

**Savitribai Phule Pune University**

**F. Y. B. B. A. (C.A.) Semester I**

**Semester I (CBCS 2019 Pattern)**

# **Lab Book**

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**Roll No.:106**

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**SeatNo:**

**Academic Year: 2022-23**

# ***CERTIFICATE***

**This is to certify that**

**Mr. PATIL LALIT DEVIDAS**

**Seat Number:\_\_\_\_\_ of F.Y.B.B.A. (C.A) Sem-I has Successfully  
completed Laboratory**

**course (C Language) in the year .**

**He/she has scored mark out of 10 (For Lab Book).**

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**Subject Teacher**

**H.O.D./Coordinator**

**Internal Examiner**

**External Examiner**

**Q1. Write a C program to accept radius of a circle and display the area and circumference of a circle.**

```
#include<stdio.h>
int main()
{
    int radius;
    float area, ci;
    printf("\nEnter radius of circle: ");
    scanf("%d", &radius);
    area = 3.14 * radius * radius;
    printf("\nArea of circle : %f ", area);
    ci = 2 * 3.14 * radius;
    printf("\nCircumference : %f \n", ci);
    return 0;
}
```

**OUTPUT :-**

### Compile Result

```
Enter radius of circle: 68
Area of circle : 14519.360352
Circumference : 427.040009
[Process completed - press Enter]
```

**Q2. Write a program to calculate sum of following series up to n terms.**

$$\text{Sum} = X + X^2/2! + X^3/3! + \dots$$

(Note: Write separate user defined function to calculate power and factorial)

```
#include<math.h>
#include<stdio.h>
int fact(int index)
{
    int f=1,i;
    for(i=1; i<=index; i++)
    {
        f = f*i;
    }
    return f;
}

int main()
{
    int x = 1;
    int n = 2;
    double sum = 0,m;
    // Sum of n-1 terms starting from 2nd term
    int i;
    for (i = 1; i<=n; i++)
    {
        m=pow(x,i)/fact(i);
        sum=sum+m;
    }
    printf("\n%.4f", sum);
    return 0;
}
```

**OUTPUT:-**

Compile Result

```
1.5000
[Process completed - press Enter]
```

**Q3. Write a C program to accept two numbers and print Arithmetic and Harmonic mean of the two numbers.**

**(Hint:  $AM = (a+b)/2$  ,  $HM = ab/(a+b)$ )**

```
#include <stdio.h>
int main()
{
    int a,b;
    float arithmetic_mean,harmonic_mean;
    printf("Enter two no. A and B :\n");
    scanf("%d%d",&a,&b);
    arithmetic_mean = (a+b)/2;
    harmonic_mean = (a*b)/(a+b);
    printf("Arithmetic mean = %f",arithmetic_mean);
    printf("\nHarmonic mean = %f",harmonic_mean);
    return 0;
}
```

**OUTPUT:-**

#### Compile Result

```
Enter two no. A and B :
7
6
Arithmetic mean = 6.000000
Harmonic mean = 3.000000
[Process completed - press Enter]
```

**Q4. Create a structure Student (id, name, marks). Accept details of n students and write a menu driven program to perform the following operations.**

- a) Search student by id**
- b) Display all students**

```
#include <stdio.h>
#include <string.h>
struct Student
{
    int id;
    char name[20];
    int marks;
};
int main()
{
    int n, i, id;
    printf("Enter the number of students: ");
    scanf("%d", &n);
    struct Student s[n];
    for (i = 0; i < n; i++)
    {
        printf("\nEnter the details of student %d:\n", i+1);
        printf("ID: ");
        scanf("%d", &s[i].id);
        printf("Name: ");
        scanf("%s", s[i].name);
        printf("Marks: ");
```

```

        scanf("%d", &s[i].marks);
    }
    int choice;
    while (1)
    {
        printf("\nMenu:\n1. Search student by ID\n2.
Display all students\n3. Exit\nEnter your choice: ");
        scanf("%d", &choice);
        switch (choice)
        {
            case 1:
                printf("\nEnter the ID of the student: ");
                scanf("%d", &id);
                for (i = 0; i < n; i++)
                {
                    if (s[i].id == id)
                    {
                        printf("\nDetails of student %d:\nID:
%d\nName: %s\nMarks: %d\n", i + 1, s[i].id, s[i].name,
s[i].marks);
                        break;
                    }
                }
                if (i == n)
                    printf("\nNo student found with ID %d\n", id);
                break;
            case 2:
                printf("\nDetails of all students:\n");
                for (i = 0; i < n; i++)

```

```

        printf("\nStudent %d:\nID: %d\nName:
%s\nMarks: %d\n", i + 1, s[i].id, s[i].name, s[i].marks);
        break;
    case 3:
        return 0;
    default:
        printf("\nInvalid choice\n");
    }
}
return 0;
}

```

## OUTPUT:-

### Compile Result

```
Enter the number of students: 1
```

```
Enter the details of student 1:
```

```
ID: 1
```

```
Name: LALIT
```

```
Marks: 82
```

```
Menu:
```

```
1. Search student by ID
```

```
2. Display all students
```

```
3. Exit
```

```
Enter your choice: 2
```

```
Details of all students:
```

```
Student 1:
```

```
ID: 1
```

```
Name: LALIT
```

```
Marks: 82
```

```
Menu:
```

```
1. Search student by ID
```

```
2. Display all students
```

```
3. Exit
```

```
Enter your choice: █
```



**Q5. Write a C Program to accept a character from the keyboard and display its previous and next character in order. Ex. If character entered is 'd', display "The previous character is c", "The next character is e".**

```
#include <stdio.h>
int main()
{
    char ch;
    printf("Enter character:\t");
    scanf("%c", &ch);
    printf("You entered: %c\n", ch);
    printf("Previous character: %c\n", ch - 1);
    printf("Next character: %c\n", ch + 1);
    return 0;
}
```

**OUTPUT:-**

#### Compile Result

```
Enter character:      L
You entered: L
Previous character: K
Next character: M

[Process completed - press Enter]
```

**Q6. Write a program to accept a string and then count the occurrences of a specific character of a string.**

```
#include <stdio.h>
#include<string.h>
int main()
{
    char str[50], ch;
    int count = 0, i;
    printf("Enter a string: ");
    gets(str);
    printf("Enter a character to find the
frequency: ");
    scanf("%c", &ch);
    for(i = 0; str[i]!=0; ++i)
    {
        if(ch == str[i])
            ++count;
    }
    printf("Frequency of %c = %d", ch,
count);
    return 0;
```

}

## OUTPUT:-

### Compile Result

```
Enter a string: LALIT PATIL
Enter a character to find the frequency:
L
Frequency of L = 3
[Process completed - press Enter]
```

**Q7. A cashier has currency notes of denomination 1, 5 and 10. Write a C program to accept the withdrawal amount from the user and display the total number of currency notes of each denomination the cashier will have to give.**

```
#include <stdio.h>
int main()
{
    int amt;
    printf("Enter the amount to withdraw :");
    scanf("%d",&amt);
    int tenNote = amt / 10;
    int fiveNote = (amt % 10) / 5;
    int oneNote = (amt % 10) % 5;
    printf("Total currency notes of 10 : %d\n", tenNote);
```

```
    printf("Total currency notes of 5 : %d\n", fiveNote);  
    printf("Total currency notes of 1 : %d", oneNote);  
  
    return 0;  
}
```

**OUTPUT:-**

## Compile Result

```
Enter the amount to withdraw : 26  
Total currency notes of 10 : 2  
Total currency notes of 5 : 1  
Total currency notes of 1 : 1  
[Process completed - press Enter]
```

**Q8. Write a menu driven program to perform the following operation on m\*n Matrix**

**1. Calculate sum of upper triangular matrix elements**

**2. Calculate sum of diagonal elements**

```
#include<stdio.h>
int main()
{
    int fig_code;
    float side, base, length, breadth, height, area,
radius;
    printf("-----\n");
    printf(" 1 --> sum of upper triangular \n");
    printf(" 2 --> sum of diagonal elements\n");
    printf("-----\n");
    int i, j, a[10][10], sum, rows, columns;
    printf("\nEnter the number of Rows : ");
    scanf("%d", &rows);
    printf("\nEnter the number of Columns : ");
    scanf("%d", &columns);
    for (i = 0; i < rows; i++)
        for (j = 0; j < columns; j++)
        {
            printf("\nEnter the Element a[%d][%d] : ", i, j);
            scanf("%d", &a[i][j]);
        }
```

```
printf("Enter the Figure code\n");
scanf("%d", &fig_code);
switch(fig_code)
{
case 1:
    sum = 0;
    for (i = 0; i < rows; i++)
        for (j = 0; j < columns; j++) {
            // Condition for Upper Triangle
            if (i < j) {
                sum = sum + a[i][j];
            }
        }
    printf("sum of upper=%d",sum);
    break;
case 2:
    sum = 0;
    for (i = 0; i < rows; i++)
        for (j = 0; j < columns; j++) {
            // Condition for Upper Triangle
            if (i == j) {
                sum = sum + a[i][j];
            }
        }
    printf("sum of diagonal elements=%d",sum);
    break;
```

```
default:
    printf("Error in figure code\n");
    break;
}
return 0;
}
```

## OUTPUT:-

### Compile Result

```
-----
1 --> sum of upper triangular
2 --> sum of diagonal elements
-----

Enter the number of Rows : 2
Enter the number of Columns : 2
Enter the Element a[0][0] : 11
Enter the Element a[0][1] : 07
Enter the Element a[1][0] : 20
Enter the Element a[1][1] : 04
Enter the Figure code
1
sum of upper=7
[Process completed - press Enter]
```



**Q9. Write a C program to accept the x and y coordinate of a point and find the quadrant in which the point lies.**

```
#include <stdio.h>
int main()
{
    int x, y;
    printf("Enter the x coordinate of a point:");
    scanf("%d",&x);
    printf("Enter the y coordinate of a point: ");
    scanf("%d",&y);
    if(x > 0 && y > 0)
    {
        printf("The point lies in Quadrant FIRST.\n");
    }
    else if(x < 0 && y > 0)
    {
        printf("The point lies in Quadrant SECOND.\n");
    }
    else if(x < 0 && y < 0)
    {
        printf("The point lies in Quadrant THIRD.\n");
    }
    else if(x > 0 && y < 0)
    {
```

```
        printf("The point lies in Quadrant FOURTH.\n");
    }
    else if(x == 0 || y == 0) {
        printf("The point lies on the X or Y axis.\n");
    }
    return 0;
}
```

## OUTPUT:-

### Compile Result

```
Enter the x coordinate of a point: 11
Enter the y coordinate of a point: -7
The point lies in Quadrant FOURTH.

[Process completed - press Enter]
```

**Q10. Write a program, which accepts a number n and displays each digit in words. Example: 6702**

**Output = Six-Seven-Zero-Two**

```
#include <stdio.h>
int main()
{
    int n, num = 0;
    printf("Enter a number: ");
    scanf("%d", &n);
    while(n != 0)
    {
        num = (num * 10) + (n % 10);
        n /= 10;
    }
    while(num != 0)
    {
        switch(num%10)
        {
            case 0:
                printf("Zero ");
```

```
        break;
case 1:
    printf("One ");
    break;
case 2:
    printf("Two ");
    break;
case 3:
    printf("Three ");
    break;
case 4:
    printf("Four ");
    break;
case 5:
    printf("Five ");
    break;
case 6:
    printf("Six ");
    break;
case 7:
    printf("Seven ");
    break;
```

```
    case 8:
        printf("Eight ");
        break;
    case 9:
        printf("Nine ");
        break;
    }
    num = num/10;
}
return 0;
}
```

## OUTPUT:-

### Compile Result

```
Enter a number: 11072004
One One Zero Seven Two Zero Zero Four
[Process completed - press Enter]
```

**Q11. Write a C program to calculate sum of digits of a given input number.**

```
#include<stdio.h>
int main()
{
    int n, sum = 0;
    printf("Enter the number : ");
    scanf("%d", &n);
    while (n != 0)
    {
        sum += n % 10;
        n /= 10;
    }
    printf("Sum of digits = %d",
sum);
    return 0;
```

```
}
```

## OUTPUT:-

### Compile Result

```
Enter the number : 2004  
Sum of digits = 6  
[Process completed - press Enter]
```

**Q12. Accept two numbers from user and write a menu driven program to perform the following operations.**

- 1. swap the values of two variables**
- 2. calculate arithmetic mean and harmonic mean of two numbers**

```
#include<stdio.h>
int main()
{
    int n1,n2,t,choice;
    float arithmetic_mean,harmonic_mean;
    printf("\n Enter the radius of circle:-\n");
    scanf("%d%d",&n1,&n2);
    printf("\n Please make a choice from the
following");
    printf("\n \n Options:\t \t \t \t");
    printf("\n Actions:");
    printf("\n \n 1. SWAP :");

    printf("\n \n 2. MEAN :");
    scanf("%d",&choice);
```



```
switch(choice)
{
case 1:
    t=n1;
    n1=n2;
    n2=t;
    printf("\n swap=%d %d \n \n",n1,n2);
    break;
case 2:
    arithmetic_mean = (n1+n2) /2;
    harmonic_mean = (n1*n2) /(n1+n2);
    printf("\nArithmetic
mean=%f",arithmetic_mean);
    printf("\nHarmonic mean
=%f",harmonic_mean);
    break;
default:
    printf("\n You haven made invalid
choice \n \n");
}
return 0;
}
```

**OUTPUT:-**

## Compile Result

```
Enter the radius of circle:-  
11  
07
```

Please make a choice from the following

Options:  
Actions:

1. SWAP :
2. MEAN :2

```
Arithmetic mean =9.000000  
Harmonic mean   =4.000000  
[Process completed - press Enter]
```

**Q13. Write a C program to check whether a input number is Armstrong number or not.**

```
#include <stdio.h>
int main()
{
    int num, originalNum, remainder, result = 0;
    printf("Enter a three-digit integer: ");
    scanf("%d", &num);
    originalNum = num;
    while (originalNum != 0)
    {
        remainder = originalNum%10;
        result += remainder*remainder*remainder;
        originalNum /= 10;
    }
    if(result == num)
        printf("%d is an Armstrong number.",num);
    else
        printf("%d is not an Armstrong number.",num);

    return 0;
}
```

**OUTPUT:-**

#### Compile Result

```
Enter a three-digit integer: 370
370 is an Armstrong number.
[Process completed - press Enter]
```

**Q14. Write a program to accept a number and count number of even, odd and zero digits within that number.**

```
#include <stdio.h>
int main()
{
    int nodd,neven,num,digit,zero=0 ;
    printf("Enter four digit number: ");
    scanf("%d",&num);
    while (num> 0)
    {
        digit = num % 10; /* separate LS digit
from number */
        num /= 10;
        if(digit != 0 && digit % 2 == 0)
        {
            neven++;
        }
        else if(digit==0)
        {
            zero++;
        }
        else
```

```
        {  
            nodd++;  
        }  
    }  
    printf("\nOdd digit : %d \nEven digit :  
%d\nZeros : %d", nodd, neven, zero);  
    return 0;  
}
```

## OUTPUT:-

### Compile Result

Enter four digit number: 12340

Odd digit : 2

Even digit : 2

Zeros : 1

[Process completed - press Enter]

**Q15. Write a C program to calculate  $x^y$  without using standard library function.**

```
#include<stdio.h>
int main()
{
    int x,y,i,r=1,t;
    printf("Enter a number:");
    scanf("%d",&x);
    printf("Enter the power:");
    scanf("%d",&y);
    for(i=1; i<=y; i++)
    {
        t=x;
        r=r*t;
    }
    printf("Result:%d",r);
    return 0;
}
```

**OUTPUT:-**

### Compile Result

```
Enter a number:12
Enter the power:2
Result:144
[Process completed (code 10) - press Enter]
```

**Q16. Write a program to display union and intersection of two 1D array.**

```
#include<stdio.h>
void printUnion(int arr1[], int arr2[], int m, int n)
{
    int hash[1000] = {0};
    for (int i=0; i<m; i++)
        hash[arr1[i]] = 1;
    for (int i=0; i<n; i++)
        if (hash[arr2[i]] == 1)
            printf("%d ", arr2[i]);
    for (int i=0; i<n; i++)
        hash[arr2[i]] = 2;
    for (int i=0; i<m; i++)
        if (hash[arr1[i]] == 1)
            printf("%d ", arr1[i]);
}
void printIntersection(int arr1[], int arr2[], int m,
int n)
{
    int hash[1000] = {0};
    for (int i=0; i<m; i++)
        hash[arr1[i]] = 1;
    for (int i=0; i<n; i++)
```

```
        if (hash[arr2[i]] == 1)
            printf("%d ", arr2[i]);
    }
int main()
{
    int arr1[] = {7, 1, 5, 2, 3, 6};
    int arr2[] = {3, 8, 6, 20, 7};
    int m = sizeof(arr1)/sizeof(arr1[0]);
    int n = sizeof(arr2)/sizeof(arr2[0]);
    printf("Union of two arrays: \n");
    printUnion(arr1, arr2, m, n);
    printf("\nIntersection of two arrays: \n");
    printIntersection(arr1, arr2, m, n);
    return 0;
}
```

## OUTPUT:-

### Compile Result

```
Union of two arrays:
3 6 7 1 5 2
Intersection of two arrays:
3 6 7
[Process completed - press Enter]
```



**Q17. Write a C program to generate following triangle up to n lines.**

**1**  
**1 2**  
**1 2 3**

```
include <stdio.h>
int main()
{
    int i, j, rows;
    printf("Enter number of rows: ");
    scanf("%d",&rows);
    for(i=1; i<=rows; ++i)
    {
        for(j=1; j<=i; ++j)
        {
            printf("%d ",j);
        }
        printf("\n");
    }
    return 0;
}
```

**OUTPUT:-****Compile Result**

```
Enter number of rows: 3
```

```
1
```

```
1 2
```

```
1 2 3
```

```
[Process completed - press Enter]
```

**Q18. Write a program to calculate sum of following series up to n terms.**

**Sum= $X - X^2/2! + X^3/3! - \dots$**

**(Note: Write separate user defined function to calculate power and factorial)**

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

```
int power(int x, int n)
```

```
{
```

```
    int result = 1;
```

```
    while (n != 0)
```

```
    {
```

```
        result *= x;
```

```
        --n;
```

```
    }
```

```
    return result;
```

```
}
```

```
//Function to calculate factorial
```

```
int factorial(int n)
```

```
{
```

```
    int result = 1;
```

```
    while (n > 1)
```

```
{
    result *= n;
    --n;
}
return result;
}
int main()
{
    int x, n, i;
    float sum = 0;
    printf("Enter the value of x: ");
    scanf("%d", &x);
    printf("Enter the number of terms: ");
    scanf("%d", &n);
    for (i = 0; i < n; i++)
    {
        if (i % 2 == 0)
            sum += (float)power(x, i) /
factorial(i);
        else
            sum -= (float)power(x, i) / factorial(i);
    }
    printf("Sum of the series is %f", sum);
```

```
    return 0;  
}
```

## OUTPUT:-

### Compile Result

```
Enter the value of x: 11  
Enter the number of terms: 7  
Sum of the series is 1557.118164  
[Process completed - press Enter]
```

**Q19. Write a C program to generate following triangle up to n lines.**

**1**  
**2 3**  
**4 5 6**

```
#include <stdio.h>
int main()
{
    int rows, i, j, number= 1;
    printf("Enter number of rows: ");
    scanf("%d",&rows);
    for(i=1; i <= rows; i++)
    {
        for(j=1; j <= i; ++j)
        {
            printf("%d ", number);
            ++number;
        }

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

```
    return 0;  
}
```

## OUTPUT:-

### Compile Result

```
Enter number of rows: 3
```

```
1
```

```
2 3
```

```
4 5 6
```

```
[Process completed - press Enter]
```

## Q20. Write a program to calculate addition of two matrices.

```
#include <stdio.h>
int main()
{
    int m, n, c, d, first[10][10], second[10][10],
    sum[10][10];
    printf("Enter the number of rows and
    columns of matrix\n");
    scanf("%d%d", &m, &n);
    printf("Enter the elements of first
    matrix\n");
    for (c = 0; c < m; c++)
        for (d = 0 ; d < n; d++)
            scanf("%d", &first[c][d]);
    printf("Enter the elements of second
    matrix\n");
    for (c = 0; c < m; c++)
        for (d = 0 ; d < n; d++)
            scanf("%d", &second[c][d]);
    printf("Sum of entered matrices:-\n");
    for (c = 0; c < m; c++)
```



```
{
    for (d = 0 ; d < n; d++)
    {
        sum[c][d] = first[c][d] + second[c][d];
        printf("%d\t", sum[c][d]);
    }
    printf("\n");
}
return 0;
}
```

## OUTPUT:-

### Compile Result

```
Enter the number of rows and columns of
matrix
2
2
Enter the elements of first matrix
9
8
7
6
Enter the elements of second matrix
5
4
3
2
Sum of entered matrices:-
14      12
10      8

[Process completed - press Enter]
```

**Q21. Write a C program to generate following triangle up to n lines.**

**A B C**

**A B**

**A**

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

```
int main()
```

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

```
    char number= 'A';
```

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

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

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

```
    { number= 'A';
```

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

```
        {
```

```
            printf("%c ", number);
```

```
            ++number;
```

```
        }
```

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

```
    }
```

```
    return 0;
```

```
}
```

## OUTPUT:-

### Compile Result

```
Enter number of rows: 3
```

```
A B C
```

```
A B
```

```
A
```

```
[Process completed - press Enter]
```

**Q22. Write a menu driven program to perform the following operation on m\*n Matrix**

- 1. Find sum of non diagonal elements of matrix**
- 2. Find sum of all odd numbers of matrix**

```
#include <stdio.h>
int main()
{
    int a[10][10], transpose[10][10], r, c, i,
j,sum=0, fig_code;
    printf("Enter rows and columns of matrix: ");
    scanf("%d %d", &r, &c);
    printf("\nEnter elements of matrix:\n");
    for(i=0; i<r; ++i)
        for(j=0; j<c; ++j)
        {
            printf("Enter element a%d%d: ",i+1,
j+1);
            scanf("%d", &a[i][j]);
        }
    printf("-----\n");
    printf(" 1 --> sum of non diagonal
elements\n");
    printf(" 2 --> Sum of odd elements\n");
```

```

printf("-----\n");
printf("Enter the Figure code:");
scanf("%d", &fig_code);
switch(fig_code)
{

case 1:
    for(i=0; i<r; i++)
    {
        for(j=0; j<c; j++)
        {
            if(i!=j)
            {
                sum=sum+a[i][j];
            }
        }
    }
    printf("\n sum of non digonal elements=
%d",sum);
    break;
case 2:

    for(i=0; i<r; ++i)
        for(j=0; j<c; ++j)

```

```

        {
            if(a[i][j]%2!=0)
                sum=sum+a[i][j];
        }
        printf("\n sum of odd elements=
%d",sum);
        break;

default:
    printf("Error in figure code\n");
    break;
}
return 0;
}

```

### Compile Result

```

Enter rows and columns of matrix: 2
2
Enter elements of matrix:
Enter element a11: 2
Enter element a12: 4
Enter element a21: 6
Enter element a22: 8
-----
1 --> sum of non diagonal elements
2 --> Sum of odd elements
-----
Enter the Figure code:1

sum of non digonal elements= 10
[Process completed - press Enter]

```

**Q23. Write a C program to find maximum elements of 1D array**

```
#include <stdio.h>
int main()
{
    int i, n;
    float arr[100];
    printf("Enter total number of elements(1
to 100): ");
    scanf("%d", &n);
    printf("\n");
    for(i = 0; i < n; ++i)
    {
        printf("Enter Number %d: ", i+1);
        scanf("%f", &arr[i]);
    }
    for(i = 1; i < n; ++i)
    {
        if(arr[0] < arr[i])
            arr[0] = arr[i];
    }
    printf("Largest element = %.2f", arr[0]);
```

```
    return 0;  
}
```

## OUTPUT:-

### Compile Result

```
Enter total number of elements(1 to 100)  
: 4
```

```
Enter Number 1: 11
```

```
Enter Number 2: 07
```

```
Enter Number 3: 20
```

```
Enter Number 4: 04
```

```
Largest element = 20.00
```

```
[Process completed - press Enter]
```



**Q24. Create a structure Book (Bno, Bname, Price). Accept details of n Books and write a menu driven program to perform the following operations options.**

- 1. Display all Books having price > 500**
- 2. Display Book having maximum price**

```
#include<stdio.h>
#include<string.h>
#include<stdlib.h>
struct book
{
    int bno,bcost,baccno;
    char
    bname[30],bpub[30],bauthor[30];
} p[20];
int main()
{
    int n,i,ch,largest ;
    char pubname[30],authorname[30];
```

```

printf("/*How Many Records of
Books You Want to Add*/\n\nEnter
Limit : ");
scanf("%d",&n);

```

```

printf("-----\n");
for(i=0; i<n; i++)
{
    printf("\tEnter Details of
Book-%d",i+1);

```

```

printf("\n-----
--\n");
    printf("Book Number    : ");
    scanf("%d",&p[i].bno);
    printf("Book Name      : ");
    scanf("%s",p[i].bname);
    printf("Author Name   : ");
    scanf("%s",p[i].bauthor);

```

```

printf("Publication    : ");
scanf("%s",p[i].bpub);
printf("Cost          : ");
scanf("%d",&p[i].bcost);
printf("Accession Number : ");
scanf("%d",&p[i].baccno);

```

```

printf("-----\n");

```

```

}

```

```

while(1)

```

```

{

```

```

    printf("\n\t\tMENU\n");

```

```

printf("-----\n");

```

```

    printf("\n1.All Books Costing
Above Rs. 500");

```

```

    printf("\n2. Books having
maximum price");
    printf("\n3.Exit");

printf("\n-----
--\n");
    printf("\nEnter Your Choice : ");
    scanf("%d",&ch);
    printf("\n");
    switch(ch)
    {
    case 1:
        for(i=0; i<n; i++)
        {
            if(p[i].bcost>500)
            {
                printf("Book Number :
%d\n",p[i].bno);
                printf("Book Name : %s
\n",p[i].bname);

```

```

        printf("Cost :
%d\n",p[i].bcost);
        printf("Accession Number
: %d\n",p[i].baccno);

```

```

printf("\n-----
--\n");

```

```

    }

```

```

}

```

```

break;

```

```

case 2:

```

```

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

```

```

    {   largest = p[0].bcost;
        if (largest < p[i].bcost) {
            largest = p[i].bcost;
        }
    }

```

```

}

```

```

printf("Cost : %d\n",largest);

```

```

        for(i=0; i<n; i++)
        {
            if(p[i].bcost==largest)
            {
                printf("Book Number :
%d\n",p[i].bno);
                printf("Book Name : %s
\n",p[i].bname);
                printf("Cost :
%d\n",p[i].bcost);
                printf("Accession Number
: %d\n",p[i].baccno);

                printf("\n-----
--\n");
            }
        }
        break;
    case 3:
        exit(0);

```

```

    }
}
return 0;
}

```

## OUTPUT:-

```

Compile Result

/*How Many Records of Books You Want to Add*/

Enter Limit : 2
-----
--
      Enter Details of Book-1
-----
--
Book Number      : 103
Book Name        : C_Programming
Author Name      : Dr.Sunita_Patil
Publication      : Nirali_Prakashan
Cost             : 550
Accession Number : 08866
-----
--
      Enter Details of Book-2
-----
--
Book Number      : 104
Book Name        : DBMS
Author Name      : Dr.Manisha_Bharambe
Publication      : Nirali_Prakashan
Cost             : 265
Accession Number : 08897
-----
--
                        MENU
-----
--
1.All Books Costing Above Rs. 500
2. Books having maximum price
3.Exit
-----
--
Enter Your Choice : 1

Book Number : 103
Book Name : C_Programming
Cost : 550
Accession Number : 8866
-----

```

**Q25. Write a C program to calculate length of string without using standard functions.**

```
#include <stdio.h>
int main()
{
    char s[1000];
    int i;
    printf("Enter a string: ");
    scanf("%s", s);
    for(i = 0; s[i] != '\0'; ++i);
    printf("Length of string: %d", i);
    return 0;
}
```

**OUTPUT:-**

### Compile Result

```
Enter a string: LALIT_DEVIDAS_PATIL
Length of string: 19
[Process completed - press Enter]
```



**Q26. Write a program to display the elements of an array containing n integers in the Reverse order using a pointer to the array.**

```
#include<stdio.h>
int main()
{
    int size, i, arr[30];
    int *ptr;
    ptr = &arr[0];
    printf("Enter the size of array : ");
    scanf("%d", &size);
    printf("\nEnter %d integers into array: ",
size);
    for (i = 0; i < size; i++) {
        scanf("%d", ptr);
        ptr++;
    }
    ptr = &arr[size - 1];
    printf("\nElements of array in reverse
order are :");
```

```
for (i = size - 1; i >= 0; i--) {  
    printf("\nElement%d is %d : ", i, *ptr);  
    ptr--;  
}  
return 0;  
}
```

## OUTPUT:-

### Compile Result

Enter the size of array : 4

Enter 4 integers into array: 11

07

20

04

Elements of array in reverse order are :

Element3 is 4 :

Element2 is 20 :

Element1 is 7 :

Element0 is 11 :

[Process completed - press Enter]

**Q27. Write a program to accept a string and then count the occurrences of a specific character of a string.**

```
#include <stdio.h>
#include <string.h>
int main()
{
    char str[50]= "LALIT_DEVIDAS_PATIL";
    char c ;
    int res = 0;
    printf("Enter character:");
    scanf("%c",&c);
    for (int i=0; i<strlen(str); i++)
        if (str[i] == c)
            res++;
    printf("Occurence of %c=%d",c,res++);
    return 0;
}
```

## OUTPUT:-

### Compile Result

```
Enter character:L  
Occurence of L=3  
[Process completed - press Enter]
```

**Q28. Write a program to accept two numbers as range and display multiplication table of all numbers within that range.**

```
#include <stdio.h>
int main()
{
    int i,j;
    for(j=2; j<=5; j++)
    {
        for(i=1; i<=10; i++)
        {
            printf("\t ");
            printf("\n%d * %d = %d",j, i, j*i);
        }
        printf("\n");
    }
    return 0;
}
```

## OUTPUT:-

### Compile Result

```
2 * 4 = 8
2 * 5 = 10
2 * 6 = 12
2 * 7 = 14
2 * 8 = 16
2 * 9 = 18
2 * 10 = 20
```

```
3 * 1 = 3
3 * 2 = 6
3 * 3 = 9
3 * 4 = 12
3 * 5 = 15
3 * 6 = 18
3 * 7 = 21
3 * 8 = 24
3 * 9 = 27
3 * 10 = 30
```

```
4 * 1 = 4
4 * 2 = 8
4 * 3 = 12
4 * 4 = 16
4 * 5 = 20
4 * 6 = 24
4 * 7 = 28
4 * 8 = 32
4 * 9 = 36
4 * 10 = 40
```

```
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
```

```
[Process completed - press Enter]
```

**Q29. Write a program to find sum of digits of a given input number using user defined Function**

```
#include<stdio.h>
int getSum(int n)
{
    int sum = 0;
    while (n != 0)
    {
        sum = sum + n % 10;
        n = n/10;
    }
    return sum;
}
int main()
{
    int n ;
    printf("Enter No =");
    scanf("%d",&n);
    printf("Sum Is= %d ", getSum(n));
```

```
    return 0;  
}
```

## OUTPUT:-

### Compile Result

```
Enter No =11072004  
Sum Is= 15  
[Process completed - press Enter]
```



**Q30. Write a program to accept a number and count number of even, odd and zero digits within that number**

```
include <stdio.h>
int main()
{
    int nodd,neven,num,digit,zero=0 ;
    printf("Enter digit number: ");
    scanf("%d",&num);
    while (num> 0)
    {
        digit = num % 10;
        num /= 10;
        if(digit != 0 && digit % 2 == 0)
        {
            neven++;
        }
        else if(digit==0)
        {
            zero++;
        }
        else
```

```
        {
            nodd++;
        }
    }
    printf("\nOdd digit : %d \nEven digit :
%d\nZeros : %d", nodd, neven, zero);
    return 0;
}
```

## OUTPUT:-

### Compile Result

Enter digit number: 12112920

Odd digit : 4

Even digit : 3

Zeros : 1

[Process completed - press Enter]

---

---

---

.

