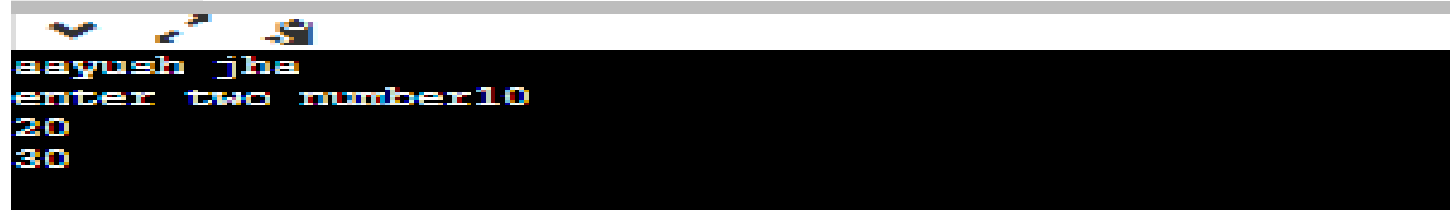


1. (a) Write a C program to add two number

```
1  #include <stdio.h>
2
3  int main()
4  {
5      int a,b,c;
6      printf("aayush jha \n");
7      printf("enter two number");
8      scanf("%d%d",&a,&b);
9      c=a+b;
10     printf("%d",c);
11     return 0;
12 }
```



A terminal window with a black background and white text. It shows the output of the C program. The first line is 'aayush jha', followed by 'enter two number'. Then, the user enters '10' and '20' on separate lines. The final output is '30'.

```
aayush jha
enter two number10
20
30
```

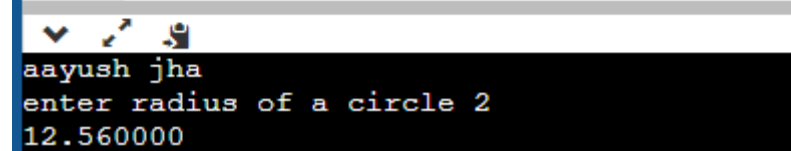
(b) Write a C program to add three number

```
1  #include <stdio.h>
2
3  int main()
4  {
5      int a,b,c,d;
6      printf("aayush jha \n");
7      printf("enter three number");
8      scanf("%d%d%d",&a,&b,&d);
9      c=a+b+d;
10     printf("%d",c);
11     return 0;
12 }
```

```
aayush jha
enter three number10
20
30
60
```

## 2. (a) Write a C program to find area of circle

```
1  #include <stdio.h>
2
3  int main()
4  {
5      float area,r;
6      printf("aayush jha\n");
7      printf("enter radius of a circle ");
8      scanf("%f",&r);
9      area=3.14*r*r;
10     printf("%f", area);
11     return 0;
12 }
13
```



The screenshot shows a C program being executed in a terminal. The program prints the name 'aayush jha', prompts the user to enter the radius of a circle, and then calculates and prints the area of the circle using the formula  $area = 3.14 \times r^2$ . The user entered a radius of 2, resulting in an area of 12.560000.

(b) Write a C program to calculate simple interest

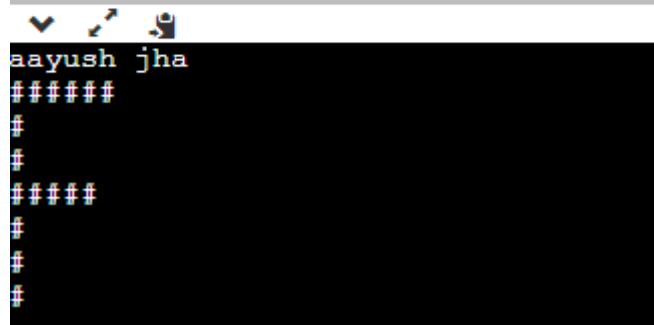
```
1 #include <stdio.h>
2
3 int main()
4 {
5     float p,r,t,si;
6     printf("aayush jha \n");
7     printf("enter principle amount, rate and time");
8     scanf("%f%f%f",&p,&r,&t);
9     si=p*r*t/100;
10    printf("%f",si);
11    return 0;
12 }
```

input

```
aayush jha
enter principle amount, rate and time10
20
30
60.000000
```

3. Write a C program to print a block F using hash (#), where the F has a height of six characters and width of five and four characters 4.

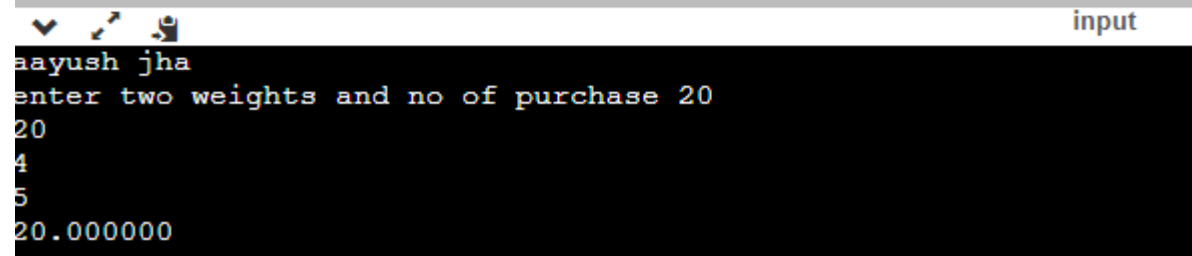
```
1  #include<stdio.h>
2
3  int main()
4  {
5      printf("aayush jha\n");
6      printf("#####\n");
7      printf("#\n");
8      printf("#\n");
9      printf("#####\n");
10     printf("#\n");
11     printf("#\n");
12     printf("#\n");
13
14     return(0);
15 }
16
```



```
aayush jha
#####
#
#
#####
#
#
#
```

4. Write a C program that accepts two item's weight (floating points' values) and number of purchase (floating points' values) and calculate the average value of the item

```
1  #include<stdio.h>
2  int main()
3  {
4      float w1,w2,n1,n2, average;
5      printf("aayush jha\n");
6      printf("enter two weights and no of purchase ");
7      scanf("%f%f%f%f",&w1,&w2,&n1,&n2);
8      average = (w1*n1+w2*n2)/(n1+n2);
9      printf("%f",average);
10     return 0;
11 }
12
```

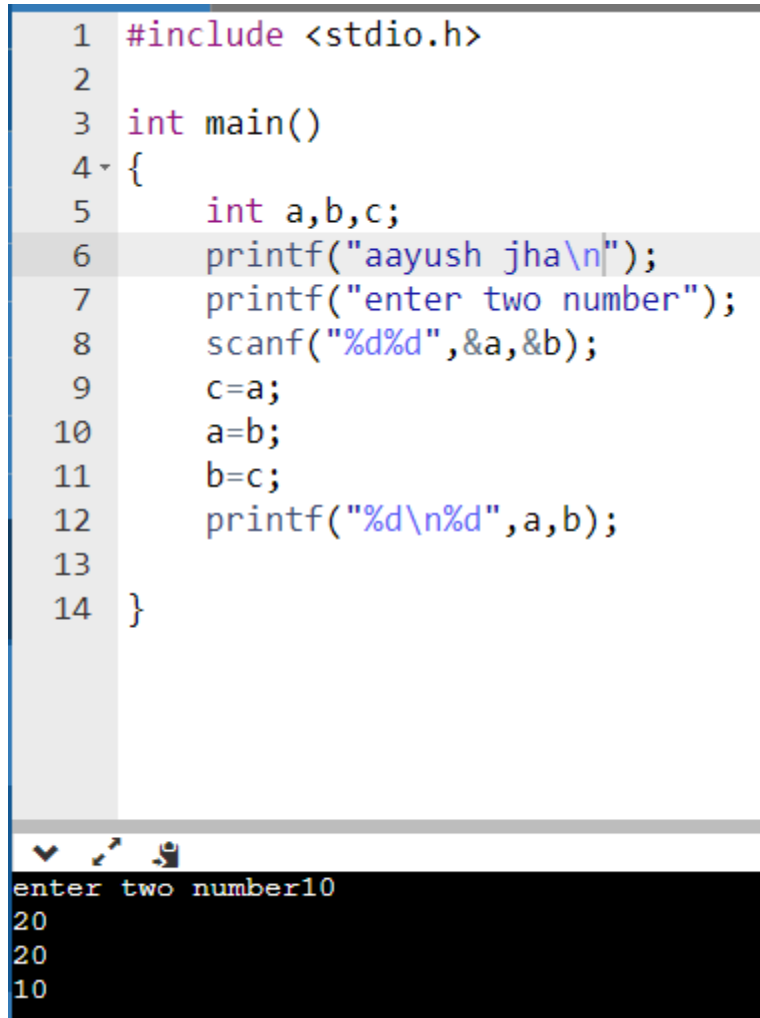


input

```
aayush jha
enter two weights and no of purchase 20
4
5
20.000000
```

5. (a) Write a C program to swap two variables using a third variable

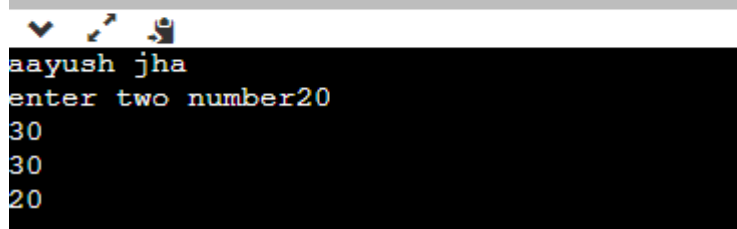
```
1  #include <stdio.h>
2
3  int main()
4  {
5      int a,b,c;
6      printf("aayush jha\n");
7      printf("enter two number");
8      scanf("%d%d",&a,&b);
9      c=a;
10     a=b;
11     b=c;
12     printf("%d\n%d",a,b);
13
14 }
```



```
enter two number10
20
20
10
```

(b) Write a C program to swap two variables without using a third variable

```
1  #include <stdio.h>
2
3  int main()
4  {
5      int a,b;
6      printf("aayush jha\n");
7      printf("enter two number");
8      scanf("%d%d",&a,&b);
9      a=a+b;
10     b=a-b;
11     a=a-b;
12     printf("%d\n%d",a,b);
13
14 }
```




```
aayush jha
enter two number20
30
30
20
```



6. (a) Write a C program to convert a given integer (in seconds) to hours, minutes, and seconds

```
1  #include <stdio.h>
2  int main()
3  {
4  int sec, hour, min;
5  printf("aayush jha\n");
6  printf("enter seconds");
7  scanf("%d", &sec);
8  hour=sec/3600;
9  min=sec-hour*3600;
10 min=min/60;
11 sec=sec-hour*3600-min*60;
12 printf("%d hour %d min %d sec", hour, min, sec);
13 return 0;
14 }
```

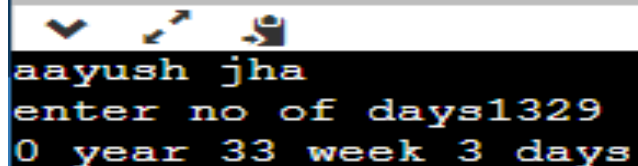


The terminal window shows the output of the C program. It first prints the name 'aayush jha', then prompts for 'enter seconds' and receives the input '120'. Finally, it outputs '0 hour 0 min 120 sec'.

```
aayush jha
enter seconds120
0 hour 0 min 120 sec
```

(b) Write a C program to convert specified days into years, weeks, and days. Note: Ignore leap year. Test Data : Number of days : 1329-3 years,33 weeks and 3 day

```
1  #include <stdio.h>
2  int main()
3  {
4  int year, week, days;
5  printf("aayush jha\n");
6  printf("enter no of days");
7  scanf("%d",&days);
8  year=days/365;
9  week=days%365;
10 week=week/7;
11 days=days%365;
12 days=days%7;
13 printf("%d year %d week %d days",year, week, days);
14 return 0;
15 }
```

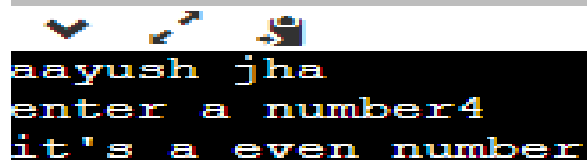


The terminal window shows the output of the C program. It starts with a checkmark icon, followed by the program's output: "aayush jha", a prompt "enter no of days", the user input "1329", and the final result "0 year 33 week 3 days".

```
aayush jha
enter no of days1329
0 year 33 week 3 days
```

(c) Write a C program to check whether a number is even or odd


```
1  #include <stdio.h>
2
3  int main()
4  {
5      int a;
6      printf("aayush jha\n");
7      printf("enter a number");
8      scanf("%d",&a);
9      if(a%2==0)
10     {
11         printf("it's a even number");
12     }
13     else
14     {
15         printf("it's a odd number");
16     }
17
```



```
aayush jha
enter a number4
it's a even number
```

7. Write a C program to check whether a given year is Leap year or not

```
1  #include <stdio.h>
2  int main()
3  {
4  int year;
5  printf("aayush jha\n");
6  printf("enter year");
7  scanf("%d", &year);
8  if(year%400==0 || year%4==0)
9  {
10     printf(" it's a leap year");
11 }
12 else
13 {
14     printf("not a leap year");
15 }
16 return 0;
17 }
```

The output of the C program is shown in a black terminal window. It displays the name 'aayush jha', prompts for 'enter year', and then shows the result 'not a leap year' for the input '2005'.

```
aayush jha
enter year2005
not a leap year
```

8. (a) Write a C program to check whether a triangle is Equilateral, scalene, or isosceles

```
1  #include<stdio.h>
2  int main()
3  {
4      int f,s,t;
5      printf("aayush jha\n");
6      printf("enter three sides of traingle");
7      scanf("%d%d%d",&f,&s,&t);
8      if(f==s && f==t)
9      {
10         printf("it's a equilateral traingle");
11     }
12     else if(f==s || s==t || t==f)
13     {
14         printf("it's a isoceus traingle");
15     }
16     else
17     {
18         printf("scalene traingle");
19     }
```

```
✓ ↩ 📄
aayush jha
enter three sides of traingle2
2
3
it's a isoceus traingle
```

(b) Write a C program to check whether a triangle is right angles, obtuse, acute triangle

```
1  #include<stdio.h>
2  int main()
3  {
4      int a,b,c;
5      printf("aayush jha\n");
6      printf("enter three sides of a traingle");
7      scanf("%d%d%d",&a,&b,&c);
8      if(a*a+b*b==c*c)
9      {
10         printf("it's a right angle traingle");
11     }
12     else if(a*a+b*b>c*c)
13     {
14         printf("it's a acute angle traingle");
15     }
16     else
17     {
18         printf("it's a obtuse angle traingle");
19     }
20 }
```

input

```
enter three sides of a traingle3
4
2
it's a acute angle traingle
```


9. Write a C program to convert temperature from Fahrenheit to Celsius and Celsius to Fahrenheit (User must provide the choice of type of temperature)

```
1  #include<stdio.h>
2  int main()
3  {
4  char x;
5  float celsius, farhenheit;
6  printf("aayush jha\n");
7  printf("enter celsius or farhenheit");
8  scanf("%c", &x);
9  if(x=='c')
10 {
11 printf("enter farhenheit");
12 scanf("%f",&farhenheit);
13 celsius= (farhenheit-32)*5/9;
14 printf("%f", celsius);
15 }
16 if(x=='f')
17 {
18 printf("enter celsius");
19 scanf("%f",&celsius);
20 farhenheit=celsius*9/5+32;
21 printf("%f", farhenheit);
22 }
```

```
aayush jha
enter celsius or farhenheitf
enter celsius5
41.000000
```

10. (a) Write a C program to check whether a character is an alphabet, digit

```
3 int main()  
4 {  
5     int a;  
6     printf("aayush jha\n");  
7     printf("enter a number");  
8     scanf("%d",&a);  
9     if(a>=65 && a<=90 )  
10 {  
11     printf("%c is a alphabet",a);  
12 }  
13 else if(a>=97 && a<=122)  
14 {  
15     printf("%c is a alphabet",a);  
16 }  
17  
18 else  
19 {  
20     printf("%d is a digit",a);  
21 }  
22 }
```



aayush jha  
enter a number66  
B is a alphabet



(b) Write a C program a program to check whether an alphabet is a vowel or consonant

```
1  #include<stdio.h>
2  int main()
3  {
4      char x;
5      printf("aayush jha\n");
6      printf("enter a alphabet=");
7      scanf("%c",&x);
8      if(x=='a' || x== 'e' || x=='i' || x=='o' || x=='o')
9      {
10         printf("%c is a vowel",x);
11     }
12     else
13     {
14         printf("%c is a consonant",x);
15     }
16 }
```

input

```
aayush jha
enter a alphabet=e
e is a vowel
```

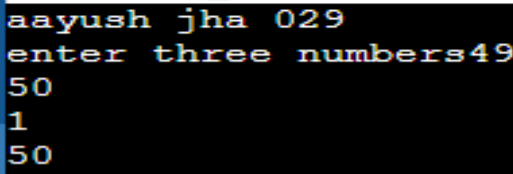
11. (a) Write a C program to find greatest of two numbers

```
1  #include<stdio.h>
2  int main()
3  {
4      int x,y,c;
5      printf("aayush jha\n");
6      printf("enter two number");
7      scanf("%d%d",&x,&y);
8      c=(x>y?x:y );
9      printf("%d",c);
10 }
```

```
aayush jha
enter two number2
3
3
```

(b) Write a C program to find greatest of three numbers

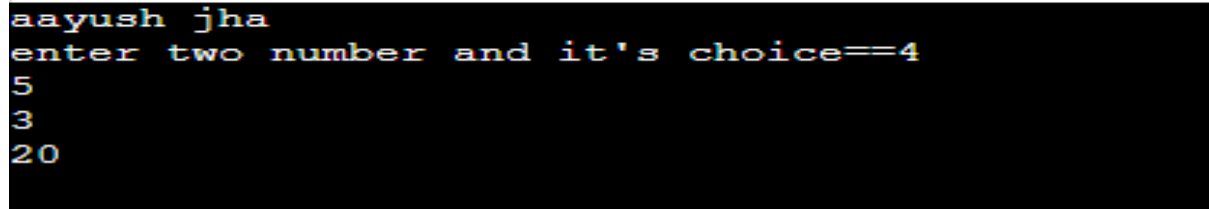
```
1
2 #include <stdio.h>
3
4 int main()
5 {
6     int a,b,c,d;
7     printf("aayush jha 029\n");
8     printf("enter three numbers");
9     scanf("%d%d%d",&a,&b,&c);
10    d=(a>b && a>c?a:(b>c && b>a?b:c ));
11    printf("%d",d);
12
13    return 0;
14 }
15
```



```
aayush jha 029
enter three numbers49
50
1
50
```

## 12. Write a program in C to implement Simple Calculator.

```
1  #include<stdio.h>
2  int main()
3  {
4      int a,b,c,choice;
5      printf("aayush jha\n");
6      printf("enter two number and it's choice==");
7      scanf("%d%d%d",&a,&b,&choice);
8      switch(choice)
9      {
10         case 1:
11             c=a+b;
12             printf("%d",c);
13             break;
14         case 2:
15             c=a-b;
16             printf("%d",c);
17             break;
18         case 3:
19             c=a*b;
20             printf("%d",c);
21             break;
22         case 4:
23             c=a/b;
24             printf("%d",c);
25             break;
26     }
27 }
```



```
aayush jha
enter two number and it's choice==
5
3
20
```

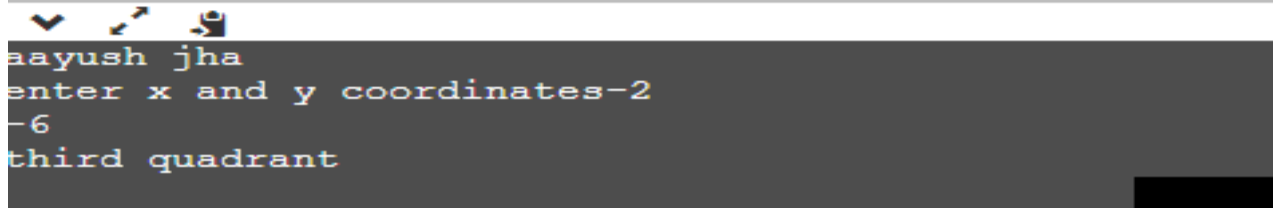
# 13. WAP to calculate the root of a Quadratic Equation

```
1  #include <stdio.h>
2  #include<math.h>
3  int main()
4  {
5      int a,b,c,d,r1,r2;
6      printf("aayush jha\n");
7      printf("enter three variables");
8      scanf("%d%d%d",&a,&b,&c);
9      d=sqrt(b*b-4*a*c);
10     if(d>0)
11     {
12         r1=-b+d;
13         r1=r1/(2*a);
14         r2=-b-d;
15         r2=r2/(2*a);
16         printf("%d\n%d ",r1,r2);
17     }
```

```
aayush jha
enter three variables1
5
6
-2
-3
```

14. WAP to accept a coordinate point in a XY coordinate system and determine in which quadrant the coordinate point lies

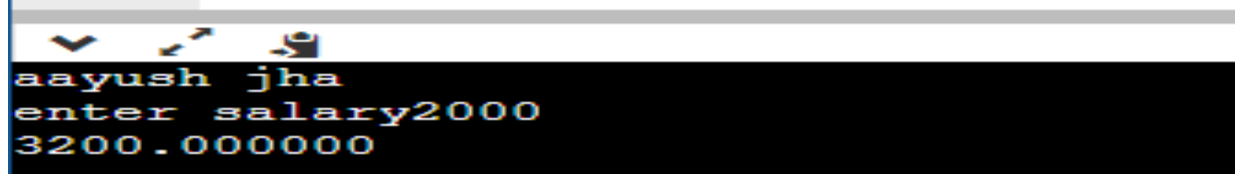
```
4      int x,y;
5      printf("aayush jha\n");
6      printf("enter x and y coordinates");
7      scanf("%d%d",&x,&y);
8      if(x>=0 && y>=0)
9      {
10         printf("first quadrant");
11     }
12     else if(x<=0 && y>=0)
13     {
14         printf("second quadrant");
15     }
16     else if(x<=0 && y<=0)
17     {
18         printf("third quadrant");
19     }
20     else
21     {
22         printf("forth quadrant");
23     }
24 }
```



```
aayush jha
enter x and y coordinates-2
-6
third quadrant
```

15. Write a program to find gross salary of employee if DA is 40% of basic Salary and HRA is 20% of basic salary. Basic salary will be entered as input by keyboard

```
1  #include<stdio.h>
2  int main()
3  {
4  float gross, salary,da,hra;
5  printf("aayush jha\n");
6  printf("enter salary");
7  scanf("%f",&salary);
8  da=salary*.4;
9  hra=.2*salary;
10 gross=salary+da+hra;
11 printf("%f",gross);
12 return 0;
13 }
```



A terminal window with a black background and yellow text. It shows the output of the program: 'aayush jha' followed by a prompt 'enter salary' and the user input '2000'. The final output is '3200.000000'.

```
aayush jha
enter salary2000
3200.000000
```

16. Write a program in C to calculate and print the Electricity bill of a given customer. The customer id and unit consumed by the user should be taken from the keyboard and display the total amount to pay to the customer. upto 199-----1.20 200-500-----1.80 Above 500-----2.00.If bill exceeds Rs. 400 then a surcharge of 15% will be charged and the minimum bill should be of Rs. 100/-

```
printf("aayush jha\n");
printf("enter units");
scanf("%f",&units);
if(units<=199)
{
    bill=units*1.2;
    printf("%f bill", bill);
}
if(units>=200 && units<=500)
{
    bill=199*1.2+(units-199)*1.8;
    printf("%f is bill\n", bill);
}
else if(bill>400)
{
    surcharge=bill*0.15;
    printf("%f surcharge", surcharge);
}
if(units>=500)
{
    bill=199*1.2+301*1.8+(units-500)*2.0;
    printf("%f",bill);
}
else if(bill=400)
{
    surcharge=bill*0.15;
    printf("%f", surcharge);
}
return 0;
}
```

output  
aayush jha  
enter units 400  
600.499976 is bill  
60.000000



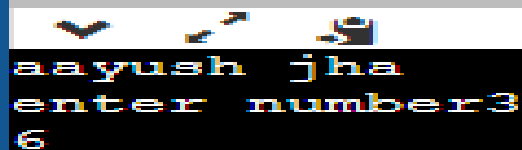
17. A library charges a fine for every book returned late. For first 5 days the fine is 50 paise, for 6-10 days, fine is one rupee and above 10 days, fine is 5 rupees. If you return the book after 30 days your membership will be cancelled. Write a program to accept the number of days the member is late to return the book and display the fine or appropriate message.

```
File Edit Format View Help
#include <stdio.h>
int main()
{
    float days, fine;
    printf("aayush jha\n");
    printf("enter days");
    scanf("%f", &days);
    if(days <= 5)
    {
        fine = days * 5;
        printf("%f", fine);
    }
    else if(days >= 6 && days <= 10)
    {
        fine = 5 * .5 - (days - 5) * 1;
        printf("%f", fine);
    }
    else if(days > 10 && days < 30)
    {
        fine = 5 * .5 - (days - 10) * 2.0;
        printf("%f", fine);
    }
    else if(days >= 30)
    {
        printf("your member ship is cancel");
    }
}
```

```
output
aayush jha
enter days 31
your membership is cancel
```

18. Write a program to find the factorial of any number

```
1  #include <stdio.h>
2  int main()
3  {
4  int num, ans=1;
5  printf("aayush jha\n");
6  printf("enter number");
7  scanf("%d", &num);
8  while(num>0)
9  {
10 ans=ans*num;
11 num=num-1;
12 }
13 printf("%d",ans);
14 return 0;
15 }
```

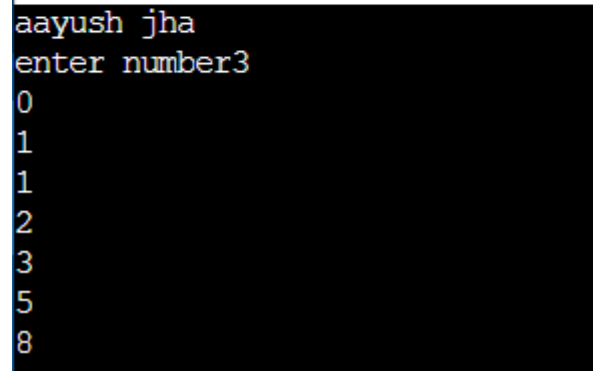


A terminal window with a black background and yellow text. It shows the output of the program: 'aayush jha' followed by 'enter number' and the input '3'. The result '6' is displayed on the next line.

```
aayush jha
enter number3
6
```

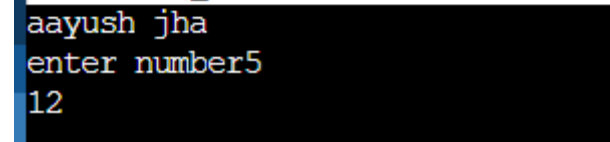
19. Write a program to print Fibonacci sequence 0 1 1 2 3 5 8 13..... N terms and prints the sum of sequence

```
1 #include<stdio.h>
2 int main()
3 {
4     int num,fn=0,sn=1,tn;
5     printf("aayush jha\n");
6     printf("enter number");
7     scanf("%d",&num);
8     printf("%d\n",fn);
9     printf("%d\n",sn);
10    while(fn<=num)
11    {
12        tn=fn+sn;
13        printf("%d\n",tn);
14        fn=sn;
15        sn=tn;
16    }
```



aayush jha  
enter number3  
0  
1  
1  
2  
3  
5  
8

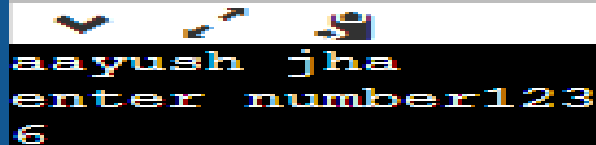
```
1 #include<stdio.h>
2 int main()
3 {
4     int num,fn=0,sn=1,tn,s=0;
5     printf("aayush jha\n");
6     printf("enter number");
7     scanf("%d",&num);
8     while(fn<=num)
9     {
10         s=s+fn;
11         tn=fn+sn;
12         fn=sn;
13         sn=tn;
14     }
15     printf("%d",s);
16     return 0;
17 }
```



aayush jha  
enter number5  
12

20. Write a program in C to accept an integer numbers and find sum of digits.

```
1  #include <stdio.h>
2  int main()
3  {
4  int r,num, s=0;
5  printf("aayush jha\n");
6  printf("enter number");
7  scanf("%d",&num);
8  while(num>0)
9  {
10 r=num%10;
11 s=s+r;
12 num=num/10;
13 }
14 printf("%d",s);
15 return 0;
16 }
```



A terminal window showing the execution of the C program. The first line of output is the name 'aayush jha'. The second line is the prompt 'enter number' followed by the input '123'. The third line is the output '6'.

```
aayush jha
enter number123
6
```

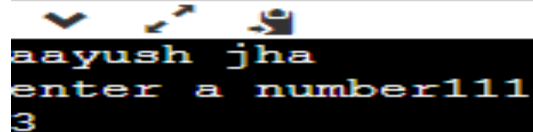
21. Write a program in C to accept an integer numbers and find reverse of this number and check this number for palindrome

```
2  int main()
3  {
4  int num, s=0, temp,r;
5  printf("aayush jha\n");
6  printf(" enter number");
7  scanf("%d", &num);
8  temp=num;
9  while(num>0)
10 {
11 r=num%10;
12 s=s*10+r;
13 num=num/10;
14 }
15 printf("%d\n",s);
16 if(s==temp)
17 {
18 printf("it's a palindrome");
19 }
20 else
21 {
22 printf("it's not a palindrome");
23 }
```

```
aayush jha
 enter number202
202
it's a palindrome
```

22. Write a program in C to accept an integer numbers and to check a number is Armstrong or not

```
1  #include <stdio.h>
2  int main()
3  {
4  int num, r,u,s=0;
5  printf("aayush jha \n");
6  printf("enter a number");
7  scanf("%d", &num);
8  while(num>0)
9  {
10 r=num%10;
11 u=r*r*r;
12 s=s+u;
13 num=num/10;
14 }
15 printf("%d",s);
16 return 0;
17 }
```

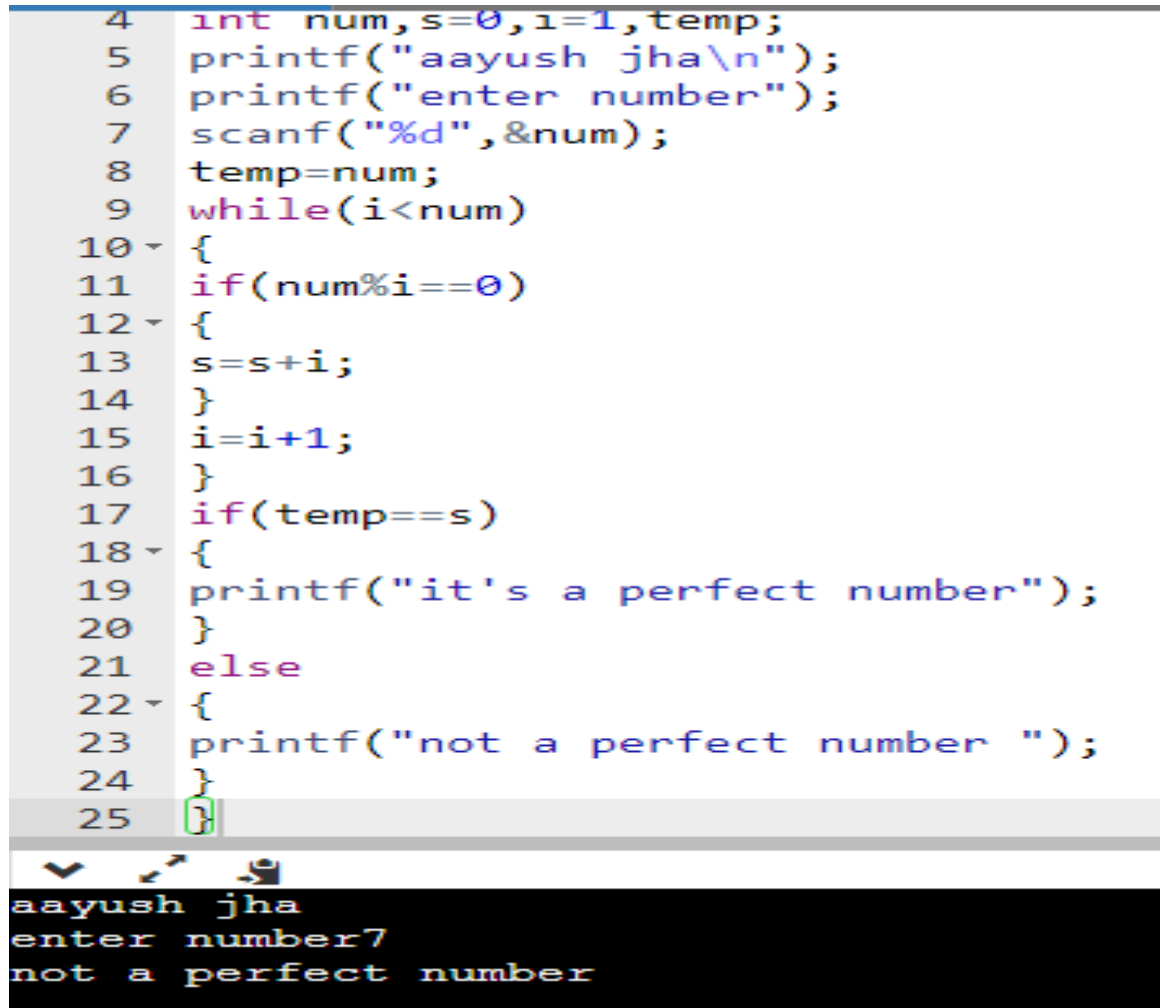


A terminal window with a black background and white text. It shows the output of the C program. The first line is the name 'aayush jha'. The second line is the prompt 'enter a number' followed by the input '111'. The third line is the output '3'.

```
aayush jha
enter a number111
3
```

23. Write a program in C to accept an integer numbers and to check a number is Perfect or not

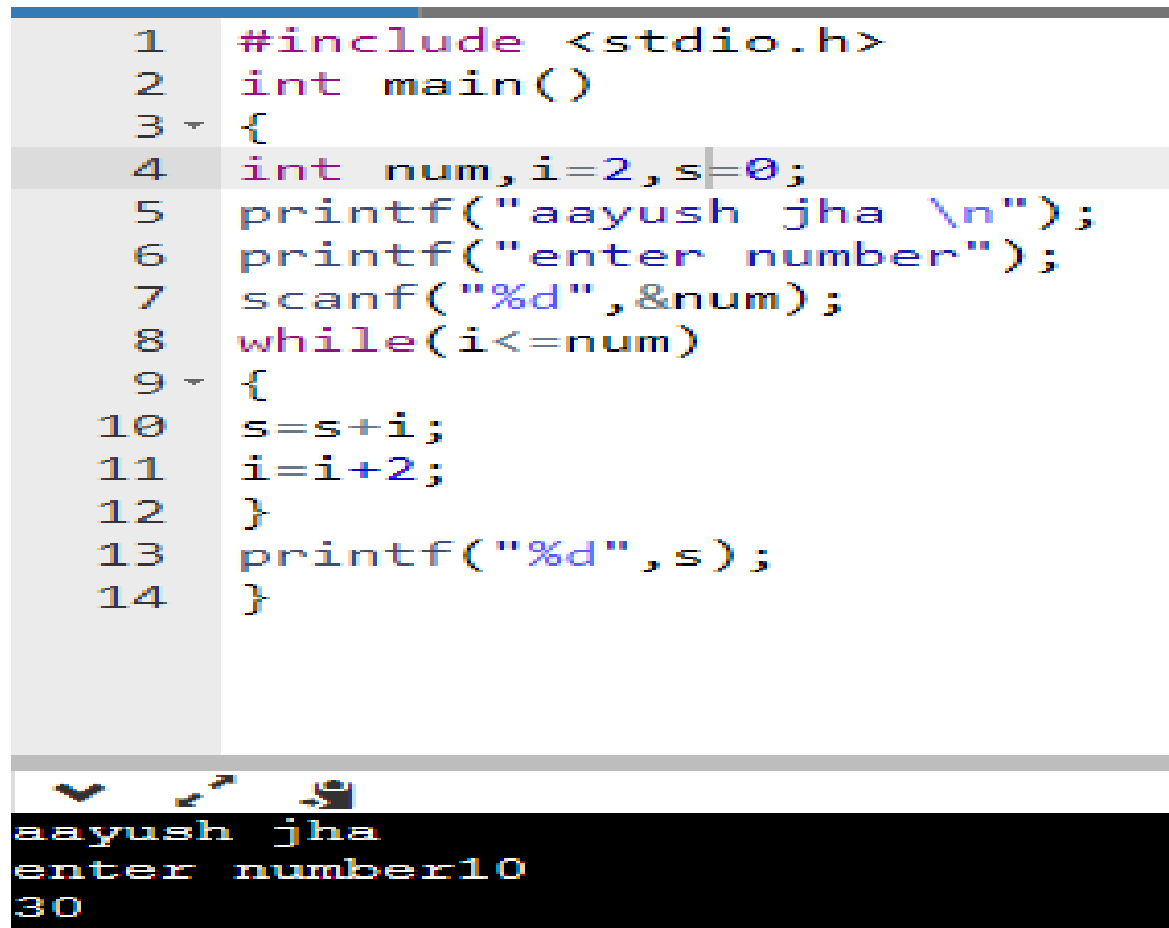
```
4  int num,s=0,i=1,temp;
5  printf("aayush jha\n");
6  printf("enter number");
7  scanf("%d",&num);
8  temp=num;
9  while(i<num)
10 {
11  if(num%i==0)
12  {
13  s=s+i;
14  }
15  i=i+1;
16  }
17  if(temp==s)
18  {
19  printf("it's a perfect number");
20  }
21  else
22  {
23  printf("not a perfect number ");
24  }
25 }
```

The image shows a C program in a code editor and its execution output in a terminal window. The program is designed to check if a number is perfect. It starts by printing the name 'aayush jha' and prompting the user to 'enter number'. It then reads the input '7' and checks if it is a perfect number. Since 7 is not a perfect number, it prints 'not a perfect number'.

aayush jha  
enter number7  
not a perfect number

24. Write a program to find the sum of following series:  $S = 2+4+6+8+\dots+N$  terms

```
1  #include <stdio.h>
2  int main()
3  {
4  int num,i=2,s=0;
5  printf("aayush jha \n");
6  printf("enter number");
7  scanf("%d",&num);
8  while(i<=num)
9  {
10 s=s+i;
11 i=i+2;
12 }
13 printf("%d",s);
14 }
```

The image shows a code editor window with a C program to calculate the sum of an arithmetic series. The code is as follows:  

```
1  #include <stdio.h>
2  int main()
3  {
4  int num,i=2,s=0;
5  printf("aayush jha \n");
6  printf("enter number");
7  scanf("%d",&num);
8  while(i<=num)
9  {
10 s=s+i;
11 i=i+2;
12 }
13 printf("%d",s);
14 }
```

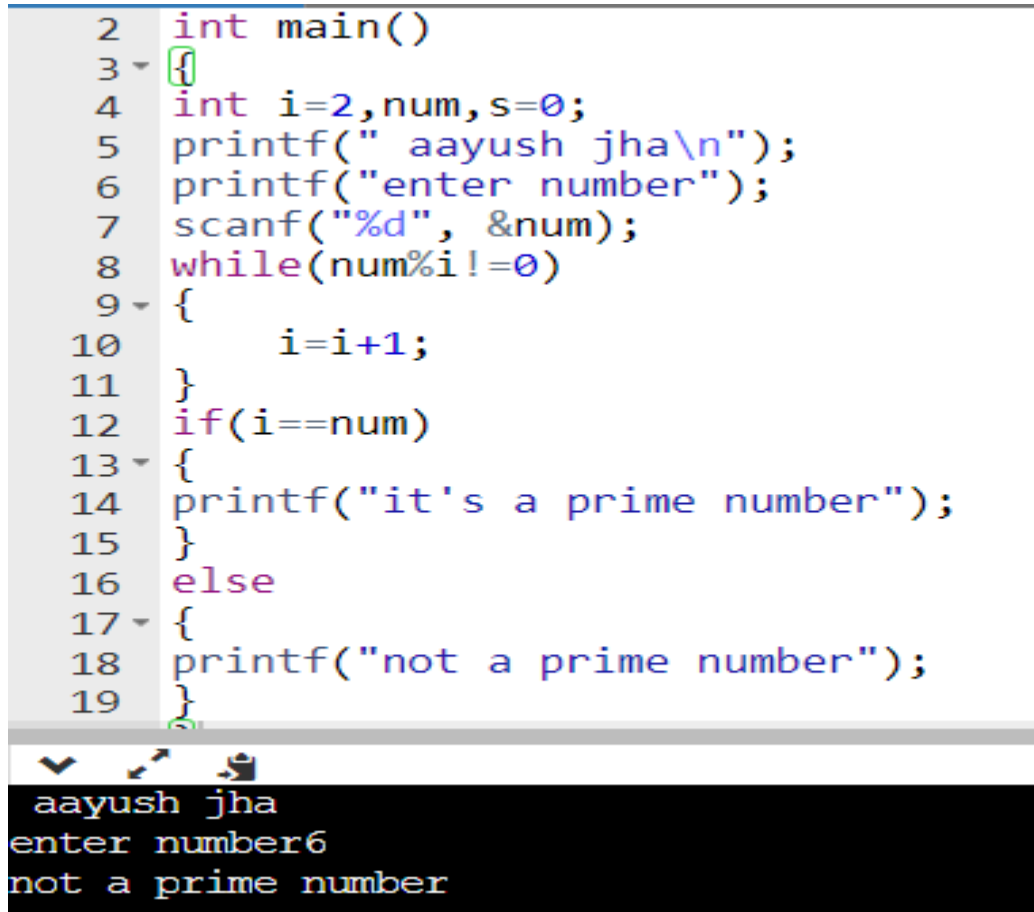
  
Below the code editor is a terminal window showing the program's execution. It displays the name 'aayush jha', prompts for 'enter number', and shows the input '10' and the resulting sum '30'.  

```
aayush jha
enter number10
30
```



25. Write a program to check a number whether it is prime number or not.

```
2  int main()
3  {
4  int i=2,num,s=0;
5  printf(" aayush jha\n");
6  printf("enter number");
7  scanf("%d", &num);
8  while(num%i!=0)
9  {
10     i=i+1;
11 }
12 if(i==num)
13 {
14 printf("it's a prime number");
15 }
16 else
17 {
18 printf("not a prime number");
19 }
}
```



aayush jha  
enter number6  
not a prime number

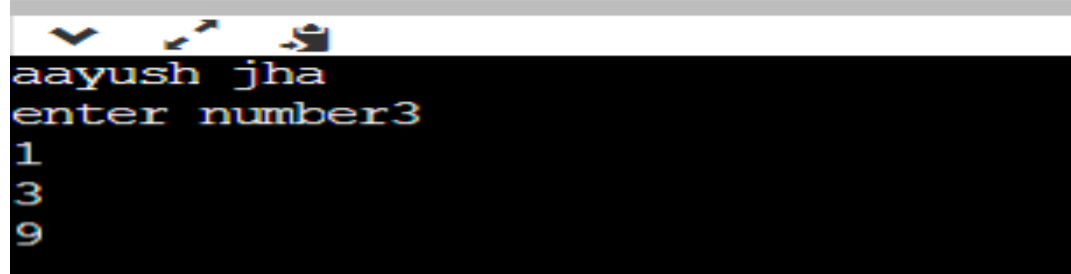
26. Write a program to find the sum of following series:  $1 - 1/2 + 1/3 - 1/4 + 1/5 - \dots$  up to n terms.

```
4  int num, x=1;
5  float s=0, i=1;
6  printf("aayush jha\n");
7  printf("enter number");
8  scanf("%d", &num);
9  while(i<=num)
10 {
11     if(x%2==0)
12     {
13         s=s-1/i;
14         printf("%f\n", s);
15     }
16     else
17     {
18         s=s+1/i;
19         printf("%f\n", s);
20     }
21     x=x+1;
22     i=i+1;
```

```
aayush jha
enter number3
1.000000
0.500000
0.833333
```

27. Write a program to find the sum of following series:  $1! + 2! + 3! + 4! + \dots + n!$

```
1  #include <stdio.h>
2  int main()
3  {
4  int i,ans=1,num, s=0;
5  printf("aayush jha\n");
6  printf("enter number");
7  scanf("%d", &num);
8  for (i=1;i<=num; i++)
9  {
10 ans=ans*i;
11 s=s+ans;
12 printf("%d\n",s);
13 }
14 }
```



A terminal window with a black background and white text. It shows the output of the program: 'aayush jha' followed by 'enter number3'. Below this, the numbers '1', '3', and '9' are printed on separate lines, representing the sum of factorials for n=3.

```
aayush jha
enter number3
1
3
9
```

28. Write a program to find the sum of following series:  $S = -1^3 + 3^3 - 5^3 + 7^3 - 9^3 + 11^3 - \dots N$  terms.

```
#include <stdio.h>
int main()
{
    int i=1,s=0,num, ans, x=1;
    printf("aayush jha\n");
    printf("enter number");
    scanf("%d", &num);
    while(i<=num)
    {
        if(x%2==0)
        {
            ans=i*i*i;
            s=s+ans;
            printf("%d\n",s);
        }
        else
        {
            ans=-i*i*i;
            s=s+ans;
            printf("%d\n",s);
        }
        x=x+1;
        i=i+2;
    }
}
```

```
output
aayush jha
enter number 5
-1
26
-99
```

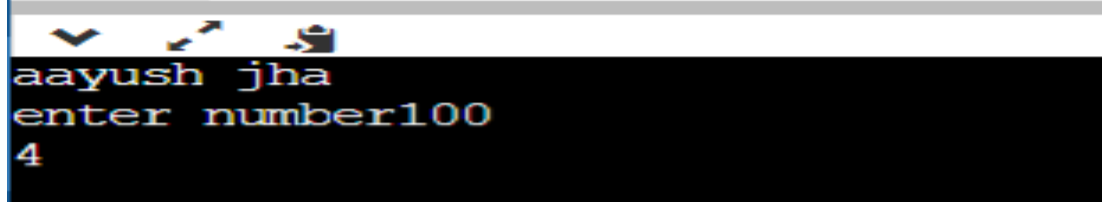
29. Write a program to find the sum of following series:  $S = 1/1! + 2/2! + 3/3! + \dots$  7 terms

```
1  #include <stdio.h>
2  int main()
3  {
4  int i,num,ans=1,s=0,r;
5  printf("aayush jha\n");
6  printf("enter number");
7  scanf("%d", &num);
8  for(i=1;i<=num; i++)
9  {
10 ans=ans*i;
11 r=i/ans;
12 s=s+r;
13 printf("%d\n",s);
14 }
15 }
```

aayush jha  
enter number5  
1  
2  
2  
2  
2

30. Write a program to convert binary number to decimal number.

```
1  #include <stdio.h>
2  int main()
3  {
4  int r,d=0,num,base=1;
5  printf("aayush jha\n");
6  printf("enter number");
7  scanf("%d",&num);
8  while(num>0)
9  {
10     r=num%10;
11     d=d+r*base;
12     num=num/10;
13     base=base*2;
14 }
15 printf("%d",d);
16 }
```

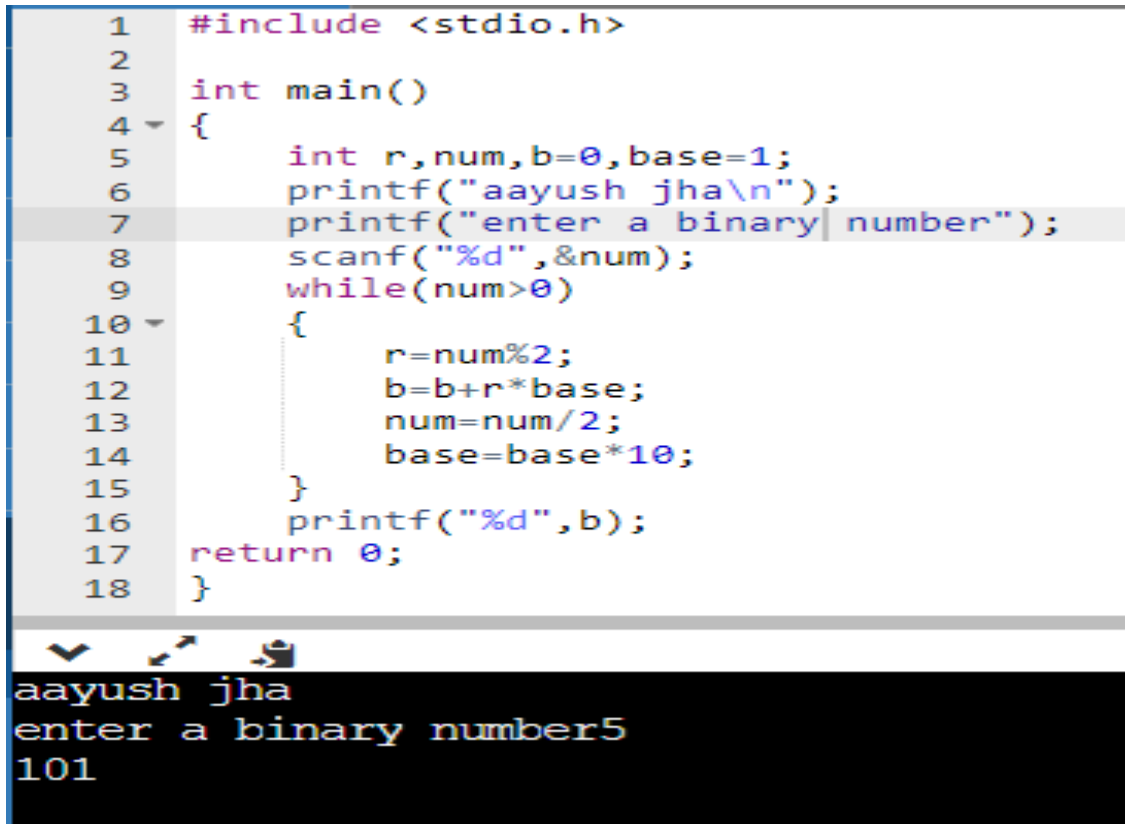


A terminal window with a black background and white text. It shows the output of the program: 'aayush jha' followed by a prompt 'enter number' and the user input '100'. The program then outputs '4'.

```
aayush jha
enter number100
4
```

46. Write a program to convert Decimal no to Binary No.

```
1  #include <stdio.h>
2
3  int main()
4  {
5      int r,num,b=0,base=1;
6      printf("aayush jha\n");
7      printf("enter a binary number");
8      scanf("%d",&num);
9      while(num>0)
10     {
11         r=num%2;
12         b=b+r*base;
13         num=num/2;
14         base=base*10;
15     }
16     printf("%d",b);
17     return 0;
18 }
```



The screenshot shows a C program in a code editor. The code defines a main function that prints the name 'aayush jha', prompts for a 'binary number' (despite the text saying 'decimal no' in the question), reads an integer 'num' using scanf, and then uses a while loop to convert it to binary by repeatedly dividing by 2 and building the result 'b' by multiplying the remainder by the current 'base' (10, 100, 1000, etc.). The final result 'b' is printed. Below the code, a terminal window shows the execution: the name 'aayush jha' is printed, the prompt 'enter a binary number' is shown, the user enters '5', and the program outputs '101'.

aayush jha  
enter a binary number5  
101

31. Write a program to find the sum of following series:  $S = 14 + 34 + 54 + 74 + \dots$  100 terms

```
1  #include <stdio.h>
2  int main()
3  {
4  int i=1,s=0,num,r;
5  printf("aayush jha\n");
6  printf("enter number");
7  scanf("%d", &num);
8  while(i<=num)
9  {
10 r=i*i*i*i;
11 s=s+r;
12 printf("%d ",s);
13 i=i+2;
14 }
15 }
```

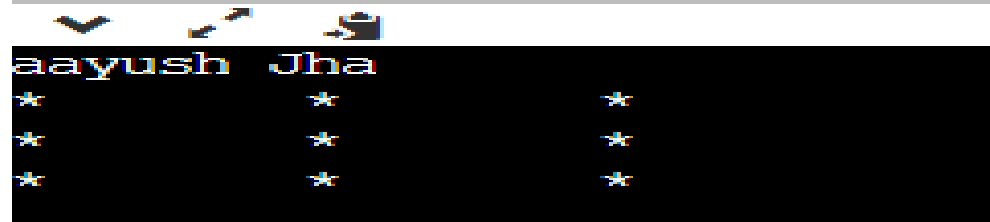
```
aayush jha
enter number5
1 82 707
```

Program finished with exit code 0



32. Write a program in C to print the following pattern:

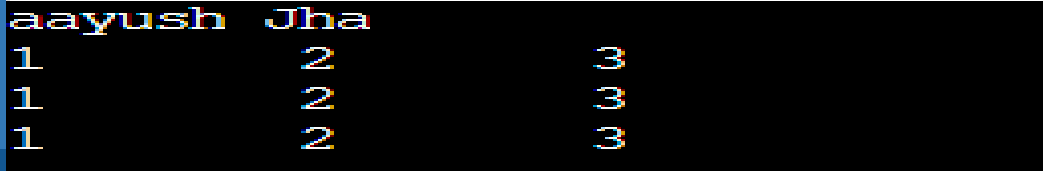
```
1  #include <stdio.h>
2  int main()
3  {
4  int i,j;
5  printf("aayush Jha\n");
6  for (i=3;i>=1;i--)
7  {
8  for(j=3;j>=1;j--)
9  {
10 printf("*\t");
11 }
12 printf("\n");
13 }
14 return 0;
15 }
```



```
aayush Jha
*      *      *
*      *      *
*      *      *
```

33. Write a program in C to print the following pattern:

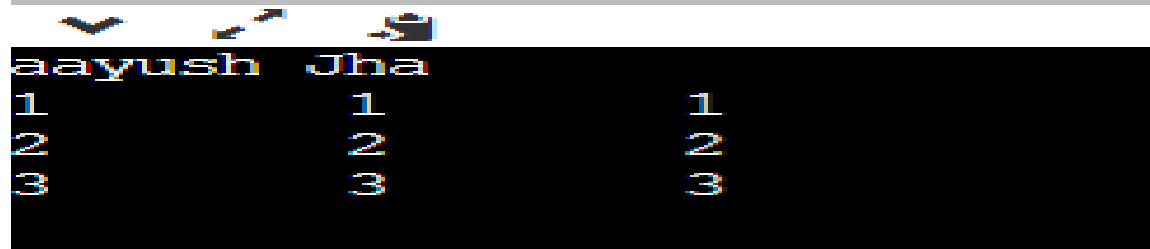
```
1  #include <stdio.h>
2  int main()
3  {
4  int i,j;
5  printf("aayush Jha\n");
6  for (i=3;i>=1;i--)
7  {
8  for(j=1;j<=3;j++)
9  {
10 printf("%d\t",j);
11 }
12 printf("\n");
13 }
14 return 0;
15 }
```



The output of the program is displayed in a terminal window. It shows the name 'aayush Jha' on the first line, followed by three lines of a 3x3 grid of numbers. Each line contains the numbers 1, 2, and 3 separated by tabs.

34. Write a program in C to print the following pattern:

```
1  #include <stdio.h>
2  int main()
3  {
4  int i,j;
5  printf("aayush Jha\n");
6  for (i=1;i<=3;i++)
7  {
8  for(j=1;j<=3;j++)
9  {
10 printf("%d\t",i);
11 }
12 printf("\n");
13 }
14 return 0;
15 }
```



The screenshot shows the output of the C program. It first prints the name "aayush Jha" on a single line. Below this, it prints a 3x3 grid of numbers. Each row contains the numbers 1, 2, and 3, separated by tabs. The first row is "1\t2\t3", the second row is "1\t2\t3", and the third row is "1\t2\t3".

```
aayush Jha
1      1      1
2      2      2
3      3      3
```

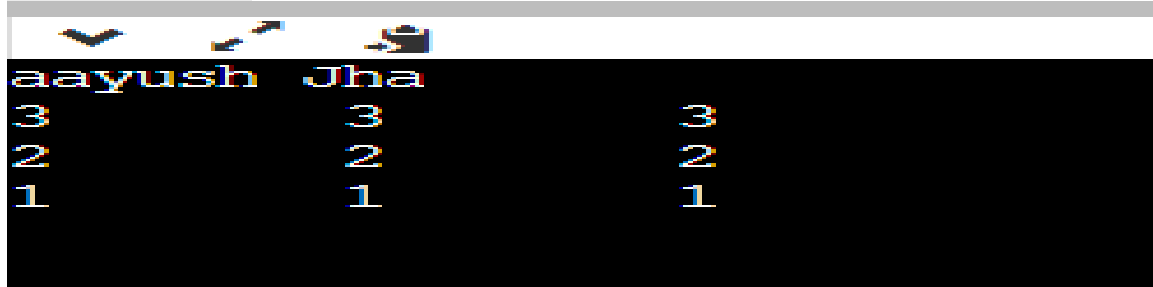
35. Write a program in C to print the following pattern:

```
1  #include <stdio.h>
2  int main()
3  {
4  int i,j;
5  printf("aayush Jha\n");
6  for (i=3;i>=1;i--)
7  {
8  for(j=3;j>=1;j--)
9  {
10 printf("%d\t",j);
11 }
12 printf("\n");
13 }
14 return 0;
15 }
```

```
aayush Jha
3      2      1
3      2      1
3      2      1
```

36. Write a program in C to print the following pattern:

```
1  #include <stdio.h>
2  int main()
3  {
4  int i,j;
5  printf("aayush Jha\n");
6  for (i=3;i>=1;i--)
7  {
8  for(j=1;j<=3;j++)
9  {
10 printf("%d\t",i);
11 }
12 printf("\n");
13 }
14 return 0;
15 }
```



The output of the program is as follows:

```
aayush Jha
3      3      3
2      2      2
1      1      1
```

37. Write a program in C to print the following pattern:

```
1  #include <stdio.h>
2  int main()
3  {
4  int i,j;
5  printf("aayush Jha\n");
6  for (i=1;i<=3;i++)
7  {
8  for(j=1;j<=i;j++)
9  {
10 printf("*\t");
11 }
12 printf("\n");
13 }
14 return 0;
15 }
```

aayush Jha

```
*
*      *
*      *      *
```

38. Write a program in C to print the following pattern:

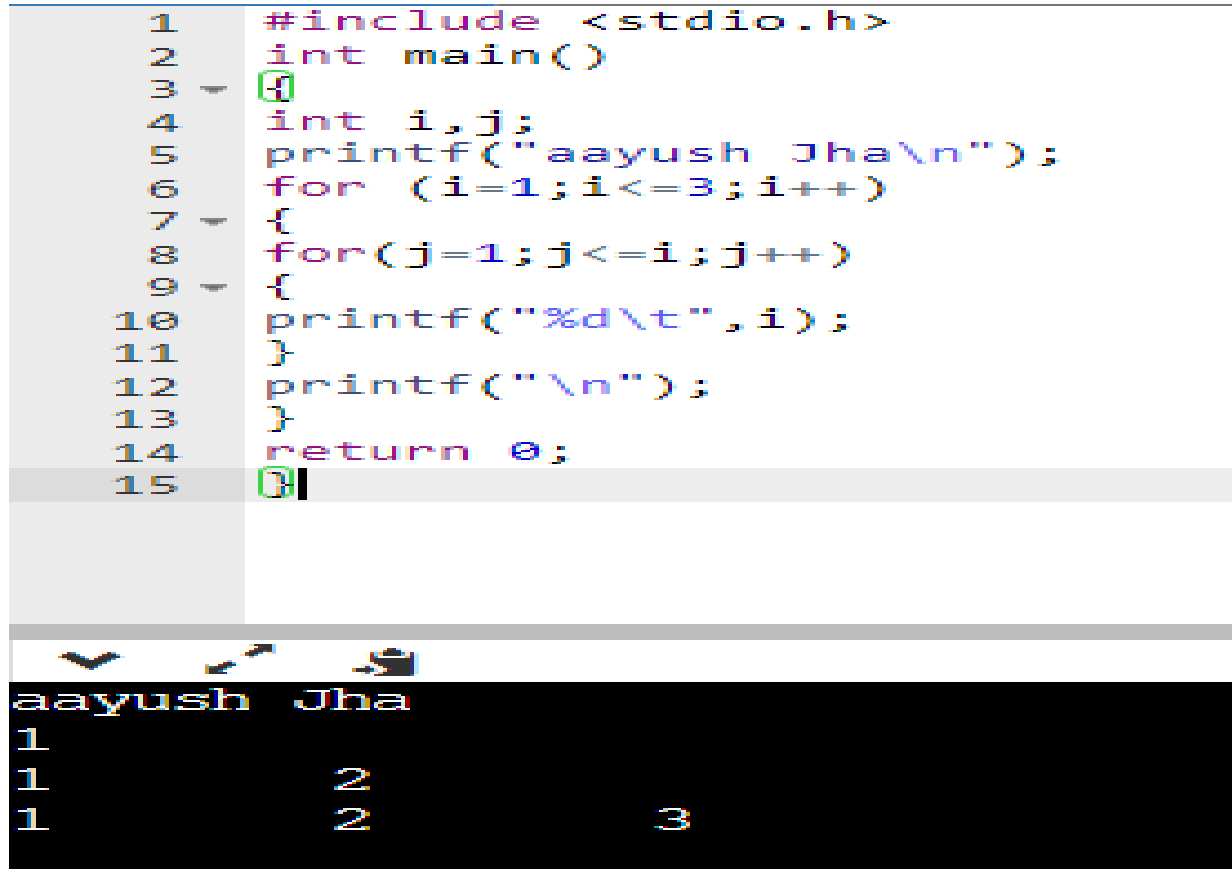
```
1  #include <stdio.h>
2  int main()
3  {
4  int i,j;
5  printf("aayush Jha\n");
6  for (i=1;i<=3;i++)
7  {
8  for(j=1;j<=i;j++)
9  {
10 printf("%d\t",j);
11 }
12 printf("\n");
13 }
14 return 0;
15 }
```

aayush Jha

```
1
1      2
1      2      3
```

39. Write a program in C to print the following pattern:

```
1  #include <stdio.h>
2  int main()
3  {
4  int i,j;
5  printf("aayush Jha\n");
6  for (i=1;i<=3;i++)
7  {
8  for(j=1;j<=i;j++)
9  {
10 printf("%d\t",i);
11 }
12 printf("\n");
13 }
14 return 0;
15 }
```



The screenshot shows a C program in a code editor. The program includes `<stdio.h>`, defines `main()`, and prints the name "aayush Jha". It then uses nested loops to print a triangular pattern of numbers. The output is shown in a terminal window below the code editor.

Output:

```
aayush Jha
1
1      2
1      2      3
```



40 Write a program in C to print the following pattern: \* \* \* \* \*

```
1  #include <stdio.h>
2  int main()
3  {
4  int i,j;
5  printf("aayush Jha\n");
6  for (i=3;i>=1;i--)
7  {
8  for(j=3;j>=i;j--)
9  {
10 printf("%d\t",j);
11 }
12 printf("\n");
13 }
14 return 0;
15 }
```

```
aayush Jha
3
3      2
3      2      1
```

41. Write a program in C to print the following pattern:

```
1  #include <stdio.h>
2  int main()
3  {
4  int i,j;
5  printf("aayush Jha\n");
6  for (i=3;i>=1;i--)
7  {
8  for(j=3;j>=i;j--)
9  {
10 printf("%d\t",i);
11 }
12 printf("\n");
13 }
14 return 0;
15 }
```


▼ ↗ 📄

aayush Jha

```
3
2      2
1      1      1
```

42. Write a program in C to print the following pattern:

```
1  #include<stdio.h>
2  int main()
3  {
4      int i,j;
5      printf("aayush jha\n");
6      for(i=1;i<=5;i++)
7      {
8          for(j=i;j<5;j++)
9          {
10             printf(" ");
11          }
12          for(j=1;j<=i;j++)
13          {
14             printf("*");
15          }
16          for(j=i-1;j>=1;j--)
17          {
18             printf("*");
19          }
20          printf("\n");
21      }
22  }
```



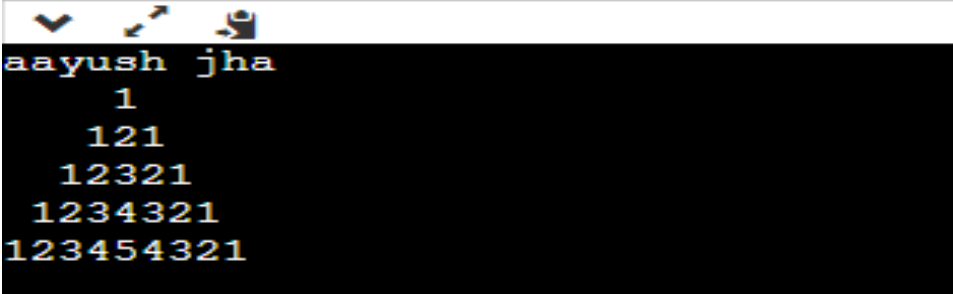
aayush jha

```

  *
 ***
*****
 ***
  *
```

43. Write a program in C to print the following pattern:

```
1  #include<stdio.h>
2  int main()
3  {
4      int i,j;
5      printf("aayush jha\n");
6      for(i=1;i<=5;i++)
7      {
8          for(j=i;j<5;j++)
9          {
10             printf(" ");
11          }
12          for(j=1;j<=i;j++)
13          {
14             printf("%d",j);
15          }
16          for(j=i-1;j>=1;j--)
17          {
18             printf("%d",j);
19          }
20          printf("\n");
21      }
22
```



aayush jha  
1  
121  
12321  
1234321  
123454321

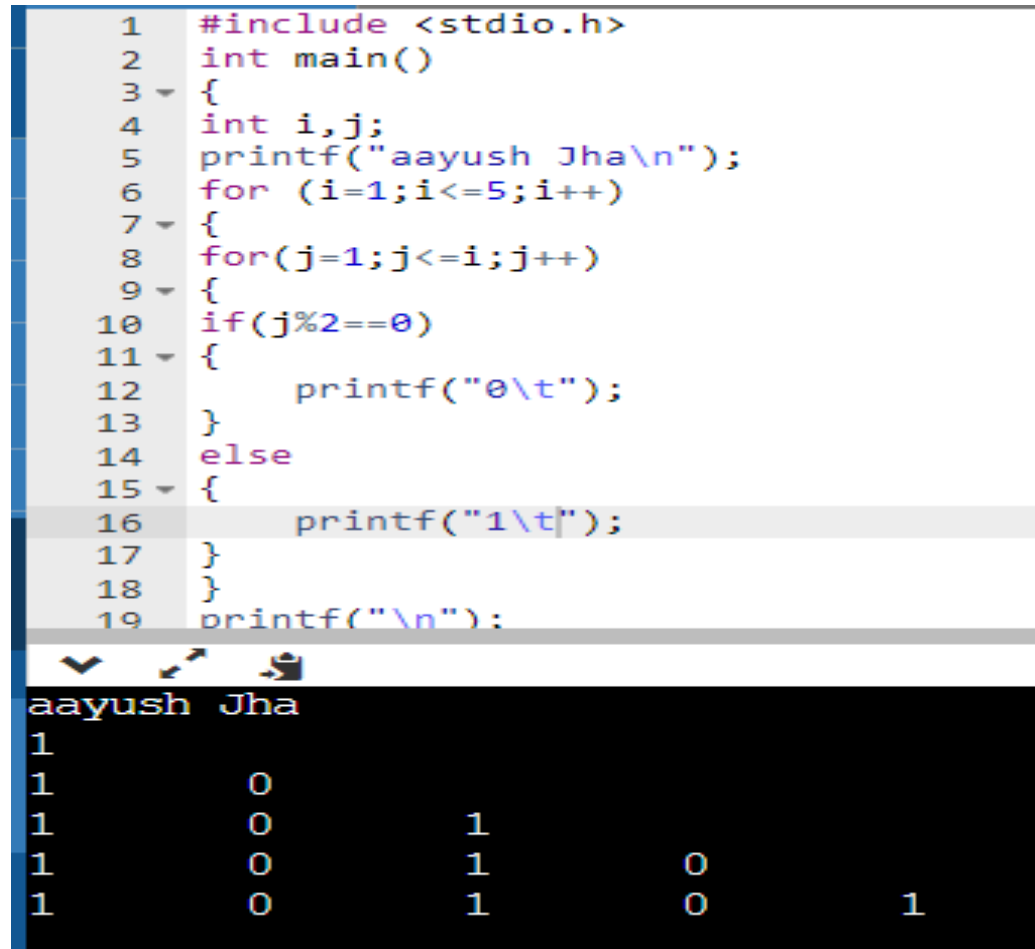
44. Write a program in C to print the following pattern:

```
1  #include<stdio.h>
2  int main()
3  {
4      int i,j;
5      printf("aayush jha\n");
6      for(i=5;i>=1;i--)
7      {
8          for(j=i;j>1;j--)
9          {
10             printf(" ");
11         }
12         for(j=5;j>=i;j--)
13         {
14             printf("%d",j);
15         }
16         for(j=i+1;j<=5;j++)
17         {
18             printf("%d",j);
19         }
20         printf("\n");
21     }
22 }
23
```

```
aayush jha
5
545
54345
5432345
543212345
```

45. Write a program in C to print the following pattern:

```
1  #include <stdio.h>
2  int main()
3  {
4  int i,j;
5  printf("aayush Jha\n");
6  for (i=1;i<=5;i++)
7  {
8  for(j=1;j<=i;j++)
9  {
10 if(j%2==0)
11 {
12     printf("0\t");
13 }
14 else
15 {
16     printf("1\t");
17 }
18 }
19 printf("\n");
```



aayush Jha

1				
1	0			
1	0	1		
1	0	1	0	
1	0	1	0	1

48. Write a program to find product, sum, average, max and min from a list of n numbers.

```
int main()
{int i,num,a[20],ans=1,s=0,x=0,avg,max,min;
  printf("aayush jha\n");
  printf("enter how many elements");
  scanf("%d",&num);
  for(i=0;i<num;i++)
  {
    printf("enter number");
    scanf("%d",&a[i]);
  }for(i=0;i<num;i++)
  {
    ans=ans*a[i];

  }
  printf("%d product \n",ans);
  for(i=0;i<num;i++)
  {
    s=s+a[i];
  }
  printf("%d sum \n",s);
  for(i=0;i<num;i++)
  {
    x=x+a[i];
  }
  avg=x/num;
  printf("%d avg \n",avg);
  for(i=0;i<num;i++)
  {
    max=a[0];
    if(max<a[i])
    {
      max=a[i];
    }
  }
  printf("%d is max number\n",max);
```

```
printf("%d avg \n",avg);
for(i=0;i<num;i++)
{
  max=a[0];
  if(max<a[i])
  {
    max=a[i];
  }
}
printf("%d is max number\n",max);
for(i=0;i<num;i++)
{
  min=a[0];
  if(min>a[i])
  {
    min=a[i];
  }
}
printf("%d is min number",min);
return 0;
}
```

OUTPUT  
aayush jha  
enter how many elements4  
enter number10  
enter number1  
enter number30  
enter number2  
600 is product  
43 is sum  
30 is max number  
2 is min number

49. Write a program in C to display the index of smallest and largest element in 10 integers

```
#include <stdio.h>

int main()
{
    int i,num,a[20],max,min;
    printf("aayush jha\n");
    printf("enter how many elements");
    scanf("%d",&num);
    for(i=0;i<num;i++)
    {
        printf("enter number");
        scanf("%d",&a[i]);
    }

    for(i=0;i<num;i++)
    {
        max=a[0];
        if(max<a[i])
        {
            max=i;
        }
    }
    printf("%d\n",max);
    for(i=0;i<num;i++)
    {
        min=a[0];
        if(min>a[i])
        {
            min=i;
        }
    }
    printf("%d ",min);
    return 0;
}
```

OUTPUT

```
aayush jha
10
20
30
40
50
60
70
80
90
100
0
10
```



50. Write a program in C to display the index of smallest and largest element in 3 X 4 matrix of integers

```
#include<stdio.h>
int main()
{
    int i,j,a[20][30];
    printf("aayush jha\n");
    for(i=0;i<3;i++)
    {
        for(j=0;j<4;j++)
        {
            scanf("%d",&a[i][j]);
        }
    }
    for(i=0;i<3;i++)
    {
        for(j=0;j<4;j++)
        {
            printf("%d\t",a[i][j]);
        }
        printf("\n");
    }
    int min_index;
    min_index=a[0][0];
    for(i=0;i<3;i++)
    {
        for(j=0;j<4;j++)
        {
            if(min_index>a[i][j])
            {
                min_index=i,j;
            }
        }
        printf("%d\n",min_index);
    }
    int max_index;
    max_index=a[0][0];
```

```
for(j=0;j<4;j++)
{
    if(min_index>a[i][j])
    {
        min_index=i,j;
    }
}
printf("%d\n",min_index);
}
int max_index;
max_index=a[0][0];
for(i=0;i<3;i++)
{
    for(j=0;j<4;j++)
    {
        if(max_index<a[i][j])
        {
            max_index=i,j;
        }
    }
    printf("%d",max_index);
}
}
```

OUTPUT

```
aayush jha
1 2 3 4 5 6 7 8 9 10 11 12
1 2 3 4
5 6 7 8
9 10 11 12
00
44
```

51. Write a program to accept two matrices of some order. (Order must be given by user) find out the sum of these matrices and print the sum of matrices

```
int main() {
    int a[20][30], i, j, n, m, b[20][30], n1, m1, c[20][30], n2, m2;
    printf("aayush jha\n");
    printf("no of rows and coloumns");
    scanf("%d%d", &n, &m);
    for(i=0; i<n; i++)
    {
        for(j=0; j<m; j++)
        {
            scanf("%d", &a[i][j]);
        }
    }
    for(i=0; i<n; i++)
    {
        for(j=0; j<m; j++)
        {
            printf("%d\t", a[i][j]);
        }
        printf("\n");
    }
    printf("no of rows and columns");
    scanf("%d%d", &n1, &m1);
    for(i=0; i<n1; i++)
    {
        for(j=0; j<m1; j++)
        {
            scanf("%d", &b[i][j]);
        }
    }
    for(i=0; i<n1; i++)
    {
        for(j=0; j<m1; j++)
        {
            printf("%d\t", b[i][j]);
        }
        printf("\n");
    }
}
```

```
}
printf("no of rows and columns");
scanf("%d%d", &n1, &m1);
for(i=0; i<n1; i++)
{
    for(j=0; j<m1; j++)
    {
        scanf("%d", &b[i][j]);
    }
}
for(i=0; i<n1; i++)
{
    for(j=0; j<m1; j++)
    {
        printf("%d\t", b[i][j]);
    }
    printf("\n");
}
if(n==n1 && m==m1)
{
    n2=n1;
    m2=m1;
    for(i=0; i<n2; i++)
    {
        for(j=0; j<m2; j++)
        {
            c[i][j]=a[i][j]+b[i][j];
            printf("%d\t", c[i][j]);
        }
        printf("\n");
    }
}
```

```
output
aayush jha
enter no of rows and columns 2 2
1 2 3 4
1 2
3 4
enter no of rows and columns 2 2
1 2 3 4
1 2
3 4
2 4
6 8
```

53. Write a program to find out the product/Multiplication of two matrices and print the product matrix. (order of matrices must be given by user)

```
int i,j,a[20][30],b[20][30],m,n,m1,n1,m2,n2,k,c[20][30];
printf("aayush jha\n");
printf("enter number of rows and columns of first matrix");
scanf("%d%d",&m,&n);
for(i=0;i<m;i++)
{
    for(j=0;j<n;j++)
    {
        scanf("%d",&a[i][j]);
    }
}
for(i=0;i<m;i++)
{
    for(j=0;j<n;j++)
    {
        printf("%d\t",a[i][j]);
    }
    printf("\n");
}
printf("enter rows and columns of second matrix");
scanf("%d%d",&m1,&n1);
for(i=0;i<m1;i++)
{
    for(j=0;j<n1;j++)
    {
        scanf("%d",&b[i][j]);
    }
}
for(i=0;i<m1;i++)
{
    for(j=0;j<n1;j++)
    {
        printf("%d\t",b[i][j]);
    }
    printf("\n");
}
```

```
}
if(n==m1)
{
    m2=m;
    n2=n1;
}
for(i=0;i<m2;i++)
{
    for(j=0;j<n2;j++)
    {
        c[i][j]=0;
        for(k=0;k<n;k++)
        {
            c[i][j]+=a[i][k]*b[k][j];
        }
        printf("%d\t",c[i][j]);
    }
    printf("\n");
}
```

```
}
output
enter rows and columns of first matrix 2 2
1 2
3 4
enter rows and columns of second matrix 2 2
1 2
3 4
1 4
9 16|
```

54. Write a program to accept two matrices of some order. (Order must be given by user) find out the subtraction of these matrices

```
int main() {
    int a[20][30],i,j,n,m,b[20][30],n1,m1,c[20][30],n2,m2;
    printf("aayush jha\n");
    printf("no of rows and coloumns");
    scanf("%d%d",&n,&m);
    for(i=0;i<n;i++)
    {
        for(j=0;j<m;j++)
        {
            scanf("%d",&a[i][j]);
        }
    }
    for(i=0;i<n;i++)
    {
        for(j=0;j<m;j++)
        {
            printf("%d\t",a[i][j]);
        }
        printf("\n");
    }
    printf("no of rows and columns");
    scanf("%d%d",&n1,&m1);
    for(i=0;i<n1;i++)
    {
        for(j=0;j<m1;j++)
        {
            scanf("%d",&b[i][j]);
        }
    }
    for(i=0;i<n1;i++)
    {
        for(j=0;j<m1;j++)
        {
            printf("%d\t",b[i][j]);
        }
        printf("\n");
    }
}
```

```
}
if(n==n1 && m==m1)
{
    n2=n1;
    m2=m1;
    for(i=0;i<n2;i++)
    {
        for(j=0;j<m2;j++)
        {
            c[i][j]=a[i][j]-b[i][j];
            printf("%d\t",c[i][j]);
        }
        printf("\n");
    }
}
}
output
aayush jha
no of rows and columns2 2
1 2 3 4
1 2
3 4
no of rows and columns 2 2
1 2 3 4
1 2
3 4
0 0
0 0
```

# Passing array as arguments

```
#include <stdio.h>

int main() {
    int arr[]={10,20,30,40};
    func(arr);
    func(arr);
    return 0;
}

int func(int array[])
{
    for(int i=0;i<4;i++)
    {
        printf("%d\t",array[i]);
    }
    array[2]=101;
}
```

```
1 // Online C compiler to run C program online
2 #include <stdio.h>
3
4 int main() {
5     int i,j;
6     for(i=3;i>=1;i--){
7         for(j=i;j>1;j--){
8             printf(" ");
9         }
10        for(j=3;j>=i;j--){
11            printf("%d",j);
12        }
13        printf("\n");
14    }
15 }
```

/tmp/6obxq7BSaE.o

3  
32  
321

=== Code Execution Successful ===

# recurssion

```
1  #include<stdio.h>
2  int sum(int c);
3  int main(){
4      int h;
5      h=sum(5);
6      printf("%d",h);
7      return 0;
8  }
9  int sum(int c){
10     if(c==1){
11         return 1;
12     }
13     while(c>1){
14         int num=sum(c-1)*c;
15         return num;
16     }
17 }
```

/tmp/XHwFnDdXV1.o

120

=== Code Execution Successful ===