

# PROGRAMING C

## LAB 01

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

```
#include <stdlib.h>
```

```
//Q-1
```

```
int main()
```

```
{
```

```
    printf("Manavi sharindika thilakarathne\n");
```

```
    printf("G\p.de.s.Kularathne Maha  
Vidyalaya\n");
```

```
}
```

```
//Q-2
```

```
int main()
```

```
{
```

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

//Q-3

```
int main()  
{  
    int itemno,qty;  
    char desc[20];  
    float price,tprice;  
    printf("Item Number");  
    scanf("%d",&itemno);  
    printf("Enter The Item Description");
```

```
scanf("%s",&desc);
printf("Enter Item Quantity");
scanf("%d",&qty);
printf("Enter Item Price");
scanf("%f",&price);
tprice=qty*price;
printf("Item no %d\n",itemno);
printf("Description %s\n",desc);
printf("Total price %.2f\n",tprice);
}
```

//Q-4

```
int main()
{
    int no1,no2,total;
```

```
printf("Enter First Number");  
scanf("%d",&no1);  
printf("Enter Second Number");  
scanf("%d",&no2);  
total=no1+no2;  
printf("The total is %d\n",total);  
}
```

//Q-5

```
int main()  
{  
    float no1,no2,average;  
    printf("Enter First Number");
```

```
scanf("%f",&no1);  
printf("Enter Second Number");  
scanf("%f",&no2);  
average=(no1+no2)/2;  
printf("The average is %f\n",average);  
}
```

//Q-6

```
int main()  
{  
    char name[20];  
    int byear,age;  
    printf("Enter Student Name");  
    scanf("%s",&name);  
    printf("%s\n",name);  
    printf("Enter Birth Year");
```

```
scanf("%d",&byear);  
age=2023-byear;  
printf("%d\n",age);  
}
```

//Q-8

```
int main()  
{  
    printf("The color: %s\n", "blue");  
    printf("First number: %d\n", 12345);  
    printf("Second number: %04d\n", 25);  
    printf("Third number: %i\n", 1234);  
    printf("Float number: %3.2f\n", 3.14159);  
    printf("Hexadecimal: %x\n", 255);  
    printf("Octal: %o\n", 255);  
}
```

```
    printf("Unsigned value: %u\n", 150);  
    printf("Just print the percentage sign  
%%\n", 10);  
  
}
```

Output :-

The color: blue

First number: 12345

Second number: 0025

Third number: 1234

Float number: 3.14

Hexadecimal: ff

Octal: 377

Unsigned value: 150

Just print the percentage sign %

```
    return 0;  
}
```

## LAB 02

```
#include <stdio.h>  
#include <stdlib.h>  
  
//Question 1  
  
int main()  
{  
    int age;  
    printf("HI, HOW OLD ARE YOU?");  
    scanf("%d", &age);
```



```
printf("WELCOME%d\n",age);  
printf("LET'S BE FRIENDS\n");  
}
```

//Question 2

```
int main()  
{  
    printf("%5d%5d%5d\n", 2, 4, 8);  
    printf("%5d%5d%5d\n", 3, 9, 27);  
    printf("%5d%5d%5d\n", 4, 16, 64);  
}
```

//Question 3

```
int main()  
{  
    float average,distance,time;
```

```
printf("Enter distance in meters");  
scanf("%f",&distance);  
printf("Enter time in seconds");  
scanf("%f",&time);  
average=distance/time;  
printf("Average speed:%.2f",average);  
}
```

//Question 4

```
int main()  
{  
    float fahrenheit;  
    float celsius;  
    printf("Enter temperature in degrees  
fahrenheit");  
    scanf("%f",&fahrenheit);
```

```
celsius=(fahrenheit-32)*5/9;
printf("Temperature in degrees celsius:
%.2f\n",celsius);
}
```

## LAB 03

```
#include <stdio.h>
#include <stdlib.h>
//Q-1
int main()
{
    int n1,n2,max;
    printf("Enter Two Numbers");
    scanf("%d %d",&n1,&n2);
    if(n1>n2)
```

```
    max=n1;
else
    max=n2;
printf("The Highest is %d\n",max);
return 0;
}
```

//Q-2

```
int main()
{
    int n1,n2,n3,largest,smallest;

    printf("Enter Three Integer Numbers");
    scanf("%d %d %d",&n1,&n2,&n3);

    largest=n1;
```

```
if(n2>largest)
{
    largest=n2;
}
if(n3>largest)
{
    largest=n3;
}
smallest=n1;
if(n2<smallest)
{
    smallest=n2;
}
if(n3<smallest)
{
    smallest=n3;
```

```
}  
  
printf("Largest Number %d\n",largest);  
printf("Smallest Number %d\n",smallest);  
  
return 0;  
}
```

//Q-3

```
int main()  
{  
  
    char empname[20];  
    float bs,inc,ns;  
    printf("Enter Employee Name");  
    scanf("%s",&empname);  
    printf("Enter Basic Salary");  
    scanf("%f",&bs);
```

```
if (bs>=10000)
    inc=bs*0.15;
else
    if(bs>=5000)
        inc=bs*0.10;
    else
        inc=bs*0.05;
    ns=bs+inc;
    printf("Employee Name %s\n",empname);
    printf("New Salary %.2f\n",ns);

return 0;
}
```

//Q-4

```
int main()
```

```
{  
    float radius;  
    printf("Enter the radius");  
    scanf("%f",&radius);  
  
    printf("Diameter is %.2f\n",radius*2.0);  
    printf("Circumference is  
%.2f\n",radius*2.0*3.14159);  
    printf("Area is  
%.2f\n",radius*radius*3.14159);  
  
    return 0;  
}
```

//Q-5

```
int main()  
{
```



```
int n1,n2;
printf("Enter two integer numbers");
scanf("%d %d",&n1,&n2);
if(n1%n2==0)
{
    printf("%d is a multiple of %d.\n",n1,n2);
}
else
{
    printf("%d s not a multiple of
%d.\n",n1,n2);
}

return 0;
}
```

//Q-6

```
int main()
{
    char uppercase[]={'A', 'B', 'C'};
    char lowercase[]={'a', 'b', 'c'};
    char digits[]={'0', '1', '2'};
    char symbols[]={'$', '*', '+', '/', ' '};
    printf("Uppercase letters\n");
    for (int i=0;i<3;i++)
    {
        printf("%c
%d\n",uppercase[i],(int)uppercase[i]);
    }
    printf("\nLowercase letters\n");
    for (int i=0;i<3;i++)
    {
```

```
        printf("%c
%d\n",lowercase[i],(int)lowercase[i]);
    }
    printf("\nDigits\n");
    for (int i=0;i<3;i++)
    {
        printf("%c %d\n",digits[i],(int)digits[i]);
    }
    printf("\nSymbols\n");
    for (int i=0;i<5;i++)
    {
        printf("%c
%d\n",symbols[i],(int)symbols[i]);
    }

    return 0;
}
```

//Q-7

```
int main()
```

```
{
```

```
    float BasicSalary,MonthlySales;
```

```
    int YearsOfService;
```

```
    char City;
```

```
    float AdditionalAllowance;
```

```
    float Bonus;
```

```
    float GrossRemuneration;
```

```
    printf("Enter the Basic Salary");
```

```
    scanf("%f",&BasicSalary);
```

```
    printf("Enter the number of Years Of  
Service");
```

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

```
printf("Enter the City (C for Colombo,any  
other character for other cities)");
```

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

```
printf("Enter the Monthly Sales amount");
```

```
scanf("%f",&MonthlySales);
```

```
if (YearsOfService>5){
```

```
    AdditionalAllowance=0.1*BasicSalary;
```

```
}
```

```
if (City=='C'){
```

```
AdditionalAllowance=AdditionalAllowance+250  
0;
```

```
}
```

```
    if (MonthlySales>=0 && MonthlySales <=
25000){

        Bonus=0.1*MonthlySales;

    }

    else if (MonthlySales > 25000 &&
MonthlySales <= 50000){

        Bonus=0.12*MonthlySales;

    }

    else if (MonthlySales > 50000){

        Bonus=0.15*MonthlySales;

    }

    GrossRemuneration=BasicSalary +
AdditionalAllowance + Bonus;

    printf("Gross Monthly Remuneration is
%.2f\n",GrossRemuneration);

    return 0;

}
```

## LAB 04

```
#include <stdio.h>
#include <stdlib.h>
//Section A
//Q-1
//Using While Loop
int main()
{
    int i=0;
    while(i<=100)
    {
        printf("%d",i);
        i++;
    }
    return 0;
```

```
}
```

```
//Using Do-While Loop
```

```
int main()
```

```
{
```

```
    int i=0;
```

```
    do
```

```
    {
```

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

```
        i++;
```

```
    }
```

```
    while(i<=100);
```

```
    return 0;
```

```
}
```

```
//Using For Loop
```

```
int main()
```

```
{
```



```
int i=0;
for (i=0;i<=100;i++);
{
    printf("%d",i);
}
return 0;
}
```

//Q-2

```
int main()
{
    int marks[10];
    int i,total=0;
    float average;

    printf("Enter the 10 marks\n");
```

```
for (i=0;i<10;i++)
{
    scanf("%d",&marks[i]);
    total+=marks[i];
}
average=total/10.0;

print("Total marks %d\n",total);
printf("Average marks %.2f\n",average);

if (average<50)
{
    printf("Fail\n");
}
else
```

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

//Q-3

```
int main()  
{  
    int i,num,fac=1;  
    printf("Enter num");  
    scanf("%d",&num);  
    if(num<0)  
    {  
        printf("error");  
    }  
}
```

```
else
{
    for(i=1;i<=num;i++)
    {
        fac*=i;
    }
    printf("factorial=%d",fac);
}
return 0;
}
```

//Q-4

```
int main()
{
    int num,sum=0,result;
    printf("Enter Number");
```

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

while(num!=0)
{
    result=num%10;
    sum+=result;
    num/=10;
}
printf("sum=%d",sum);
return 0;
}
```

//Q-5

```
int main()
{
    int num,reversedNum=0,remain;
```

```
printf("Enter a number");
scanf("%d",&num);

do
{
    remain=num%10;
    reversedNum=reversedNum*10+remain;
    num/=10;
}
while (num!=0);

printf("Reversed Number
%d\n",reversedNum);

return 0;
}
```

//Q-6

```
int main()
{
    int base,exponent,result=1;

    printf("Enter the base");
    scanf("%d",&base);

    printf("Enter the exponent");
    scanf("%d",&exponent);
    if(exponent>=0)
    {
        for(int i=0;i<exponent;i++)
        {
            result*=base;
        }
    }
    else
```

```
        printf("Exponent should be a non-  
negative integer\n");  
    }  
    printf("Result %d\n",result);  
    return 0;  
}
```

//Q-7

```
int main()  
{  
    int n=10;  
    int first=0,second=1,next;  
  
    printf("Fibonacci Sequence");  
  
    for(int i=0;i<n;i++);
```



```
{  
    if(i<=1)  
    {  
        next=i;  
    }  
    else  
    {  
        next=first+second;  
        first=second;  
        second=next;  
    }  
    printf("%d",next);  
}  
printf("\n");  
return 0;  
}
```

//Q-8

```
int main()
```

```
{
```

```
    int
```

```
    number,originalNumber,remainder,result=0,n=0
```

```
;
```

```
    printf("Enter an integer");
```

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

```
    originalNumber=number;
```

```
    while(originalNumber != 0)
```

```
    {
```

```
        originalNumber /= 10;
```

```
        ++n;
```

```
    }  
    originalNumber = number;  
  
    while(originalNumber != 0)  
    {  
        remainder=originalNumber%10;  
        result+=pow(remainder,n);  
        originalNumber/=10;  
    }  
    if (result==number)  
    {  
        printf("%d is an Armstrong number.\n",  
number);  
    }  
    else  
    {
```

```
    printf("%d is not an Armstrong number.\n",  
number);  
    }  
    return 0;  
}
```

//Q-9

```
int main()  
{  
    char letter;  
    printf("ASCII values for letters A to Z:\n");  
    for (letter = 'A'; letter <= 'Z'; letter++)  
    {  
        printf("%c: %d\n", letter, letter);  
    }  
    return 0;
```

```
}
```

```
//Q-10
```

```
int main()
```

```
{
```

```
    int rows=5;
```

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

```
    {
```

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

```
        {
```

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

```
        }
```

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

```
    }
```

```
    return 0;
```

```
}
```

//Q-11

```
int isPrime(int num)
```

```
{
```

```
    if (num<=1) {
```

```
        return 0;
```

```
    }
```

```
    for (int i=2;i*i<=num;i++)
```

```
    {
```

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

```
        {
```

```
            return 0;
```

```
        }
```

```
    }
```

```
    return 1;
```

```
}
```

```
int main()
```

```
{
```

```
    int number;
```

```
    printf("Enter a number: ");
```

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

```
    if (isPrime(number)) {
```

```
        printf("%d is a prime number\n",number);
```

```
    } else
```

```
    {
```

```
        printf("%d is not a prime  
number\n",number);
```

```
    }
```

```
    return 0;  
}
```

//Q-12

```
void printFactors(int number)  
{  
    printf("Factors of %d",number);  
    for (int i=1;i<=number;i++)  
    {  
        if (number%i==0)  
        {  
            printf("%d",i);  
        }  
    }  
}
```



```
int main() {  
    int num;  
    printf("Enter an integer: ");  
    scanf("%d",&num);  
    printFactors(num);  
    return 0;  
}
```

//Q-13

```
int main()  
{  
    int num,sum=0;  
  
    printf("Enter numbers to add (enter -1 to  
stop)\n");
```

```
while (1)
{
    scanf("%d",&num);

    if (num==-1)
    {
        break;
    }

    sum+=num;
}

printf("Sum %d\n",sum);
return 0;
}
```

//Q-14

```
int main()
```

```
{
```

```
    int arr[10];
```

```
    int i;
```

```
    printf("Please enter 10 integers\n");
```

```
    for (i=0;i<10;i++)
```

```
    {
```

```
        printf("Enter element %d", i + 1);
```

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

```
    }
```

```
    printf("\nThe array you entered is\n");
```

```
    for (i=0;i<10;i++)  
    {  
        printf("%d",arr[i]);  
    }  
    return 0;  
}
```

//Q-15

```
int main()  
{  
    int arr[10];  
    int i;  
    int evenCount=0;  
  
    printf("Please enter 10 integers\n");
```

```
for (i=0;i<10;i++)  
{  
    printf("Enter element %d",i+1);  
    scanf("%d",&arr[i]);  
  
    if (arr[i]%2==0)  
    {  
        evenCount++;  
    }  
}
```

```
printf("\nThe array you entered is\n");
```

```
for (i=0;i<10;i++)  
{  
    printf("%d",arr[i]);
```

```
}  
  
printf("\n\nThe count of even numbers in the  
array is %d\n",evenCount);  
  
return 0;  
}
```

//Section B

//Q-1

```
int main()  
{  
    int numbers[10];  
    int  
    positiveCount=0,negativeCount=0,zeroCount=0;  
  
    printf("Please enter 10 numbers\n");
```

```
for (int i=0;i<10;i++)  
{  
    scanf("%d",&numbers[i]);  
}
```

```
for (int i=0;i<10;i++)  
{  
    if (numbers[i]>0)  
    {  
        positiveCount++;  
    } else if (numbers[i]<0)  
    {  
        negativeCount++;  
    } else  
    {  
        zeroCount++;  
    }  
}
```

```
    }  
}  
printf("Number of positive numbers  
%d\n",positiveCount);  
printf("Number of negative numbers  
%d\n",negativeCount);  
printf("Number of zeros %d\n",zeroCount);  
  
return 0;  
}
```

//Q-2

```
int main()  
{  
    int marks[10];  
    int i,sum=0,max=0,min=100;  
    float average;
```



```
printf("Enter the marks of 10 students\n");
```

```
for (i=0;i<10;i++)
```

```
{
```

```
    printf("Enter the marks of student  
%d",i+1);
```

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

```
    sum+=marks[i];
```

```
    if (marks[i]>max)
```

```
{
```

```
        max=marks[i];
```

```
}
```

```
    if (marks[i]<min)
    {
        min=marks[i];
    }
}
```

```
average=(float)sum/10;
```

```
printf("\nMaximum marks %d\n",max);
printf("Minimum marks %d\n",min);
printf("Average marks %.2f\n",average);
return 0;
}
```

```
//Q-3
```

```
int main()
```

```
{  
    float price[10];  
    int count=0;  
    float sum=0;  
  
    printf("Please enter the prices of 10  
items\n");  
    for (int i=0;i<10;i++)  
    {  
        printf("Item %d",i+1);  
        scanf("%f",&price[i]);  
        sum+=price[i];  
  
        if (price[i]>200)  
        {  
            count++;  
        }  
    }  
}
```

```
}  
}
```

```
float average=sum/10;  
printf("\nAverage price of an item  
%.2f\n",average);
```

```
printf("Number of items with price greater  
than 200 %d\n",count);
```

```
return 0;  
}
```

//Q-4

```
int main()  
{  
    int employeeNo,count=0;
```

```
float basicSalary;
```

```
printf("Enter the employee number and basic  
salary (enter -999 to stop)\n");
```

```
while(1)
```

```
{
```

```
    printf("Employee No");
```

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

```
    if(employeeNo==-999)
```

```
    {
```

```
        break;
```

```
    }
```

```
    printf("Basic Salary");
```

```
scanf("%f",&basicSalary);
```

```
if(basicSalary>=5000)
```

```
{
```

```
    count++;
```

```
}
```

```
}
```

```
printf("\nNumber of employees with basic  
salary >= 5000 %d\n",count);
```

```
return 0;
```

```
}
```

```
//Q-5
```

```
int main()
```

```
{
    int employeeNumber,hoursWorked;
    int
overtimePayment,overtimeExceeding4000=0;
    int
totalEmployees=0,employeesWithOvertime=0;

    const int normalOvertimeRate=150;
    const int excessOvertimeRate=200;

    printf("Enter employee number (-999 to
end)");
    scanf("%d",&employeeNumber);

    while (employeeNumber!=-999)
    {
```

```
printf("Enter hours worked by employee  
%d",employeeNumber);
```

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

```
totalEmployees++;
```

```
if (hoursWorked>40)
```

```
{
```

```
    employeesWithOvertime++;
```

```
    int overtimeHours=hoursWorked-40;
```

```
    overtimePayment=(normalOvertimeRate*(40-  
overtimeHours))+(excessOvertimeRate*overtim  
eHours);
```

```
    if (overtimePayment>4000)
```



```
{  
    overtimeExceeding4000++;  
}  
}  
else  
{  
    overtimePayment = 0;  
}
```

```
printf("Employee Number %d\n",  
employeeNumber);
```

```
printf("Overtime Payment %d\n",  
overtimePayment);
```

```
printf("\nEnter employee number (-999 to  
end)");
```

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

```
}
```

```
float
```

```
percentageExceeding4000=(float)overtimeExceeding4000/employeesWithOvertime*100;
```

```
printf("\nPercentage of employees with  
overtime payment exceeding Rs.4000  
%.2f%%\n",percentageExceeding4000);
```

```
return 0;
```

```
}
```

## LAB 05

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

```
#include <stdlib.h>
```

```
//Section A
```

```
//Q-1
```

```
//Using While Loop
```

```
int main()
```

```
{
```

```
    int i=0;
```

```
    while(i<=100)
```

```
    {
```

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

```
        i++;
```

```
    }
```

```
    return 0;
```

```
}
```

```
//Using Do-While Loop
```

```
int main()
```

```
{
```

```
int i=0;
do
{
    printf("%d",i);
    i++;
}
while(i<=100);
return 0;
}
```

//Using For Loop

```
int main()
{
    int i=0;
    for (i=0;i<=100;i++);
    {
        printf("%d",i);
    }
}
```

```
}  
return 0;  
}
```

//Q-2

```
int main()  
{  
    int marks[10];  
    int i,total=0;  
    float average;  
  
    printf("Enter the 10 marks\n");  
  
    for (i=0;i<10;i++)  
    {  
        scanf("%d",&marks[i]);
```

```
    total+=marks[i];
}
average=total/10.0;

print("Total marks %d\n",total);
printf("Average marks %.2f\n",average);

if (average<50)
{
    printf("Fail\n");
}
else
{
    printf("Pass\n");
}
return 0;
```

```
}
```

//Q-3

```
int main()
```

```
{
```

```
    int i,num,fac=1;
```

```
    printf("Enter num");
```

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

```
    if(num<0)
```

```
    {
```

```
        printf("error");
```

```
    }
```

```
    else
```

```
    {
```

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

```
        {
```

```
        fac*=i;
    }
    printf("factorial=%d",fac);
}
return 0;
}
```

//Q-4

```
int main()
{
    int num,sum=0,result;
    printf("Enter Number");
    scanf("%d",&num);

    while(num!=0)
    {
```



```
    result=num%10;
    sum+=result;
    num/=10;
}
printf("sum=%d",sum);
return 0;
}
```

//Q-5

```
int main()
{
    int num,reversedNum=0,remain;
    printf("Enter a number");
    scanf("%d",&num);

    do
```

```
{
    remain=num%10;
    reversedNum=reversedNum+10*remain;
    num/=10;
}
while (num!=0);
printf("Reversed Number
%d\n",reversedNum);
return 0;
}
```

//Q-6

```
int main()
{
    int base,exponent,result=1;
```

```
printf("Enter the base");
```

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

```
printf("Enter the exponent");
```

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

```
if(exponent>=0)
```

```
{
```

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

```
    {
```

```
        result*=base;
```

```
    }
```

```
else
```

```
    printf("Exponent should be a non-  
negative integer\n");
```

```
}
```

```
printf("Result %d\n",result);
```

```
    return 0;  
}
```

//Q-7

```
int main()  
{  
    int n=10;  
    int first=0,second=1,next;  
  
    printf("Fibonacci Sequence");  
  
    for(int i=0;i<n;i++);  
    {  
        if(i<=1)  
        {  
            next=i;
```

```
    }  
    else  
    {  
        next=first+second;  
        first=second;  
        second=next;  
    }  
    printf("%d",next);  
}  
printf("\n");  
return 0;  
}
```

//Q-8

```
int main()  
{
```

```
int  
number,originalNumber,remainder,result=0,n=0  
;
```

```
printf("Enter an integer");  
scanf("%d",&number);
```

```
originalNumber=number;
```

```
while(originalNumber != 0)  
{  
    originalNumber /= 10;  
    ++n;  
}
```

```
originalNumber = number;
```

```
while(originalNumber != 0)
```

```
{
    remainder=originalNumber%10;
    result+=pow(remainder,n);
    originalNumber/=10;
}
if (result==number)
{
    printf("%d is an Armstrong number.\n",
number);
}
else
{
    printf("%d is not an Armstrong number.\n",
number);
}
return 0;
}
```

//Q-9

```
int main()
{
    char letter;
    printf("ASCII values for letters A to Z:\n");
    for (letter = 'A'; letter <= 'Z'; letter++)
    {
        printf("%c: %d\n", letter, letter);
    }
    return 0;
}
```

//Q-10

```
int main()
{
    int rows=5;
```



```
for (int i=1; i<=rows;i++)
{
    for (int j=1;j<=i;j++)
    {
        printf("*");
    }
    printf("\n");
}
return 0;
}
```

//Q-11

```
int isPrime(int num)
{
    if (num<=1) {
        return 0;
```

```
}
```

```
for (int i=2;i*i<=num;i++)
```

```
{
```

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

```
{
```

```
    return 0;
```

```
}
```

```
}
```

```
return 1;
```

```
}
```

```
int main()
```

```
{
```

```
    int number;
```

```
printf("Enter a number: ");  
scanf("%d",&number);  
  
if (isPrime(number)) {  
    printf("%d is a prime number\n",number);  
} else  
{  
    printf("%d is not a prime  
number\n",number);  
}  
  
return 0;  
}
```

//Q-12

```
void printFactors(int number)
```

```
{  
    printf("Factors of %d",number);  
    for (int i=1;i<=number;i++)  
    {  
        if (number%i==0)  
        {  
            printf("%d",i);  
        }  
    }  
}
```

```
int main() {  
    int num;  
    printf("Enter an integer: ");  
    scanf("%d",&num);  
    printFactors(num);  
}
```

```
    return 0;  
}
```

//Q-13

```
int main()
```

```
{
```

```
    int num,sum=0;
```

```
    printf("Enter numbers to add (enter -1 to  
stop)\n");
```

```
    while (1)
```

```
    {
```

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

```
        if (num== -1)
```

```
    {  
        break;  
    }  
  
    sum+=num;  
}  
  
printf("Sum %d\n",sum);  
return 0;  
}
```

//Q-14

```
int main()  
{  
    int arr[10];  
    int i;
```

```
printf("Please enter 10 integers\n");
```

```
for (i=0;i<10;i++)
```

```
{
```

```
    printf("Enter element %d", i + 1);
```

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

```
}
```

```
printf("\nThe array you entered is\n");
```

```
for (i=0;i<10;i++)
```

```
{
```

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

```
}
```

```
return 0;
```

```
}
```

//Q-15

```
int main()
```

```
{
```

```
    int arr[10];
```

```
    int i;
```

```
    int evenCount=0;
```

```
    printf("Please enter 10 integers\n");
```

```
    for (i=0;i<10;i++)
```

```
    {
```

```
        printf("Enter element %d",i+1);
```

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



```
    if (arr[i]%2==0)
    {
        evenCount++;
    }
}
```

```
printf("\nThe array you entered is\n");
```

```
for (i=0;i<10;i++)
{
    printf("%d",arr[i]);
}
```

```
printf("\n\nThe count of even numbers in the
array is %d\n",evenCount);
```

```
return 0;
```

```
}
```

```
//Section B
```

```
//Q-1
```

```
int main()
```

```
{
```

```
    int numbers[10];
```

```
    int
```

```
    positiveCount=0,negativeCount=0,zeroCount=0;
```

```
    printf("Please enter 10 numbers\n");
```

```
    for (int i=0;i<10;i++)
```

```
    {
```

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

```
    }
```

```
for (int i=0;i<10;i++)  
{  
    if (numbers[i]>0)  
    {  
        positiveCount++;  
    } else if (numbers[i]<0)  
    {  
        negativeCount++;  
    } else  
    {  
        zeroCount++;  
    }  
}  
  
printf("Number of positive numbers  
%d\n",positiveCount);
```

```
    printf("Number of negative numbers  
%d\n",negativeCount);  
    printf("Number of zeros %d\n",zeroCount);  
  
    return 0;  
}
```

//Q-2

```
int main()  
{  
    int marks[10];  
    int i,sum=0,max=0,min=100;  
    float average;  
  
    printf("Enter the marks of 10 students\n");
```

```
for (i=0;i<10;i++)  
{  
    printf("Enter the marks of student  
%d",i+1);  
    scanf("%d",&marks[i]);  
  
    sum+=marks[i];  
  
    if (marks[i]>max)  
    {  
        max=marks[i];  
    }  
  
    if (marks[i]<min)  
    {  
        min=marks[i];
```

```
    }  
}
```

```
average=(float)sum/10;
```

```
printf("\nMaximum marks %d\n",max);
```

```
printf("Minimum marks %d\n",min);
```

```
printf("Average marks %.2f\n",average);
```

```
return 0;
```

```
}
```

```
//Q-3
```

```
int main()
```

```
{
```

```
    float price[10];
```

```
    int count=0;
```

```
float sum=0;
```

```
printf("Please enter the prices of 10  
items\n");
```

```
for (int i=0;i<10;i++)
```

```
{
```

```
    printf("Item %d",i+1);
```

```
    scanf("%f",&price[i]);
```

```
    sum+=price[i];
```

```
    if (price[i]>200)
```

```
    {
```

```
        count++;
```

```
    }
```

```
}
```

```
float average=sum/10;

printf("\nAverage price of an item
%.2f\n",average);

printf("Number of items with price greater
than 200 %d\n",count);

return 0;
}
```

//Q-4

```
int main()
{
    int employeeNo,count=0;
    float basicSalary;
```



```
printf("Enter the employee number and basic  
salary (enter -999 to stop)\n");
```

```
while(1)
```

```
{
```

```
    printf("Employee No");
```

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

```
    if(employeeNo==-999)
```

```
    {
```

```
        break;
```

```
    }
```

```
    printf("Basic Salary");
```

```
    scanf("%f",&basicSalary);
```

```
    if(basicSalary>=5000)
    {
        count++;
    }
}
```

```
    printf("\nNumber of employees with basic  
salary >= 5000 %d\n",count);
```

```
    return 0;
}
```

//Q-5

```
int main()
{
    int employeeNumber,hoursWorked;
```

```
int  
overtimePayment,overtimeExceeding4000=0;  
  
int  
totalEmployees=0,employeesWithOvertime=0;
```

```
const int normalOvertimeRate=150;  
const int excessOvertimeRate=200;
```

```
printf("Enter employee number (-999 to  
end)");
```

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

```
while (employeeNumber!=-999)  
{  
    printf("Enter hours worked by employee  
%d",employeeNumber);  
    scanf("%d",&hoursWorked);
```

```
totalEmployees++;
```

```
if (hoursWorked>40)
```

```
{
```

```
    employeesWithOvertime++;
```

```
    int overtimeHours=hoursWorked-40;
```

```
    overtimePayment=(normalOvertimeRate*(40-  
overtimeHours))+(excessOvertimeRate*overtim  
eHours);
```

```
    if (overtimePayment>4000)
```

```
{
```

```
        overtimeExceeding4000++;
```

```
}
```

```
}
```

```
else
```

```
{
```

```
    overtimePayment = 0;
```

```
}
```

```
    printf("Employee Number %d\n",  
employeeNumber);
```

```
    printf("Overtime Payment %d\n",  
overtimePayment);
```

```
    printf("\nEnter employee number (-999 to  
end)");
```

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

```
}
```

```
float
percentageExceeding4000=(float)overtimeExce
eding4000/employeesWithOvertime*100;

printf("\nPercentage of employees with
overtime payment exceeding Rs.4000
%.2f%%\n",percentageExceeding4000);

return 0;
}
```

## LAB 06

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

//Q-1
int main()
```

```
{  
    int arr[10], i, sum = 0;  
    float avg;  
  
    // input values to the array  
    for (i = 0; i < 10; i++) {  
        printf("Enter value for index %d: ", i);  
        scanf("%d", &arr[i]);  
    }  
  
    //Minimum value  
    int min_val = arr[0];  
    for (i = 1; i < 10; i++) {  
        if (arr[i] < min_val) {  
            min_val = arr[i];  
        }  
    }
```

```
}  
  
printf("Minimum value in the array: %d\n",  
min_val);
```

```
//Maximum value  
int max_val = arr[0];  
for (i = 1; i < 10; i++) {  
    if (arr[i] > max_val) {  
        max_val = arr[i];  
    }  
}  
  
printf("Maximum value in the array: %d\n",  
max_val);
```

```
//Average value  
for (i = 0; i < 10; i++) {  
    sum += arr[i];  
}
```



```
}  
avg = (float)sum / 10;  
printf("Average value of the array: %.2f\n",  
avg);  
  
//Reverse the order of values  
printf("Reverse order of values in the array:  
");  
for (i = 9; i >= 0; i--) {  
    printf("%d ", arr[i]);  
}  
  
return 0;  
}
```

//Q-2

```
int main() {
```

```
int size, i;
```

```
//Size of arrays
```

```
printf("Enter size of arrays: ");
```

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

```
//Declare two arrays with size given
```

```
int arr1[size], arr2[size], arr3[size];
```

```
//Input values to the first array
```

```
printf("Enter values for first array:\n");
```

```
for (i = 0; i < size; i++) {
```

```
    printf("Enter value for index %d: ", i);
```

```
    scanf("%d", &arr1[i]);
```

```
}
```

```
//Input values to the second array
```

```
printf("Enter values for second array:\n");
```

```
for (i = 0; i < size; i++) {
```

```
    printf("Enter value for index %d: ", i);
```

```
    scanf("%d", &arr2[i]);
```

```
}
```

```
//Scalar sum
```

```
int scalar_sum = 0;
```

```
for (i = 0; i < size; i++) {
```

```
    scalar_sum += arr1[i] + arr2[i];
```

```
}
```

```
printf("Scalar sum of arrays: %d\n",  
scalar_sum);
```

```
//Vector sum and store in third array
```

```
printf("Vector sum of arrays: ");  
for (i = 0; i < size; i++) {  
    arr3[i] = arr1[i] + arr2[i];  
    printf("%d ", arr3[i]);  
}  
  
return 0;  
}
```

## LAB 07

```
#include <stdio.h>  
#include <stdlib.h>  
int main()  
{
```

```
int matrix1[3][3], matrix2[3][3],  
matrix_sum[3][3];  
  
int i, j;  
  
//Input values to the first matrix  
printf("Enter values for first matrix:\n");  
for (i = 0; i < 3; i++) {  
    for (j = 0; j < 3; j++) {  
        printf("Enter value for row %d, column  
%d: ", i+1, j+1);  
        scanf("%d", &matrix1[i][j]);  
    }  
}
```

```
//Input values to the second matrix  
printf("Enter values for second matrix:\n");  
for (i = 0; i < 3; i++) {
```

```
    for (j = 0; j < 3; j++) {  
        printf("Enter value for row %d, column  
%d: ", i+1, j+1);  
        scanf("%d", &matrix2[i][j]);  
    }  
}
```

```
//Find matrix sum and store in third matrix  
for (i = 0; i < 3; i++) {  
    for (j = 0; j < 3; j++) {  
        matrix_sum[i][j] = matrix1[i][j] +  
matrix2[i][j];  
    }  
}
```

```
//Display matrix sum  
printf("Matrix sum:\n");
```

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