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//write the C program to check the whether a number is negative,positive and zero.

```
#include <stdio.h>

int main()
{
    int a;

    printf("enter the value\n");
    scanf("%d",&a);

    if (a<0)
    {
        printf("%d is negative",a);
    }
    else if (a>0)
    {
        printf("%d is positive",a);
    }
    else if (a==0)
    {
        printf("%d is zero",a);
    }
    else
    {
        printf("please enter the valid number");
    }
}
```

//write a C program to check whether a number is even or odd.

```
#include <stdio.h>

int main()
{
    int a;
    printf("enter the value\n");
    scanf("%d",&a);
    if(a%2==0)
    {
        printf("%d is even number",a);
    }
    else
    {
        printf("%d is odd number",a);
    }
}
```

//write a C program to check whether a character is alphabet or not.

```
#include <stdio.h>

char main()
{
    char c;
    printf("upload the value\n");
    scanf("%c",&c);
    if((c>='a'&& c<='z') || (c>='A'&& c<='Z'))
    {
        printf("%c is an alphabet",c);
    }
    else
    {
        printf("%c is not an alphabet",c);
    }
}
```

//write a C program to input any alphabet and check whether it is vowel or consonent.

```
#include <stdio.h>

char main()
{
    char c;

    printf("upload a value\n");
    scanf("%c",&c);

    if (c=='a' || c=='e' || c=='i' || c=='o' || c=='u' || c=='A' || c=='E' || c=='I' || c=='O' || c=='U')
    {
        printf("%c is a vowel",c);
    }
    else
    {
        printf("%c is consonent",c);
    }
}
```

//write a C program to input any charater and check whether it is alphabet,digit or special character.

```
#include <stdio.h>

int main()
{
    char c;
    printf("upload a value\n");
    scanf("%c",&c);
    if((c>='a'&&c<='z') || (c>='A'&&c<='Z'))
    {
        printf("%c is an alphabet",c);
    }
    else if (c>='0'&&c<='9')
    {
        printf("%c is a number",c);
    }
    else
    {
        printf("%c is a special character",c);
    }
}
```

//write a program to find the maximum number

```
#include <stdio.h>
```

```
int main()
```

```
{
```

```
    int a,b;
```

```
    printf("enter the value a and b=");
```

```
    scanf("%d %d",&a,&b);
```

```
    if (a>b)
```

```
        printf("a is maximum");
```

```
    else
```

```
        printf("b is maximum");
```

```
}
```

//write a program to check the which number is maximum in 3 number

```
#include <stdio.h>

int main ()
{
    int a,b,c;
    printf("enter the value of a,b and c");
    scanf("%d %d %d",&a,&b,&c);
    if ((a>b)&&(a>c))
    {
        printf("a is maximum");
    }
    else if((b>a)&&(b>c))
    {
        printf("b is maximum");
    }
    else
    {
        printf("c is maximum");
    }
}
```

//write a C program to check whether a number is divisible by 5 and 11 or not.

```
#include <stdio.h>

int main()
{
    int a;
    printf("enter the value\n");
    scanf("%d",&a);
    if ((a%5==0)&&(a%11==0))
    {
        printf("%d is divisible by 5 and 11",a);
    }
    else
    {
        printf("%d is not a valid number",a);
    }
}
```


//write a C program to check whether a year is leap year or not.

```
#include <stdio.h>

int main()
{
    int a;
    printf("enter e value\n");
    scanf("%d",&a);
    if(a%400==0)
    {
        printf("%d is a leap year",a);
    }
    else if(a%100==0)
    {
        printf("%d is not a leap year",a);
    }
    else if(a%4==0)
    {
        printf("%d is a leap year",a);
    }
    else
    {
        printf("%d is nat a leap year",a);
    }
}
```

```
}
```

//write a program to check the character is in upper or in lower case

```
#include <stdio.h>
```

```
int main()
```

```
{
```

```
    char ch;
```

```
    printf("enter the value\n");
```

```
    scanf("%c",&ch);
```

```
    if(ch>='a'&&ch<='z')
```

```
    {
```

```
        printf("%c is lowercase",ch);
```

```
    }
```

```
    else if(ch>='A'&&ch<='Z')
```

```
    {
```

```
        printf("%c is uppercase",ch);
```

```
    }
```

```
    else
```

```
    {
```

```
        printf("%c is invalid",ch);
```

```
    }
```

```
}
```

//write a program to print counting 1 to 5 by while loop

```
#include <stdio.h>

int main()
{
    int i=1;
    while(i<=5)
    {
        printf("value of i is %d\n",i);
        i++;
    }
    return 0;
}
```

//write a program to print the counting 1 to 4 by while loop

```
#include<stdio.h>

int main()
{
    int count=1;
    while(count<=4)
    {
        printf("%d",count);
        count++;
    }
}
```

```
    return 0;
}
```

// write a program to create a infinite loop by while loop

```
#include <stdio.h>
```

```
int main()
{
    int var=6;
    while(var>=5)
    {
        printf("%d",var);
        var++;
    }
    return 0;
}
```

```
return 0;
}
```

// write a program of while loop

```
#include <stdio.h>
```

```
int main()
```

```
{
```

```
    int i=1,j=1;
```

```
    while(i<=4 || j<=3)
```

```
    {
```

```
        printf("%d %d\n",i,j);
```

```
        i++;
```

```
        j++;
```

```
    }
```

```
    return 0;
```

```
}
```

//write a program to make pattern

```
#include <stdio.h>
```

```
int main()
```

```
{
```

```
    int i,j,row;
```

```
    printf("input the number of row:");
```

```
    scanf("%d",&row);
```

```
    for(i=1;i<=row;i++)
```

```
    {
```

```
        for(j=1;j<=i;j++)
```

```
        {
```

```
            printf("$");
```

```
        }
```

```
        printf("\n");
```

```
    }
```

```
}
```

//write a program to make pattern

```
#include <stdio.h>
```

```
int main()
```

```
{
```

```
    int i,j,rows;
```

```
    printf("input number of rows:");
```

```
    scanf("%d",&rows);
```

```
    for(i=1;i<=rows;i++)
```

```
    {
```

```
        for(j=1;j<=i;j++)
```

```
        {
```

```
            printf("%d",i);
```

```
        }
```

```
        printf("\n");
```

```
    }
```

```
}
```

//write a program for swapping

```
#include <stdio.h>
```

```
int main()
```

```
{
```

```
    int a,b,i;
```

```
    printf("enter the two number\n");
```

```
    scanf("%d%d",&a,&b);
```

```
    printf("before the swap %d and %d\n",a,b);
```

```
    i=a;
```

```
    a=b;
```

```
    b=i;
```

```
    printf("after the swap %d and %d",a,b);
```

```
    return 0;
```

```
}
```

//write a program for swaping the value of two variable witjot using 3rd variable

```
#include <stdio.h>
```

```
int main()
```

```
{
```

```
    int a,b;
```

```
    printf("enter the two number\n");
```

```
    scanf("%d%d",&a,&b);
```

```
    printf("before the swap %d and %d\n",a,b);
```

```
    a=a+b;
```

```
    b=a-b;
```

```
    a=a-b;
```

```
    printf("after the swap %d and %d",a,b);
```

```
    return 0;
```

```
}
```

```
//write a program for swaping by multiply and divide operator
```

```
#include <stdio.h>
```

```
int main()
```

```
{
```

```
    int a,b;
```

```
    printf("enter the two number\n");
```

```
    scanf("%d%d",&a,&b);
```

```
    printf("before the swap %d and %d\n",a,b);
```

```
    a=a*b;
```

```
    b=a/b;
```

```
    a=a/b;
```

```
    printf("after the swap %d and %d",a,b);
```

```
    return 0;
```

```
}
```

```
//write a program to make the pyramid pattern
```

```
#include <stdio.h>
```

```
int main()
```

```
{
```

```
    int i,j,rows;
```

```
    printf("enter the number of rows:");
```

```
    scanf("%d",&rows);
```

```
    for(i=1;i<=rows;i++)
```

```
    {
```

```
        for(j=1;j<=i;j++)
```

```
        {
```

```
            printf("*");
```

```
        }
```



```
        printf("\n");
    }
    return 0;
}
```

\\ write a program to make a pyramid pattern

```
#include <stdio.h>

int main()
{
    int i,space,rows,k=0;
    printf("enter the nuber of rows:");
    scanf("%d",&rows);
    for(i=1;i<=rows;++i,k=0)
    {
        for(space=1;space<=rows-i;++space)
        {
            printf(" ");
        }
        while(k!=2*i-1)
        {
            printf("%d",space);
            ++k;
        }
        printf("\n");
    }
    return 0;
}
```

//write a program to make pyramid pattern

```
#include <stdio.h>

int main()
{
    int i,j,n;

    printf("input the number of rows for the pattern:");
    scanf("%d",&n);
    for(i=0;i<n;i++)
    {
        for(j=1;j<=n-i;j++)
            printf(" ");
        {
            for(j=1;j<=2*i-1;j++)
                printf("*");
        }
        printf("\n");
    }
}
```

//write a program to check the given number is palindrome or not

```
#include <stdio.h>

int main()
{
    int n,temp,sum=0,r;
    printf("enter the number");
    scanf("%d",&n);
    temp=n;
    while(n>0)
    {
        r=n%10;
        sum=(sum*10)+r;
        n=n/10;
    }
    if(temp==sum)
    {
        printf("the number is palindrome");
    }
    else
    {
        printf("the number is not palindrome");
    }
    return 0;
}
```

//write a program to print fibonacci series

```
#include <stdio.h>
```

```
int main()
```

```
{
```

```
    int n,a=0,b=1,i,c;
```

```
    printf("enter the number of terms...");
```

```
    scanf("%d",&n);
```

```
    for(i=1;i<=n;i++)
```

```
    {
```

```
        printf("%d ",a);
```

```
        c=a+b;
```

```
        a=b;
```

```
        b=c;
```

```
    }
```

```
}
```

//write a program to check the given number is Armstrong or not

```
#include <stdio.h>
```

```
int main()
```

```
{
```

```
    int n,arm=0,temp,r;
```

```
    printf("enter any number");
```

```
    scanf("%d",&n);
```

```
    temp=n;
```

```
    while(n>0)
```

```
    {
```

```
        r=n%10;
```

```
        arm=(r*r*r)+arm;
```

```
        n=n/10;
```

```
    }
```

```
    if(temp==arm)
```

```
    {
```

```
        printf("the number is armstrong");
```

```
    }
```

```
    else
```

```
    {
```

```
        printf("the number is not arm strong");
```

```
    }
```

```
}
```

//write a program to check the given number is perfect number or not

```
#include <stdio.h>
```

```
int main()
```

```
{
```

```
    int n,sum=0,i;
```

```
    printf("enter any number");
```

```
    scanf("%d",&n);
```

```
    for(i=1;i<n;i++)
```

```
    {
```

```
        if(n%i==0)
```

```
        {
```

```
            sum=sum+i;
```

```
        }
```

```
    }
```

```
    if (sum==n)
```

```
    {
```

```
        printf("perfect number");
```

```
    }
```

```
    else
```

```
    {
```

```
        printf("not");
```

```
    }
```

```
}
```

//write a program to initialization the array

```
#include<stdio.h>
```

```
int main()
```

```
{
```

```
    int i=0;
```

```
    int marks[5];
```

```
    marks[0]=80;
```

```
    marks[1]=60;
```

```
    marks[2]=70;
```

```
    marks[3]=85;
```

```
    marks[4]=75;
```

```
    for(i=0;i<5;i++)
```

```
    {
```

```
        printf("%d\n",marks[i]);
```

```
    }
```

```
    return 0;
```

```
}
```

//write a program to initialization the array

```
#include<stdio.h>

int main()
{
    int i=0;
    int marks[5]={20,30,40,50,60};
    for(i=0;i<5;i++)
    {
        printf("%d\n",marks[i]);
    }
    return 0;
}
```

//write aprogram for transverse an array

```
#include<stdio.h>

int main()
{
    int values[5];
    printf("enter 5 integers:");
    for (int i=0;i<5;++i)
    {
        scanf("%d",&values[i]);
    }
}
```



```
printf("displaying integers:");  
for(int i=0;i<5;++i)  
{  
    printf("%d\n",values[i]);  
}  
}
```

//wite a program for practicing the array

```
#include<stdio.h>  
  
int main()  
{  
    int marks[10],i,sum=0,n;  
    double average;  
    printf("enter the number of elements:");  
    scanf("%d",&n);  
    for(i=0;i<n;i++)  
    {  
        printf("enter number%d:",i+1);  
        scanf("%d",&marks[i]);  
        sum+=marks[i];  
    }  
    average=(double)sum/n;  
    printf("average = %.2lf",average);  
    return 0;  
}
```

```
//write a program of recursion insert specefffic position
```

```
#include<stdio.h>
```

```
#define MAX_SIZE 100
```

```
/*function declaration to find the sum of array//
```

```
int sum(int arr[],int start,int len);
```

```
int main()
```

```
{
```

```
    int arr[MAX_SIZE];
```

```
    int N,i,sumofarray;
```

```
    printf("enter the size of array:");
```

```
    scanf("%d",&N);
```

```
    printf("enter elements in the array:");
```

```
    for(i=0;i<N;i++)
```

```
    {
```

```
        scanf("%d",&arr[i]);
```

```
    }
```

```
    sumofarray = sum(arr,0,N);
```

```
    printf("sum of the elements:%d",sumofarray);
```

```
    return 0;
```

```
}
```

```
int sum(int arr[],int start,int len)
```

```
{
```

```
    if(start>=len)
```

```
        return 0;
```

```
    return (arr[start]+sum(arr,start+1,len));
```

```
}
```

//write a program of basic array

```
#include <stdio.h>
```

```
int main()
```

```
{
```

```
    int marks[5];
```

```
    for(int i=0;i<5;i++)
```

```
    {
```

```
        printf("enter the value  of %d element of the array \n",i);
```

```
        scanf("%d",&marks[i]);
```

```
    }
```

```
    for(int i=0;i<5;i++)
```

```
    {
```

```
        printf("The value  of %d element of the array %d\n",i,marks[i]);
```

```
    }
```

```
}
```

//write a program of basic array

```
#include <stdio.h>
```

```
int main()
```

```
{
```

```
    int marks[5]={45,54,65,76,87};
```

```
    for(int i=0;i<5;i++)
```

```
    {
```

```
        printf("The value  of %d element of the array %d\n",i,marks[i]);
```

```
    }
```

```
}
```

```
//write a program to print the 2d array
#include <stdio.h>

int main()
{
    int marks[2][4]={{45,54,3,2},{3,2,4,5}};
    for(int i=0;i<2;i++)
    {
        for(int j=0;j<4;j++)
        {
            printf("%d ",marks[i][j]);
        }
        printf("\n");
    }
}
```

//write a program of transpose error

```
#include<stdio.h>
```

```
int main()
```

```
{
```

```
    int i,j;
```

```
    int arr[2][2];
```

```
    printf("enter the value of matrix:");
```

```
    for(i=0;i<2;i++)
```

```
    {
```

```
        for(j=0;j<2;j++)
```

```
        {
```

```
            scanf("%d",&arr[i][j]);
```

```
        }
```

```
    }
```

```
    for(i=0;i<2;i++)
```

```
    {
```

```
        for(j=0;j<2;j++)
```

```
        {
```

```
            printf("%d ",arr[i][j]);
```

```
        }
```

```
    }
```

```
    for(i=0;i<2;i++)
```

```
    {
```

```
        for(j=0;j<2;j++)
```

```
        arr[2][2]=arr[2][2];
```

```
        {
```

```
            printf("%d ",arr[i][j]);
```

```
        }
```

```
    }
```

```
}
```


//write program of 2 d matrix of 2*2 order

```
#include<stdio.h>
```

```
int main()
```

```
{
```

```
    int i,j;
```

```
    int arr[2][2];
```

```
    printf("enter the value of matrix:");
```

```
    for(i=0;i<2;i++)
```

```
    {
```

```
        for(j=0;j<2;j++)
```

```
        {
```

```
            scanf("%d",&arr[i][j]);
```

```
        }
```

```
    }
```

```
    for(i=0;i<2;i++)
```

```
    {
```

```
        for(j=0;j<2;j++)
```

```
        {
```

```
            printf("%d ",arr[i][j]);
```

```
        }
```

```
    }
```

```
    for(i=0;i<2;i++)
```

```
    {
```

```
        for(j=0;j<2;j++)
```

```
        arr[2][2]=arr[2][2];
```

```
        {
```

```
            printf("%d ",arr[i][j]);
```

```
        }
```

```
    }
```

```
}
```



```
#include<stdio.h>

int main()
{
    int mat[3][3],trans[3][3],i,j;
    printf("enter the matrix element: ");
    for(i=0;i<3;i++)
    {
        for(j=0;j<3;j++)
        {
            scanf("%d",&mat[i][j]);
        }
    }
    {
        printf("the matrix :\n ");
        for(i=0;i<3;i++)
        {
            for(j=0;j<3;j++)
            {
                printf("%d",mat[i][j]);
            }printf("\n");
        }

    }
    {
        printf("the transpose matrix :\n ");
        for(i=0;i<3;i++)
        {
            for(j=0;j<3;j++)
            {
                trans[j][i]=mat[i][j];
            }
        }
    }
}
```

```
}

}
for(i=0;i<3;i++)
{
    for(j=0;j<3;j++)
    {
        printf("%d",trans[i][j]);
    }printf("\n");
}
}
```

//write a program to check the matrix is diagonal or not

```
#include <stdio.h>
```

```
int main()
```

```
{
```

```
    int mat[3][3],i,j,sum;
```

```
    printf("enter the matrix:");
```

```
    for(i=0;i<3;i++)
```

```
    {
```

```
        for(j=0;j<3;j++)
```

```
        {
```

```
            scanf("%d",&mat[i][j]);
```

```
        }
```

```
    }
```

```
    {
```

```
        printf("the matrix is :\n");
```

```
        for(i=0;i<3;i++)
```

```
        {
```

```
            for(j=0;j<3;j++)
```

```
            {
```

```
                printf("%d ",mat[i][j]);
```

```
            }printf("\n");
```

```
        }
```

```
    }
```

```
    printf("the diagonal matrix:");
```

```
    for(i=0;i<3;i++)
```

```
    {
```

```
        for(j=0;j<3;j++)
```

```
        {
```

```
            if(i==j)
```

```
            {
```

```
        printf("%d ",mat[i][j]);  
        sum=sum+mat[i][j];  
    }  
  
    }  
}  
}
```

//write a program to print 3d matrix

```
#include <stdio.h>
```

```
int main()
```

```
{
```

```
    int mat[3][3],i,j,sum;
```

```
    printf("enter the matrix:");
```

```
    for(i=0;i<3;i++)
```

```
    {
```

```
        for(j=0;j<3;j++)
```

```
        {
```

```
            scanf("%d",&mat[i][j]);
```

```
        }
```

```
    }
```

```
    {
```

```
        printf("the matrix is :\n");
```

```
        for(i=0;i<3;i++)
```

```
        {
```

```
            for(j=0;j<3;j++)
```

```
            {
```

```
                printf("%d ",mat[i][j]);
```

```
            }printf("\n");
```

```
        }
```

```
    }
```

```
    printf("the lower matrix is :");
```

```
    for(i=0;i<3;i++)
```

```
    {
```

```
        for(j=0;j<3;j++)
```

```
        {
```

```
            if(i>j)
```

```
            {
```

```
        printf("%d ",mat[i][j]);  
        sum=sum+mat[i][j];  
    }  
  
    }  
}  
}
```

//write a program for sum o 2 matirx

```
#include <stdio.h>
```

```
int main()
```

```
{
```

```
    int mat[3][3],i,j,sum;
```

```
    printf("enter the matrix:");
```

```
    for(i=0;i<3;i++)
```

```
    {
```

```
        for(j=0;j<3;j++)
```

```
        {
```

```
            scanf("%d",&mat[i][j]);
```

```
        }
```

```
    }
```

```
    {
```

```
        printf("the matrix is :\n");
```

```
        for(i=0;i<3;i++)
```

```
        {
```

```
            for(j=0;j<3;j++)
```

```
            {
```

```
                printf("%d ",mat[i][j]);
```

```
            }printf("\n");
```

```
        }
```

```
    }
```

```
    printf("the upper matrix is :");
```

```
    for(i=0;i<3;i++)
```

```
    {
```

```
        for(j=0;j<3;j++)
```

```
        {
```

```
            if(i<j)
```

```
            {
```

```
        printf("%d ",mat[i][j]);  
        sum=sum+mat[i][j];  
    }  
  
    }  
}  
}
```


//Write a program for count of vowel in string

```
#include<stdio.h>
```

```
int main()
```

```
{
```

```
    char s[22]="university";
```

```
    int i=0;
```

```
    int count=0;
```

```
    while(s[i]!=0)
```

```
    {
```

```
        printf("%d\n",s[i]);
```

```
        if(s[i]=='a' | |s[i]=='e' | |s[i]=='i' | |s[i]=='o' | |s[i]=='u')
```

```
        {
```

```
            count=count+1;
```

```
        }
```

```
        i++;
```

```
    }
```

```
    printf("the number of vowels are:%d",count);
```

```
    return 0;
```

```
}
```

//Write a program for merge 2 string

```
#include<stdio.h>
```

```
#include<string.h>
```

```
int main()
```

```
{
```

```
    char a[10]="ram";
```

```
    char b[10]="ramayan";
```

```
    strcat(a,b);
```

```
    printf("string concatination=:%s\n",a);
```

```
    printf("string concatination=:%s\n",b);
```

```
    return 0;
```

```
}
```

//Write a program to create a pointer

```
#include<stdio.h>
```

```
int main()
```

```
{
```

```
    int x=55;
```

```
    int *ptr=&x;
```

```
    printf("%p\n",ptr);
```

```
    printf("%p\n",&x);
```

```
    printf("%d\n",*ptr);
```

```
    printf("%d\n",x);
```

```
}
```

//Write a program to create a float pointer

```
#include<stdio.h>
```

```
int main()
```

```
{
```

```
    float x=55;
```

```
    float *ptr=&x;
```

```
    printf("%p\n",ptr);
```

```
    printf("%p\n",&x);
```

```
    printf("%f\n",*ptr);
```

```
    printf("%f\n",x);
```

```
}
```

//Write a program to create a char pointer

```
#include<stdio.h>
```

```
int main()
```

```
{
```

```
    char x=55;
```

```
    char *ptr=&x;
```

```
    printf("%p\n",ptr);
```

```
    printf("%p\n",&x);
```

```
    printf("%c\n",*ptr);
```

```
    printf("%c\n",x);
```

```
}
```

//write a program to find the address of the array

```
#include<stdio.h>
```

```
int main()
```

```
{
```

```
    int x[5];
```

```
    int i;
```

```
    for(i=0;i<5;i++)
```

```
    {
```

```
        printf("&x[%d]=%p\n",i,&x[i]);
```

```
    }
```

```
    printf("address of array a: %p",x);
```

```
    return 0;
```

```
}
```

```
//write a program for allocation of memory

#include <stdio.h>

#include <stdlib.h>

int main()

{

    int n,i,*ptr,sum=0;

    printf("enter number of elements:");

    scanf("%d",&n);

    ptr=(int*)malloc(n*sizeof(int));//memory allocated using malloc

    if(ptr==NULL)

    {

        printf("sorry! unable to allocate memory");

        exit(0);

    }

    printf("enter elements of array:");

    for(i=0;i<n;++i)

    {

        scanf("%d",ptr+i);

        sum+=*(ptr+i);

    }

    printf("sum=%d",sum);

    free(ptr);

    return 0;

}
```

//write a program to study of pointer

```
#include<stdio.h>
```

```
int main()
```

```
{
```

```
    char *a={"car"};
```

```
    printf("%p\n",a);
```

```
    printf("%p\n",*a);
```

```
    printf("%p\n",++a);
```

```
    printf("%p\n",*(++a));
```

```
    printf("%p\n",(a+1));
```

```
}
```

//Write a program to find the sum by function

```
#include <stdio.h>
```

```
int sum_ele(int a,int b);
```

```
int main()
```

```
{
```

```
    int arr[5];
```

```
    printf("Enter the elements of array\n");
```

```
    for(int i=0;i<5;i++)
```

```
    {
```

```
        scanf("%d",&arr[i]);
```

```
    }
```

```
    int *ptr=&arr;
```

```
    int a=*ptr;
```

```
    int b=*ptr+4;
```

```
    printf("%p\n",ptr);
```

```
    printf("%d",*ptr);
```

```
    int r=sum_ele(a,b);
```

```
    printf("%d",r);
```

```
}
```

```
int sum_ele(int a,int b)
```

```
{
```

```
    return a+b;
```

```
}
```