

1) Reverse the contents of given string.

```
{ char name[20], reverse[20];
    scanf("%s", name);
    int i;
    for(i=0; i<strlen(name); i++)
    {
        reverse[i] = name[strlen(name)-1-i];
    } reverse[i] = '\0';
    printf("%s", reverse);
}
```

2) Read angle ' $\alpha$ ' and compute  $\cos\alpha$ .

```
{ int alpha; printf("Enter an angle");
    scanf("%d", &alpha);
    alpha = (alpha * 3.14) / 180;
    int n; printf("Enter the no. of terms");
    scanf("%d", &n);
    int i; float t = 1, sum = 1;
    for(i=0; i<=n; i++)
    {
        t = (t * (-1) * alpha * alpha) / (alpha * i * (2 * i - 1));
        sum += t;
    }
    printf("cosalpha = %.f", sum);
```

#### 1) Linear Search:

```
#include <stdio.h>
void search(int a[], int n, int c);
int main()
{
    int array[50];
    int c, i, n;
    for(i=0
    printf("Enter the no. of participants");
    scanf("%d", &n); printf("Enter roll nos.");
    for(i=0; i<n; i++)
    {
        scanf("%d", &array[i]);
    }
    printf("Enter the roll.no to be
           checked");
    scanf("%d", &c);
    search(array, n, c); if(r == -1)
    return 0;
}
void search(int a[], int n, int c).
{
    int i;
    for(i=0; i<n; i++)
    {
        if(a[i] == c)
            printf("\%d is participating")
            return i;
    }
}
```

#### 3) Program to read data from file and display on monitor.

```
#include <stdio.h> #include <stdlib.h>
int main()
{
    char ch;
    FILE *fp;
    *fp = fopen("sample.dat", "r");
    if(fp == NULL)
    {
        printf("File does not exist");
    }
    else
    {
        while(!feof(fp))
        {
            ch = fgetc(fp);
            putchar(ch);
        }
    }
    fclose(fp);
    return 0;
}
```

6) Read & display student details using structures

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

```
typedef struct
```

```
{ int roll_no;  
    char name[20];  
    float CGPA;
```

```
} STUDENT;
```

```
int main()
```

```
{
```

```
STUDENT s[20];
```

```
int i, n;
```

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

```
printf("Enter the no. of students");
```

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

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

```
{
```

```
printf("Enter the roll no.");
```

```
scanf("%d", &s[i].roll_no);
```

```
printf("Enter your name");
```

```
scanf("%s", s[i].name);
```

```
printf("Enter your CGPA");
```

```
scanf("%f", &s[i].CGPA);
```

```
printf("Student details are:\n");
```

```
else  
    return -1;
```

5) Sinx:

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

```
int main()
```

```
{ int x, i;
```

```
float t = x, sum = 0;
```

```
printf("Enter the value of x");
```

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

```
x = (x * 3.14159) / 180;
```

```
printf("Enter the no. of terms");
```

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

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

```
{ t = (t * (-1) * x * x) / (2 * i * (2 * i + 1));
```

```
sum += t;
```

```
}
```

```
printf("Sin x = %.f", sum);
```

```
return 0;
```

```
}
```

```

for(i=0; i<5; i++)
{
    for(j=1; j<=i; j++)
    {
        printf("%d", j);
    }
    printf("\n");
}
return 0;
}

```

9) Selection Sort:

```

int i, j, minI;
for(i=0; i<n; i++)
{
    for(j=i+1; j<n; j++)
}

```

9) Selection Sort:

```

#include <stdio.h>
int main()
{
    int array[20];
    int n, i, j, minI;
    for(i=0; i<n; i++)
    printf("Enter the number of elements");
    scanf("%d", &n);
    printf("Enter the elements");
    for(i=0; i<n; i++)
}

```

```

for(i=0; i<n; i++)
{
    printf("Student %d\n", i+1);
    printf("Name = %s", s[i].name);
    printf("Roll no = %d", s[i].roll-no);
    printf("CGPA = %d", s[i].CGPA);
}

```

7) Read 3 numbers and display the largest.

```

#include <stdio.h>
int main()
{
    int a, b, c, temp, max;
    printf("Enter 3 numbers");
    scanf("%d", &a);
    scanf("%d", &b);
    scanf("%d", &c);
    temp = a > b ? a : b;
    max = temp > c ? temp : c;
    printf("Largest number = %d", max);
}

```

8) Print Pattern:

```

#include <stdio.h>
int main()
{
    int i, j;
}

```

1	2			
1	2	3		
1	2	3	4	
1	2	3	4	5

### Bubble Sort:

```
#include <stdio.h>
int main()
{
    int s, arr[20], i;
    printf("Enter the no. of students enrolled:");
    scanf("%d", &s);
    printf("Enter the roll numbers:\n");
    for(i=0; i<s; i++)
    {
        scanf("%d", &arr[i]);
    }
    for(i=0; i<n; i++)
    {
        for(j=0; j<n-i-1; j++)
        {
            sort(arr, s);
            printf("Sorted array:\n");
            for(i=0; i<s; i++)
            {
                printf("%d\t", arr[i]);
            }
            return 0;
    }
    void sort(int a[], int s)
    {
        int i, j, t;
```

```
{    scanf("%d", &array[i]);
}
for(i=0; i<n; i++)
{
    minI = i;
    for(j=i+1; j<n; j++)
    {
        if(array[j] > array[minI])
        {
            if(array[i] < array[minI])
            minI = j;
        }
    }
    t = array[minI];
    array[minI] = array[i];
    array[i] = t;
}
printf("Sorted:\n");
for(i=0; i<n; i++)
{
    printf("%d\t", array[i]);
}
return 0;
}.
```

```

        printf("%s", name);
        return 0;
    }

12) Binary search:
#include <stdio.h>
void search(int a[], int l, int h, int c);
int main()
{
    int array[20];
    int i, n;
    printf("Enter the no. of students");
    scanf("%d", &n);
    printf("Enter the numbers:");
    for(i=0; i<n; i++)
    {
        scanf("%d", &array[i]);
    }
    printf("Enter the no. to be checked");
    scanf("%d", &c);
    search(array, 0, n, c);
    return 0;
}

void search(int a[], int l, int h, int c)
{
    int mid;
    mid = (l+h)/2;
    if(a[mid] == c)
        printf("%d is participating");
}

```

```

for(i=0; i<s; i++)
{
    for(j=0; j<s-i-1; j++)
    {
        if(a[j]>a[j+1])
        {
            t = a[j];
            a[j] = a[j+1];
            a[j+1] = t;
        }
    }
}

```

```

11) #include <stdio.h>
int main()
{
    char fname[20];
    char lname[20];
    char name[50];
    int i, j;
    printf("Enter your firstname:");
    scanf("%s", fname);
    printf("Enter your lastname:");
    scanf("%s", lname);
    for(i=0; i<strlen(fname); i++)
    {
        name[i] = fname[i];
    }
    for(j=0; j<strlen(lname); j++, i++)
    {
        name[i] = lname[j];
    }
}

```

```

{ printf("Even Numbers:\n");
if(array[i] % 2 == 0)
{ printf("X\t even[i] = ");
int even[5], odd[5];
int j, k; e, o; s1=0, s2=0;
for(i=0; i<5; i++)
{ if(array[i] % 2 == 0)
    e++;
else
    o++;
}
for(j=0; j<e; j++, i++)
{
    if(array[i] % 2 == 0)
        even[j] = array[i];
        s1 += even[j];
}
for(i=0, k=0; k<0; k++, i++)
{
    if((array[i] % 2) != 0)
        odd[k] = array[i];
        s2 += odd[k];
}
printf("Odd sum = %d\n Even sum = %d", s2, s1);
return 0;
}

```

```

if(l > h)
printf("%d is not participating");
if(a[mid] < c)
{
    l = mid + 1;
    search(a, l, h, c);
}
if(a[mid] > c)
{
    h = mid - 1;
    search(a, l, h, c);
}
}
}

```

13) Accept 5 numbers and compute even & odd sum.

```

#include <stdio.h>
int main()
{
    int array[5];
    int i;
    for(i=0; i<5; i++)
    {
        scanf("%d", &array[i]);
    }
    for(i=0; i<5; i++)
    {
        if(array[i] % 2 == 0)
            printf("Even number = ");
    }
}

```

15) #include <stdio.h>

```

int main()
{
    int n, i, sum = 0; t ≠ 0;
    printf("Enter the no. of terms you want to
           add");
    scanf("%d", &n);
    for(i=0; i<n; i++)
    {
        t = 2*i+1;
        sum += t;
    }
    printf("Sum of series = %d", sum);
    return 0;
}

```

16) Armstrong Number: Num = Sum of cubes of digits.

```

#include <stdio.h>
#include <math.h>
int main()
{
    int num, rem, sum = 0, temp;
    printf("Enter a number:");
    scanf("%d", &num);
    temp = num;
    while(num > 0)
    {
        rem = num % 10;
        sum += pow(rem, 3);
        num = num / 10;
    }
}

```

14) Copy file from one

14) Copy data from one file to another.

```

#include <stdio.h>
#include <stdlib.h>
int main()
{
    FILE *fp1, *fp2;
    char ch;
    fp1 = fopen("input.dat", "r");
    fp2 = fopen("output.dat", "w");
    if(fp1 == NULL)
    {
        printf("File does not exist");
    }
    if(fp2 == NULL)
    {
        printf("File does not exist");
    }
    else
    {
        while(!feof(fp1))
        {
            fgetc(fp1);
            fputc(ch, fp2);
        }
    }
    fclose(fp1);
    fclose(fp2);
    return 0;
}

```

```

int i, j, r, c;
printf("Enter the no. of rows : ");
scanf("%d", &r);
printf("Enter the no. of columns : ");
scanf("%d", &c);
for(i=0; i<r; i++)
{
    for(j=0; j<c; j++)
    {
        scanf("%d", array[i][j]);
    }
}
max = array[0][0];
min = array[0][0];
for(i=1; i<r; i++)
{
    for(j=1; j<c; j++)
    {
        max = max > array[i][j] ? max : array[i][j];
        min = min < array[i][j] ? min : array[i][j];
    }
}
printf("Max=%d\nMin=%d", max, min);
return 0;
}

```

```

if(Temp == sum)
    printf("Armstrong Number");
else
    printf("Not an Armstrong number");
return 0;
}

```

#### 17) Reverse of a number:

```

#include <stdio.h>
int main()
{
    int num, rev, rem;
    printf("Enter a number ");
    scanf("%d", &num);
    while(num != 0)
    {
        rem = num % 10;
        rev = rev * 10 + rem;
        num = num / 10;
    }
    printf("Reverse of a no = %d", rev);
    return 0;
}

```

#### 18) # Max & Min of a input matrix

```

#include <stdio.h>
int main()
{
    int array[5][5];

```

```

printf("Enter the no. of rows and columns in M1:");
scanf("%d", &r1);
scanf("%d", &c1);
printf("Matrix 1:\n");
for(i=0; i<r1; i++)
{
    for(j=0; j<c1; j++)
        scanf("%d", &m1[i][j]);
}
printf("Matrix 2:\n");
for(i=0; i<r2; i++)
{
    for(j=0; j<c2; j++)
        scanf("%d", &m2[i][j]);
}

printf("Multiplication:\n");
for(i=0; i<r1; i++)
{
    for(j=0; j<c2; j++)
    {
        for(k=0; k<c1; k++)
            P[i][j] = M1[i][k] * M2[k][j];
        P[i][j] += M1[i][j+1] * M2[j+1][j];
        P[i][j] += M1[i][j+2] * M2[j+2][j];
    }
}

```

$3 \times 4$     $4 \times 3$

19) # Sum of n natural numbers.

```

#include <stdio.h>
int main()
{
    int i, sum = 0, n;
    printf("Enter the no. of natural numbers");
    scanf("%d", &n);
    for(i=1; i<=n; i++)
    {
        sum += i;
    }
    printf("Sum of natural numbers = %d", sum);
    return 0;
}

```

20) Multiply 2 matrices:

```

#include <stdio.h>
int main()
{
    int m1[5][5];
    int m2[5][5], P[5][5];
    int i, j, r1, r2, c1, c2, k;
    printf("Enter no. of rows and columns in matrix M1");
    scanf("%d", &r1);
    scanf("%d", &c1);

```

```

scanf("%d", &n);
for(i=0; i<=n; i++)
{
    t = 2^i;
    sum += t;
}
printf("Sum of series : %d", sum);
return 0;

```

## 2) Reverse elements of array:

```

#include <stdio.h>
int main()
{
    int orig[20];
    int rev[20];
    int n;
    printf("Enter the number of elements in array");
    scanf("%d", &n);
    for(i=0; i<n; i++)
    {
        scanf("%d", &orig[i]);
    }
    for(i=0; i<n; i++)
    {
        rev[i] = orig[n-i];
    }
    for(i=0; i<n; i++)
    {
        printf("%d\t", rev[i]);
    }
    return 0;
}

```

```

printf("Multiplication:\n");
for(i=0; i<r1; i++)
{
    for(j=0; j<c2; j++)
    {
        p[i][j] = 0;
        for(k=0; k<c1; k++)
        {
            p[i][j] += m1[i][k] * m2[k][j];
        }
    }
}

```

```

for(i=0; i<r1; i++)
{
    for(j=0; j<c2; j++)
    {
        printf("%d", p[i][j]);
    }
}

```

## 2) Series: $2 + 4 + 6 + \dots$

```

#include <stdio.h>
int main()
{
    int i, t, sum=0, n;
    printf("Enter the no. of terms");

```

```

printf("Enter the no. of terms");
scanf("%d", &n);

t1=0, t2=1; printf("Fibonacci series = %d ; %d", t1, t2);
nextterm = t1+t2;
for(i=0; i<n; i++)
{
    printf("%d", nextterm);
}
return 0;
}.

```

### 25) Fibonacci series with recursive function:

```

#include <stdio.h>
long long int series(int n);
int main()
{
    int n;
    printf("Enter the no. of terms");
    scanf("%d", &n);
    for(i=0; i<n; i++)
    {
        printf("%lld", series(i));
    }
    return 0;
}

long long int series(int n)
{
    if(n==1)

```

### 23) Copy n characters from one string to another string.

```

#include <stdio.h>
#include <stdlib.h>
int main()
{
    char s1[20];
    char s2[10]; int i;
    printf("Enter the string 1:\n");
    scanf("%s", s1);
    printf("Enter the string 2:\n");
    scanf("%s", s2);
    for(i=0; i<strlen(s1); i++)
    {
        s2[strlen(s1)+i+1] = s1[i];
    }
    printf("%s", s2);
}

```

### 24) Fibonacci Series

```

#include <stdio.h>
int main()
{
    int n, t1, t2, nextterm, i;

```

```
return 0;  
if (n==2 || n==3)  
    return 1;  
else  
    return (series(n-1)+series(n-2));  
}
```

26) Program to compare 2 strings :

```
#include <stdio.h> #include <string.h>  
int main()  
{ char s1[20];  
    char s2[20]; int r;  
    printf("Enter the first string");  
    scanf("%s", s1);  
    printf("Enter the second string");  
    scanf("%s", s2);  
    r = strcmp(s1, s2);  
    if (r == 0)  
        printf("Both the strings are equal");  
    else if (r == 1)  
        printf("String 1 is greater than string 2");  
    else  
        printf("String 1 is smaller than string 2");  
    return 0;  
}
```