

# C programs

## 1.Simple calculators

```
#include<stdio.h>

int main()
{
    int num1,num2;
    int result;
    char op;
    printf("Enter two integers :");
    scanf("%d%d", &num1,&num2);
    printf("Enter an arithmetic operator : ");
    scanf(" %c",&op);
    if(op == '+')
    {
        result = num1 + num2;
    }
    else if(op == '-')
    {
        result = num1 - num2;
    }
    else if(op == '*')
    {
        result = num1 * num2;
    }
    else if(op == '/')
    {
        if (num2 == 0)
        {
```

```

        printf("Divide by zero error\n");
        printf("Denominator cannot be zero in division operation\n");
        printf("Retry with valid input....\n");
        return 1;
    }
    else
    {
        result = num1 / num2;
    }

}

else if(op == '%')
{
    if (num2 == 0)
    {
        printf("Divide by zero error\n");
        printf("Denominator cannot be zero in modulusoperation\n");
        printf("Retry with valid input....\n");
        return 2;
    }
    else
    {
        result = num1 % num2;
    }
}

else
{
    printf("Invalid operator...\n");
    return 3;
}

```

```

    }

    printf("Result: %d %c %d = %d\n",num1, op, num2, result);

    return 0;
}

```

## 2.taylorseries

```

#include<stdio.h>

#include<math.h>

#define PI 3.142857

int main()
{
    float x,degree,nume,deno,sum,term;

    int i;

    printf("Enter degree:");

    scanf("%f",&degree);

    x=degree*(PI/180.0);

    sum=0;

    nume=x;

    deno=1.0;

    i=1;

    do
    {
        term=nume/deno;

        sum=sum+term;

        i=i+2;

        nume=-nume*x*x;

        deno=deno*i*(i-1);

    } while (fabs(term) >= 0.00001);
}

```

```

        printf("Computed value of Sin(%f)=%f\n",degree,sum);

        printf("Value from library function is sin(%f) = %f\n",degree,sin(x));

        return 0;

}

```

### 3.Binary to decimal

```

#include<stdio.h>

int btod(int);

int main()
{
    int binary, decimal;

    printf("Enter binary input :");

    scanf("%d", &binary);

    decimal = btod(binary);

    printf("Decimal equivalent = %d\n", decimal);

    return 0;
}

int btod(int bin)
{
    if (bin == 0)
    {
        return 0;
    }
    else
    {
        return (bin % 10 + btod(bin/10) * 2);
    }
}

```

Out put

./a.out

Enter binary input :10

Decimal equivalent = 2

~/cpl\$ ./a.out

Enter binary input :100

Decimal equivalent = 4

## 4.bubble sort

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

```
int main()
```

```
{
```

```
    int a[20],n,i,j,temp;
```

```
    printf("Enter the number of elements :");
```

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

```
    printf("Enter %d integers :",n);
```

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

```
    {
```

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

```
    }
```

```
    for(i=0;i<n-1;i++)
```

```
    {
```

```
        for(j=0;j<n-1-i;j++)
```

```
        {
```

```
            if(a[j] > a[j+1])
```

```
            {
```

```
                temp=a[j];
```

```
                a[j]=a[j+1];
```

```
                a[j+1]=temp;
```

```
            }
```

```
        }
```

```

    }

    printf("The sorted array is ....\n");

    for(i=0;i<n;i++)
    {
        printf("%d\t",a[i]);
    }

    printf("\n");

    return 0;
}

```

Output./a.out

Enter the number of elements :4

Enter 4 integers :9

1

4

2

The sorted array is ....

1 2 4 9

## 5.matrix multiplication

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

```
int main()
```

```
{
```

```
    int a[10][10],b[10][10],c[10][10];
```

```
    int m,n,p,q;
```

```
    int i,j,k;
```

```
    printf("Enter the order of matrix A :");
```

```

scanf("%d%d",&m,&n);
printf("Enter the order of matrix B:");
scanf("%d%d",&p,&q);
if(n!=p)
{
    printf("Number of columns of Matrix A is not
equal to number of rows of matrix B\n");
    printf("Matrix Multiplication not
possible....\n");
    return (1);
}
printf("\nEnter %d elements into matrix A : ",
m*n);
for(i=0;i<m;i++)
    for(j=0;j<n;j++)
        scanf("%d",&a[i][j]);
printf("\nThe matrix A is ---\n");
for(i=0;i<m;i++)
{
    for(j=0;j<n;j++)
    {

```

```
        printf("%d\t",a[i][j]);
    }
    printf("\n");
}
printf("\nEnter %d elements into matrix B : ", p*q);
for (i=0;i<p;i++)
    for (j=0;j<q;j++)
        scanf("%d",&b[i][j]);
printf("\nThe matrix B is ---\n");
for(i=0;i<p;i++)
{
    for(j=0;j<q;j++)
    {
        printf("%d\t",b[i][j]);
    }
    printf("\n");
}
for(i=0;i<m;i++)
{
    for(j=0;j<q;j++)
```



```

        {
            c[i][j] = 0;
            for(k=0;k<n;k++)
            {
                c[i][j] = c[i][j] + (a[i][k] * b[k][j]);
            }
        }
    }

    printf("\nThe product matrix is ---\n\n");
    for(i=0;i<m;i++)
    {
        for(j=0;j<q;j++)
        {
            printf("%d\t",c[i][j]);
        }
        printf("\n");
    }

    return 0;
}

```

Output

Enter the order of matrix A :2

2

Enter the order of matrix B:1

1

Number of columns of Matrix A is not equal to number of rows of matrix B

Matrix Multiplication not possible....

~/cpl\$ ./a.out

Enter the order of matrix A :2

2

Enter the order of matrix B:2

2

Enter 4 elements into matrix A : 11

1

1

2

The matrix A is ---

11 1

1 2

Enter 4 elements into matrix B : 2

2

1

3

The matrix B is ---

2 2

1 3

The product matrix is ---

23 25

4 8