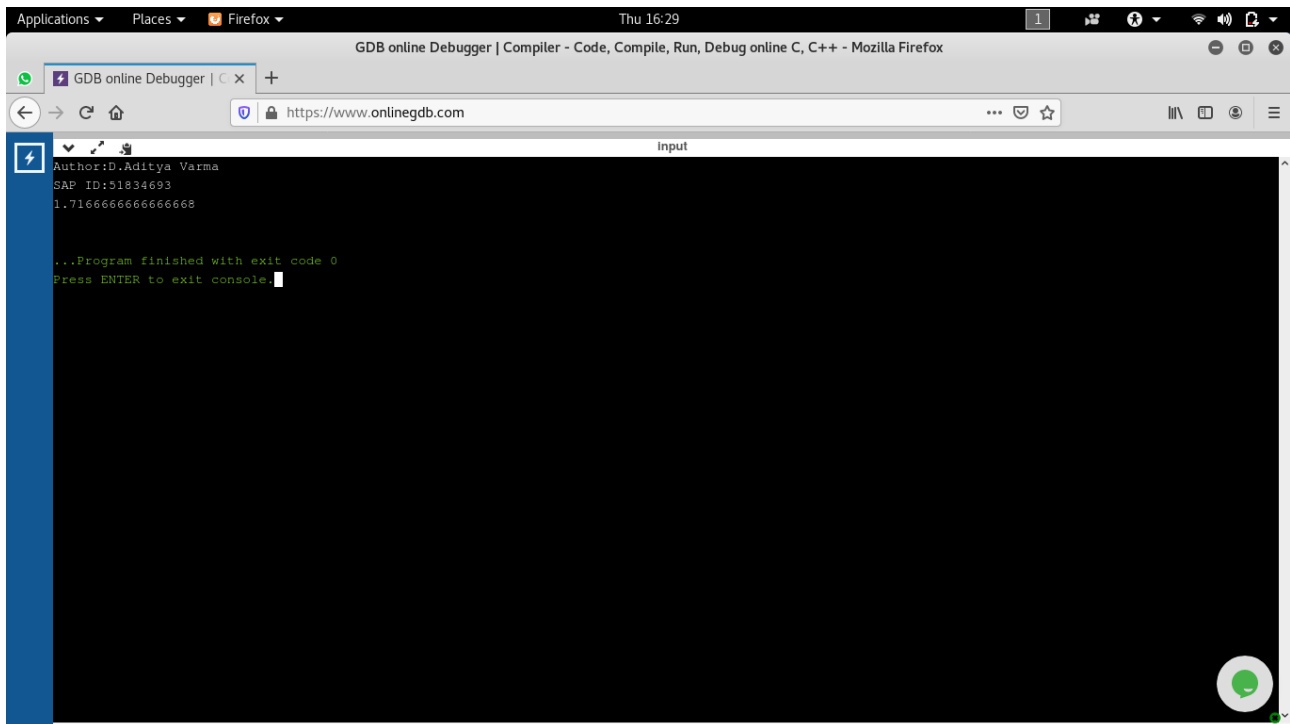**4)**import java.util.*;

public class Main {

   static int factorial(int a)
   {
     int res = 1;
     for (int m = 2; m <= a; m++)
     res *= m;
     return res;
   }

   static double sum(int a)
   {
     double sum = 0;
     for (int m = 1; m <= a; m++)
       sum += 1.0/factorial(m);
     return sum;
   }

   public static void main (String[] args)
   {
     System.out.println("Author:D.Aditya Varma\nSAP ID:51834693");
     int a = 5;
     System.out.println(sum(a));
   }
}

Output:

5)import java.util.*;
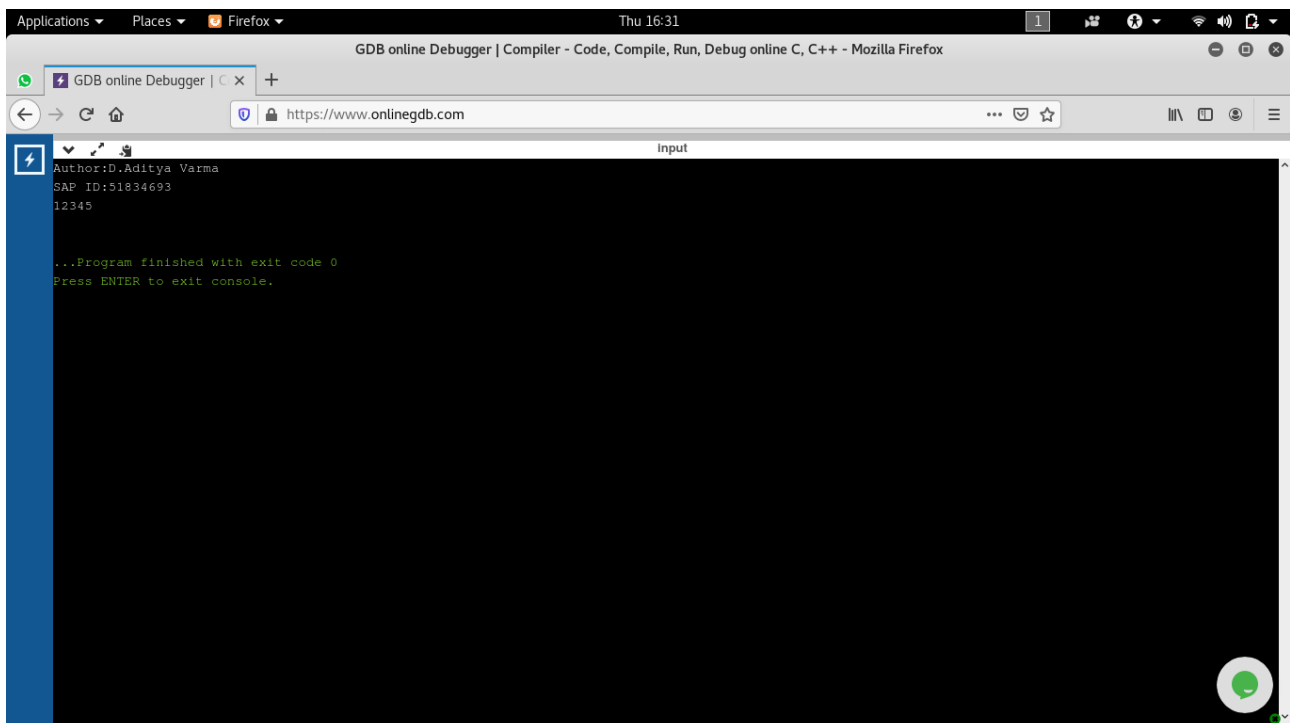
```java
public class Main
{

    static int summation(int a)
    {
        System.out.println("Author:D.Aditya Varma\nSAP ID:51834693");
        int sum = 0, y = 1;
        for (int x = 1; x <= a; x++)
        {
            sum = sum + y;
            y = (y * 10) + 1;
        }

        return sum;
    }

    public static void main(String args[])
    {
        int a = 5;
        System.out.println(summation(a));
    }
}
```

Output: