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**Class-1MCA-B**

**1. Write a program in C to display n terms of natural numbers and their**

**sum.**

**Test Data : 7**

**Expected Output :**

**The first 7 natural number is :**

**1 2 3 4 5 6 7**

**The Sum of Natural Number upto 7 terms : 28**

Code:-

#include<stdio.h>

int main(){

    for(int i=1;i<=7;i++){

        printf("%d ",i);

    }

    return 0;

}

Output:-

PS C:\Lab\_ASS\_C\_Prog\11.08.2023> cd "c:\Lab\_ASS\_C\_Prog\11.08.2023\" ; if ($?) { gcc one.c -o one } ; if ($?) { .\one }

1 2 3 4 5 6 7

PS C:\Lab\_ASS\_C\_Prog\11.08.2023>

**2. Write a program in C to display the cube of the number up to an integer.**

**Test Data :**

**Input number of terms : 5**

**Expected Output :**

**Number is : 1 and cube of the 1 is :1**

**Number is : 2 and cube of the 2 is :8**

**Number is : 3 and cube of the 3 is :27**

**Number is : 4 and cube of the 4 is :64**

**Number is : 5 and cube of the 5 is :125**

Code:-

#include<stdio.h>

int main(){

    for(int i=1;i<=5;i++){

        int cube=i\*i\*i;

        printf("\nNumber is:%d and the cube is:%d",i,cube);

    }

    return 0;

}

Output:-

Number is:1 and the cube is:1

Number is:2 and the cube is:8

Number is:3 and the cube is:27

Number is:4 and the cube is:64

Number is:5 and the cube is:125

PS C:\Lab\_ASS\_C\_Prog\11.08.2023>

**3. Write a program in C to display the multiplier table vertically from 1 to n.**

**Test Data :**

**Input upto the table number starting from 1 : 8**

**Expected Output :**

**Multiplication table from 1 to 8**

**1x1 = 1, 2x1 = 2, 3x1 = 3, 4x1 = 4, 5x1 = 5, 6x1 = 6, 7x1 = 7, 8x1 = 8**

Code:-

#include<stdio.h>

int main(){

    int p;

    printf("Enter the number");

    scanf("%d",&p);

    int n;

    printf("Enter the limit");

    scanf("%d",&n);

    for(int i=1;i<=n;i++){

        printf("%d\*%d=%d ",p,i,i\*p);

        if(i!=n){

            printf(",");

        }

    }

    return 0;

}

Output:-

Enter the number5

Enter the limit10

5\*1=5 ,5\*2=10 ,5\*3=15 ,5\*4=20 ,5\*5=25 ,5\*6=30 ,5\*7=35 ,5\*8=40 ,5\*9=45 ,5\*10=50

PS C:\Lab\_ASS\_C\_Prog\11.08.2023>

**4. Write a program in C to display the n terms of a harmonic series and their**

**sum.**

**1 + 1/2 + 1/3 + 1/4 + 1/5 ... 1/n terms**

**Input the number of terms : 5**

**Expected Output :**

**1/1 + 1/2 + 1/3 + 1/4 + 1/5 +**

**Sum of Series upto 5 terms : 2.283334**

Code:-

#include<stdio.h>

int main(){

    int n;

    printf("Enter the limit");

    scanf("%d",&n);

    double sum=0.00;

    for(double i=1;i<=n;i++){

        sum=sum+1/i;

    }

    printf("%f",sum);

    return 0;

}

Output:-

Enter the limit5

2.283333

PS C:\Lab\_ASS\_C\_Prog\11.08.2023>

**5. Write a program in C to display the sum of the series [ 9 + 99 + 999 +**

**9999 ...]**

**Test Data :**

**Input the number or terms :5**

**Expected Output :**

**9 99 999 9999 99999**

**The sum of the series = 111105**

Code:-

#include<stdio.h>

int main(){

    int n;

    printf("Enter the number");

    scanf("%d",&n);

    int c=10;

    int sum=0;

    int i=0;

    while(i<n){

        printf("%d ",c-1);

        sum=sum+(c-1);

        c=c\*10;

        i++;

    }

    printf("\nThe Sum is:%d",sum);

    return 0;

}

Output:-

Enter the number5

9 99 999 9999 99999

The Sum is:111105

PS C:\Lab\_ASS\_C\_Prog\11.08.2023>

**6. Write a program in C to find the sum of the series [x - x^3 + x^5 + ......].**

**Test Data :**

**Input the value of x :3**

**Input number of terms : 5**

**Expected Output :**

**The sum is : 16.375000**

Code:-

#include<stdio.h>

#include<math.h>

int main(){

    int x,n;

    printf("Enter the number x");

    scanf("%d",&x);

    printf("Enter the limit");

    scanf("%d",&n);

    int sum=0;

    int e=1;

    // printf("%d^%d-",x,e);

    for(int i=0;i<n;i++){

        // if(i==0){

        //     sum=sum-pow(x,e);

        //     printf("%d^%d-",x,e);

        // }

        if(i==1){

            sum=sum-pow(x,e);

            printf("%d^%d+",x,e);

        }

        else{

            sum=sum+pow(x,e);

            printf("%d^%d+",x,e);

        }

        e=e+2;

    }

    printf("\nThe Sum is:%d",sum);

    return 0;

}

Output:-

Enter the number x3

Enter the limit3

3^1+3^3+3^5+

The Sum is:219

**7. Write a C program that displays the n terms of square natural numbers**

**and their sum.1 4 9 16 ... n Terms**

**Test Data :**

**Input the number of terms : 5**

**Expected Output :**

**The square natural upto 5 terms are :1 4 9 16 25**

**The Sum of Square Natural Number upto 5 terms = 55**

Code:-

#include<stdio.h>

int main(){

    int n;

    printf("Enter the number");

    scanf("%d",&n);

    int sum=0;

    for(int i=1;i<=n;i++){

        printf("%d ",i\*i);

        sum=sum+(i\*i);

    }

    printf("\nThe Sum is:%d",sum);

    return 0;

}

Output:-

Enter the number5

1 4 9 16 25

The Sum is:55

PS C:\Lab\_ASS\_C\_Prog\11.08.2023>

**8. Write a C program to read temperature in centigrade and display a**

**suitable message according to the temperature state below:**

**Temp &lt; 0 then Freezing weather**

**Temp 0-10 then Very Cold weather**

**Temp 10-20 then Cold weather**

**Temp 20-30 then Normal in Temp**

**Temp 30-40 then Its Hot**

**Temp &gt;=40 then Its Very Hot**

Code:-

#include<stdio.h>

int main(){

    int temp;

    printf("Enter the temp in Celcius");

    scanf("%d",&temp);

    if(temp<0){

        printf("Freezing Weather");

    }

    else if(temp>=0 && temp<=10){

        printf("Very Cold Weather");

    }

    else if(temp>=10 && temp<=20){

        printf("Cold Weather");

    }

    else if(temp>=20 && temp<=30){

        printf("Normal in Temperature");

    }

    else if(temp>=30 && temp<40){

        printf("It's Hot");

    }

    else{

        printf("It's very Hot");

    }

    return 0;

}

Output:-

Enter the temp in Celcius-1

Freezing Weather

PS C:\Lab\_ASS\_C\_Prog\11.08.2023>

Enter the temp in Celcius5cd "c:\Lab\_ASS\_C\_Prog\11.08.2023\" ; if ($?) { gcc eight.c -o eight } ; if ($?) { .\eight }

Very Cold Weather

PS C:\Lab\_ASS\_C\_Prog\11.08.2023>

Enter the temp in Celcius15

Cold Weather

PS C:\Lab\_ASS\_C\_Prog\11.08.2023>

Enter the temp in Celcius25

Normal in Temperature

PS C:\Lab\_ASS\_C\_Prog\11.08.2023>

Enter the temp in Celcius35

It's Hot

PS C:\Lab\_ASS\_C\_Prog\11.08.2023>

**9. Write a program in C to calculate and print the electricity bill of a given**

**customer. The customer ID, name, and unit consumed by the user should**

**be captured from the keyboard to display the total amount to be paid to**

**the customer.**

**The charge are as follow :**

**Unit Charge/unit**

**upto 199 @1.20**

**200 and above but less than 400 @1.50**

**400 and above but less than 600 @1.80**

**600 and above @2.00**

**If bill exceeds Rs. 400 then a surcharge of 15% will be charged and the**

**minimum bill should be of Rs. 100/-**

**Test Data :**

**1001**

**James**

**800**

**Expected Output :**

**Customer IDNO :1001**

**Customer Name :James**

**unit Consumed :800**

**Amount Charges @Rs. 2.00 per unit : 1600.00**

**Surchage Amount : 240.00**

**Net Amount Paid By the Customer : 1840.00**

Code:-

// Write a program in C to calculate and print the electricity bill of a given

// customer. The customer ID, name, and unit consumed by the user should

// be captured from the keyboard to display the total amount to be paid to

// the customer.

// The charge are as follow :

// Unit Charge/unit

// upto 199 @1.20

// 200 and above but less than 400 @1.50

// 400 and above but less than 600 @1.80

// 600 and above @2.00

// If bill exceeds Rs. 400 then a surcharge of 15% will be charged and the

// minimum bill should be of Rs. 100/-

#include<stdio.h>

int main(){

    char name[20];

    int id;

    int unit;

    double amount=0.00;

    double surged\_amount=0.00;

    double net\_amount=0.00;

    printf("Enter the customer id:");

    scanf("%d",&id);

    printf("Enter the customer name:");

    scanf("%s",name);

    printf("Enter Unit consumed");

    scanf("%d",&unit);

    if(unit<=199){

        amount=unit\*1.20;

        if(amount>400){

            surged\_amount=(15.00/100.00)\*amount;

            net\_amount=amount+surged\_amount;

            printf("\nThe name of the customer:%s",name);

            printf("\nThe id of the customer:%d",id);

            printf("\nUnit Consumed:%d",unit);

            printf("\nAmount Charged:%lf",amount);

            printf("\nSurged Amount:%lf",surged\_amount);

            printf("\nNet Amount:%lf",net\_amount);

        }

        else{

            printf("\nThe name of the customer:%s",name);

            printf("\nThe id of the customer:%d",id);

            printf("\nUnit Consumed:%d",unit);

            printf("\nAmount Charged:%lf",amount);

        }

    }

    else if(unit>=200 && unit<400){

        amount=unit\*1.50;

        if(amount>400){

            surged\_amount=(15.00/100.00)\*amount;

            net\_amount=amount+surged\_amount;

            printf("\nThe name of the customer:%s",name);

            printf("\nThe id of the customer:%d",id);

            printf("\nUnit Consumed:%d",unit);

            printf("\nAmount Charged:%lf",amount);

            printf("\nSurged Amount:%lf",surged\_amount);

            printf("\nNet Amount:%lf",net\_amount);

        }

        else{

            printf("\nThe name of the customer:%s",name);

            printf("\nThe id of the customer:%d",id);

            printf("\nUnit Consumed:%d",unit);

            printf("\nAmount Charged:%lf",amount);

        }

    }

        else if(unit>=400 && unit<600){

        amount=unit\*1.80;

        if(amount>400){

            surged\_amount=(15.00/100.00)\*amount;

            net\_amount=amount+surged\_amount;

            printf("\nThe name of the customer:%s",name);

            printf("\nThe id of the customer:%d",id);

            printf("\nUnit Consumed:%d",unit);

            printf("\nAmount Charged:%lf",amount);

            printf("\nSurged Amount:%lf",surged\_amount);

            printf("\nNet Amount:%lf",net\_amount);

        }

        else{

            printf("\nThe name of the customer:%s",name);

            printf("\nThe id of the customer:%d",id);

            printf("\nUnit Consumed:%d",unit);

            printf("\nAmount Charged:%lf",amount);

        }

    }

    else{

        amount=unit\*2.00;

        if(amount>400){

            surged\_amount=(15.00/100.00)\*amount;

            net\_amount=amount+surged\_amount;

            printf("\nThe name of the customer:%s",name);

            printf("\nThe id of the customer:%d",id);

            printf("\nUnit Consumed:%d",unit);

            printf("\nAmount Charged:%lf",amount);

            printf("\nSurged Amount:%lf",surged\_amount);

            printf("\nNet Amount:%lf",net\_amount);

        }

        else{

            printf("\nThe name of the customer:%s",name);

            printf("\nThe id of the customer:%d",id);

            printf("\nUnit Consumed:%d",unit);

            printf("\nAmount Charged:%lf",amount);

        }

    }

    return 0;

}

Output:-

Enter the customer id:1148

Enter the customer name:Koushik

Enter Unit consumed400

The name of the customer:Koushik

The id of the customer:1148

Unit Consumed:400

Amount Charged:720.000000

Surged Amount:108.000000

Net Amount:828.000000

PS C:\Lab\_ASS\_C\_Prog\11.08.2023>

Enter the customer id:1149

Enter the customer name:KD1

Enter Unit consumed600

The name of the customer:KD1

The id of the customer:1149

Unit Consumed:600

Amount Charged:1200.000000

Surged Amount:180.000000

Net Amount:1380.000000

PS C:\Lab\_ASS\_C\_Prog\11.08.2023>

Enter the customer id:1150

Enter the customer name:KD2

Enter Unit consumed700

The name of the customer:KD2

The id of the customer:1150

Unit Consumed:700

Amount Charged:1400.000000

Surged Amount:210.000000

Net Amount:1610.000000

PS C:\Lab\_ASS\_C\_Prog\11.08.2023>

Enter the customer id:1151

Enter the customer name:Kd3

Enter Unit consumed800

The name of the customer:Kd3

The id of the customer:1151

Unit Consumed:800

Amount Charged:1600.000000

Surged Amount:240.000000

Net Amount:1840.000000

PS C:\Lab\_ASS\_C\_Prog\11.08.2023>

Enter the customer id:1152

Enter the customer name:kd3

Enter Unit consumed100

The name of the customer:kd3

The id of the customer:1152

Unit Consumed:100

Amount Charged:120.000000

PS C:\Lab\_ASS\_C\_Prog\11.08.2023>

**11. Write a C program for reading any Month Number and displaying the**

**Month name as a word.**

**Test Data :4**

**Expected Output :**

**April**

Code:-

#include<stdio.h>

int main(){

    int month\_number;

    char \*month[12]={"January","February","March","April","May","June","July","August","September","October","November","December"};

    printf("\nEnter your Month Number:");

    scanf("%d",&month\_number);

    if(month\_number>=1 && month\_number<=12){

        printf("\nThe Month in word is:%s",month[month\_number-1]);

    }

    else{

        printf("Invalid Input");

    }

    return 0;

}

Output:-

Enter your Month Number:2

The Month in word is:February

PS C:\Lab\_ASS\_C\_Prog\11.08.2023>

**12. Write a program in C which is a Menu-Driven Program to perform a**

**simple calculation. (1. Area of Circle 2. Area of Triangle 3. Area of**

**Rectangle)**

Code:-

#include<stdio.h>

double pie=3.14;

double Area=0.00;

double Area\_Circle(double r){

    Area=pie\*r\*r;

    return Area;

}

double Area\_Triangle(double b,double h){

    Area=(1.00/2.00)\*b\*h;

    return Area;

}

double Area\_Rectangle(double length,double breadth){

    Area=length\*breadth;

    return Area;

}

int main(){

    int choice;

    double res,r,b,h,length,breadth;

    printf("Enter your choice");

    scanf("%d",&choice);

    switch (choice)

    {

    case 1:

        printf("Enter the radius of the circle");

        scanf("%lf",&r);

        res=Area\_Circle(r);

        printf("\nThe Area of the Circle is:%lf",res);

        break;

    case 2:

        printf("Enter the base of triangle");

        scanf("%lf",&b);

        printf("Enter the heigth of triangle");

        scanf("%lf",&h);

        res=Area\_Triangle(b,h);

        printf("\nThe Area of the Triangle is:%lf",res);

        break;

    case 3:

        printf("Enter the length of rectangle");

        scanf("%lf",&length);

        printf("Enter the breadth of rectangle");

        scanf("%lf",&breadth);

        res=Area\_Rectangle(length,breadth);

        printf("\nThe Area of the Rectangle is:%lf",res);

        break;

    default:

        printf("\nWrong Choice");

        break;

    }

    return 0;

}

Output:-

Enter your choice1

Enter the radius of the circle2

The Area of the Circle is:12.560000

PS C:\Lab\_ASS\_C\_Prog\11.08.2023>

Enter your choice2

Enter the base of triangle5

Enter the heigth of triangle4

The Area of the Triangle is:10.000000

PS C:\Lab\_ASS\_C\_Prog\11.08.2023>

Enter your choice3

Enter the length of rectangle4

Enter the breadth of rectangle4

The Area of the Rectangle is:16.000000

PS C:\Lab\_ASS\_C\_Prog\11.08.2023>

Enter your choice4

Wrong Choice

PS C:\Lab\_ASS\_C\_Prog\11.08.2023>