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

```c
#include <stdio.h>

int main()
{
    int a,b,c;
    printf("aayush jha \n");
    printf("enter two number");
    scanf("%d%d",&a,&b);
    c=a+b;
    printf("%d",c);
    return 0;
}
```

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

(b) Write a C program to add three number

```c
#include <stdio.h>

int main()
{
    int a,b,c,d;
    printf("aayush jha \n");
    printf("enter three number");
    scanf("%d%d%d",&a,&b,&d);
    c=a+b+d;
    printf("%d",c);
    return 0;
}
```

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

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

```c
#include <stdio.h>

int main()
{
float area,r;
printf("aayush jha\n");
printf("enter radius of a circle ");
scanf("%f",&r);
area=3.14*r*r;
printf("%f", area);
return 0;
}
```

```
aayush jha
enter radius of a circle 2
12.560000
```

(b) Write a C program to calculate simple interest

```c
#include <stdio.h>

int main()
{
    float p,r,t,si;
    printf("aayush jha \n");
    printf("enter principle amount, rate and time");
    scanf("%f%f%f",&p,&r,&t);
    si=p*r*t/100;
    printf("%f",si);
    return 0;
}
```

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.

```c
#include<stdio.h>

int main()
{
    printf("aayush jha\n");
    printf("######\n");
    printf("#\n");
    printf("#\n");
    printf("#####\n");
    printf("#\n");
    printf("#\n");
    printf("#\n");

    return(0);
}

```

```
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

```c
#include<stdio.h>
int main()
{
    float w1,w2,n1,n2, average;
    printf("aayush jha\n");
    printf("enter two weights and no of purchase ");
    scanf("%f%f%f%f",&w1,&w2,&n1,&n2);
    average = (w1*n1+w2*n2)/(n1+n2);
    printf("%f",average);
    return 0;
}

```

input

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

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

```c
#include <stdio.h>

int main()
{
    int a,b,c;
    printf("aayush jha\n");
    printf("enter two number");
    scanf("%d%d",&a,&b);
    c=a;
    a=b;
    b=c;
    printf("%d\n%d",a,b);

}
```

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

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

```c
#include <stdio.h>

int main()
{
    int a,b;
    printf("aayush jha\n");
    printf("enter two number");
    scanf("%d%d",&a,&b);
    a=a+b;
    b=a-b;
    a=a-b;
    printf("%d\n%d",a,b);

}
```

```
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

```c
#include <stdio.h>
int main()
{
int sec, hour, min;
printf("aayush jha\n");
printf("enter seconds");
scanf("%d", &sec);
hour=sec/3600;
min-sec-hour*3600;
min=min/60;
sec-sec-hour*3600-min*60;
printf("%d hour %d min %d sec", hour, min, sec);
return 0;
}
```

```
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

```c
#include <stdio.h>
int main()
{
int year, week, days;
printf("aayush jha\n");
printf("enter no of days");
scanf("%d",&days);
year-days/365;
week=days%365;
week=week/7;
days=days%365;
days=days%7;
printf("%d year %d week %d days",year, week, days);
return 0;
}
```

```
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

```c
#include <stdio.h>

int main()
{
    int a;
    printf("aayush jha\n");
    printf("enter a number");
    scanf("%d",&a);
    if(a%2==0)
    {
        printf("it's a even number");
    }
    else
    {
        printf("it's a odd number");
    }

```

```
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

```c
#include <stdio.h>
int main()
{
int year;
printf("aayush jha\n");
printf("enter year");
scanf("%d", &year);
if(year%400==0 || year%4==0)
{
    printf(" it's a leap year");
}
else
{
printf("not a leap year");
}
return 0;
}
```

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

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

```c
#include<stdio.h>
int main()
{
    int f,s,t;
    printf("aayush jha\n");
    printf("enter three sides of traingle");
    scanf("%d%d%d",&f,&s,&t);
    if(f==s && f==t)
    {
        printf("it's a equialateral traingle");
    }
    else if(f==s || s==t || t==f)
    {
        printf("it's a isoceleus traingle");
    }
    else
    {
        printf("scalene traingle");
    }
```

```
aayush jha
enter three sides of traingle2
2
3
it's a isoceleus traingle
```

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

```c
#include<stdio.h>
int main()
{
    int a,b,c;
    printf("aayush jha\n");
    printf("enter three sides of a traingle");
    scanf("%d%d%d",&a,&b,&c);
    if(a*a+b*b==c*c)
    {
        printf("it's a right angle traingle");
    }
    else if(a*a+b*b>c*c)
    {
        printf("it's a acute angle traingle");
    }
    else
    {
        printf("it's a obtuse angle traingle");
    }
}
```

input

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

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

```c
#include<stdio.h>
int main()
{
char x;
float celsius, farhenheit;
printf("aayush jha\n");
printf("enter celsius or farhenheit");
scanf("%c", &x);
if(x=='c')
{
printf("enter farhenheit");
scanf("%f",&farhenheit);
celsius= (farhenheit-32)*5/9;
printf("%f", celsius);
}
if(x='f')
{
printf("enter celsius");
scanf("%f",&celsius);
farhenheit=celsius*9/5+32;
printf("%f", farhenheit);
}
```

```
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

```
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

```c
#include<stdio.h>
int main()
{
    char x;
    printf("aayush jha\n");
    printf("enter a alphabet=");
    scanf("%c",&x);
    if(x=='a' || x== 'e' || x=='i' || x=='o' || x=='o')
    {
        printf("%c is a vowel",x);
    }
    else
    {
        printf("%c is a consonant",x);
    }
}
```

input

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

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

```c
#include<stdio.h>
int main()
{
    int x,y,c;
    printf("aayush jha\n");
    printf("enter two number");
    scanf("%d%d",&x,&y);
    c=(x>y?x:y );
    printf("%d",c);
}
```

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

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

```c

#include <stdio.h>

int main()
{
    int a,b,c,d;
    printf("aayush jha 029\n");
    printf("enter three numbers");
    scanf("%d%d%d",&a,&b,&c);
    d=(a>b && a>c?a:(b>c && b>a?b:c  ));
    printf("%d",d);

    return 0;
}

```

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

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

```c
#include<stdio.h>
int main()
{
    int a,b,c,choice;
    printf("aayush jha\n");
    printf("enter two number and it's choice==");
    scanf("%d%d%d",&a,&b,&choice);
    switch(choice)
    {
        case 1:
        c=a+b;
        printf("%d",c);
        break;
        case 2:
        c=a-b;
        printf("%d",c);
        break;
        case 3:
        c=a*b;
        printf("%d",c);
        break;
        case 4:
        c=a/b;
        printf("%d",c);
        break;
    }
}
```

```
aayush jha
enter two number and it's choice==4
5
3
20
```

13. WAP to calculate the root of a Quadratic Equation

```c
#include <stdio.h>
#include<math.h>
int main()
{
int a,b,c,d,r1,r2;
printf("aayush jha\n");
printf("enter three variables");
scanf("%d%d%d",&a,&b,&c);
d=sqrt(b*b-4*a*c);
if(d>0)
{
r1=-b+d;
r1=r1/(2*a);
r2=-b-d;
r2=r2/(2*a);
printf("%d\n%d ",r1,r2);
}
```

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

14. WAP to 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

```c
#include<stdio.h>
int main()
{
float gross, salary,da,hra;
printf("aayush jha\n");
printf("enter salary");
scanf("%f",&salary);
da=salary*.4;
hra=.2*salary;
gross=salary+da+hra;
printf("%f",gross);
return 0;
}
```

```
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 paisa, 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.

```
#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

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

```
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

```c
#include<stdio.h>
int main()
{
int num,fn=0,sn=1,tn;
printf("aayush jha\n");
printf("enter number");
scanf("%d",&num);
printf("%d\n",fn);
printf("%d\n",sn);
while(fn<=num)
{
tn=fn+sn;
printf("%d\n",tn);
fn=sn;
sn=tn;
}
```

```
aayush jha
enter number3
0
1
1
2
3
5
8
```

```c
#include<stdio.h>
int main()
{
int num,fn=0,sn=1,tn,s=0;
printf("aayush jha\n");
printf("enter number");
scanf("%d",&num);
while(fn<=num)
{
    s=s+fn;
tn=fn+sn;
fn=sn;
sn=tn;
}
printf("%d",s);
return 0;
```

```
aayush jha
enter number5
12
```

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

```c
#include <stdio.h>
int main()
{
int r,num, s=0;
printf("aayush jha\n");
printf("enter number");
scanf("%d",&num);
while(num>0)
{
r=num%10;
s=s+r;
num=num/10;
}
printf("%d",s);
return 0;
}
```

```
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

```c
int main()
{
int num, s=0, temp,r;
printf("aayush jha\n");
printf(" enter number");
scanf("%d", &num);
temp=num;
while(num>0)
{
r=num%10;
s=s*10+r;
num=num/10;
}
printf("%d\n",s);
if(s==temp)
{
printf("it's a palindrome");
}
else
{
printf("it's not a palindrome");
}
```

```
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

```c
#include <stdio.h>
int main()
{
int num, r,u,s=0;
printf("aayush jha \n");
printf("enter a number");
scanf("%d", &num);
while(num>0)
{
r=num%10;
u=r*r*r;
s=s+u;
num=num/10;
}
printf("%d",s);
return 0;
}
```

```
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  }
```

```
aayush jha
enter number7
not a perfect number
```

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

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

```
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 - …… 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! + ….. + n!

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

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

28. Write a program to find the sum of following series: S = -1 3 + 33 - 5 3 + 73 – 9 3 + 113 - ……..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! + …… 7 terms

```c
#include <stdio.h>
int main()
{
int i,num,ans=1,s=0,r;
printf("aayush jha\n");
printf("enter number");
scanf("%d", &num);
for(i=1;i<=num; i++)
{
ans=ans*i;
r=i/ans;
s=s+r;
printf("%d\n",s);
}
}
```

```
aayush jha
enter number5
1
2
2
2
2
```

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

```c
#include <stdio.h>
int main()
{
int r,d=0,num,base=1;
printf("aayush jha\n");
printf("enter number");
scanf("%d",&num);
while(num>0)
{
     r=num%10;
     d=d+r*base;
     num=num/10;
     base=base*2;
}
printf("%d",d);
}
```

```
aayush jha
enter number100
4
```

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

```c
#include <stdio.h>

int main()
{
    int r,num,b=0,base=1;
    printf("aayush jha\n");
    printf("enter a binary number");
    scanf("%d",&num);
    while(num>0)
    {
        r=num%2;
        b=b+r*base;
        num=num/2;
        base=base*10;
    }
    printf("%d",b);
return 0;
}
```

```
aayush jha
enter a binary number5
101
```

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

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

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

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

```c
#include <stdio.h>
int main()
{
int i,j;
printf("aayush Jha\n");
for (i=3;i>=1;i--)
{
for(j=3;j>=1;j--)
{
printf("*\t");
}
printf("\n");
}
return 0;
}
```

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

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

```c
#include <stdio.h>
int main()
{
int i,j;
printf("aayush Jha\n");
for (i=3;i>=1;i--)
{
for(j=1;j<=3;j++)
{
printf("%d\t",j);
}
printf("\n");
}
return 0;
}
```

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

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

```c
#include <stdio.h>
int main()
{
int i,j;
printf("aayush Jha\n");
for (i=1;i<=3;i++)
{
for(j=1;j<=3;j++)
{
printf("%d\t",i);
}
printf("\n");
}
return 0;
}
```

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

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

```c
#include <stdio.h>
int main()
{
int i,j;
printf("aayush Jha\n");
for (i=3;i>=1;i--)
{
for(j=3;j>=1;j--)
{
printf("%d\t",j);
}
printf("\n");
}
return 0;
}
```

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

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

```c
#include <stdio.h>
int main()
{
int i,j;
printf("aayush Jha\n");
for (i=3;i>=1;i--)
{
for(j=1;j<=3;j++)
{
printf("%d\t",i);
}
printf("\n");
}
return 0;
}
```

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

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

```c
#include <stdio.h>
int main()
{
int i,j;
printf("aayush Jha\n");
for (i=1;i<=3;i++)
{
for(j=1;j<=i;j++)
{
printf("*\t");
}
printf("\n");
}
return 0;
}
```

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

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

```c
#include <stdio.h>
int main()
{
int i,j;
printf("aayush Jha\n");
for (i=1;i<=3;i++)
{
for(j=1;j<=i;j++)
{
printf("%d\t",j);
}
printf("\n");
}
return 0;
}
```

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

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

```c
#include <stdio.h>
int main()
{
int i,j;
printf("aayush Jha\n");
for (i=1;i<=3;i++)
{
for(j=1;j<=i;j++)
{
printf("%d\t",i);
}
printf("\n");
}
return 0;
}
```

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

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

```c
#include <stdio.h>
int main()
{
int i,j;
printf("aayush Jha\n");
for (i=3;i>=1;i--)
{
for(j=3;j>=i;j--)
{
printf("%d\t",j);
}
printf("\n");
}
return 0;
}
```

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

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

```c
#include <stdio.h>
int main()
{
int i,j;
printf("aayush Jha\n");
for (i=3;i>=1;i--)
{
for(j=3;j>=i;j--)
{
printf("%d\t",i);
}
printf("\n");
}
return 0;
}
```

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

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

```c
#include<stdio.h>
int main()
{
    int i,j;
    printf("aayush jha\n");
    for(i=1;i<=5;i++)
    {
        for(j=i;j<5;j++)
        {
            printf(" ");
        }
    for(j=1;j<=i;j++)
    {
        printf("*");
    }
    for(j=i-1;j>=1;j--)
    {
        printf("*");
    }
    printf("\n");
    }

```

```
aayush jha
    *
   ***
  *****
 *******
*********
```

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

```c
#include<stdio.h>
int main()
{
    int i,j;
    printf("aayush jha\n");
    for(i=1;i<=5;i++)
    {
        for(j=i;j<5;j++)
        {
            printf(" ");
        }
    for(j=1;j<=i;j++)
    {
        printf("%d",j);
    }
    for(j=i-1;j>=1;j--)
    {
        printf("%d",j);
    }
    printf("\n");
    }
```

```
aayush jha
    1
   121
  12321
 1234321
123454321
```

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

```c
#include<stdio.h>
int main()
{
    int i,j;
    printf("aayush jha\n");
    for(i=5;i>=1;i--)
    {
        for(j=i;j>1;j--)
        {
            printf(" ");

        }
        for(j=5;j>=i;j--)
        {
            printf("%d",j);
        }
        for(j=i+1;j<=5;j++)
        {
            printf("%d",j);
        }
        printf("\n");
    }
}
```

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

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

```c
#include <stdio.h>
int main()
{
int i,j;
printf("aayush Jha\n");
for (i=1;i<=5;i++)
{
for(j=1;j<=i;j++)
{
if(j%2==0)
{
    printf("0\t");
}
else
{
    printf("1\t");
}
}
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

```c
#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(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);
   }

}
```

```
OUPUT
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 columns2 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

```c
#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;
}
```

```c
// Online C compiler to run C program online
#include <stdio.h>

int main() {
int i,j;
for(i=3;i>=1;i--){
    for(j=i;j>1;j--){
        printf(" ");
    }
    for(j=3;j>=i;j--){
        printf("%d",j);
    }
   printf("\n");
}
}
```

```
/tmp/6obxq7BSaE.o
  3
 32
321


=== Code Execution Successful ===
```

recurssion

```c
#include<stdio.h>
int sum(int c);
int main(){
    int h;
    h=sum(5);
    printf("%d",h);
    return 0;
}
int sum(int c){
    if(c==1){
        return 1;
    }
   while(c>1){
     int num=sum(c-1)*c;
       return num;
   }
}
```

```
/tmp/XHWFnDdXV1.o
120

=== Code Execution Successful ===
```