

BASUDEV GODABARI DEGREE COLLEGE, KESAIBAHAL

Depart of Computer Science

C PROGRAMMING LAB

Turbo C/C++ Open Turbo C/C++ from your Desktop or Programs menu. Select “File” from Menu bar and select option “New” and Save C program with filename „.C” extension.

To do compiling – Select -> Compile from menu and click-> compile. If the compilation is successful – you will see a “success” message. Else you will see the number of errors.

To RUN the program – you may select ->Run from menu and click -> Run Now you will see the output screen

STRUCTURE OF „C” PROGRAM : C program is a collection of several instructions where each instruction is written as a separate statement. The C program starts with a main function followed by the opening braces which indicates the start of the function. Then follows the variable and constant declarations which are followed by the statements that include input and output statements.

C program may contain one or more sections as shown below:

DOCUMENTATION SECTION

LINK SECTION

DEFINITION SECTION

GLOBAL DECLARATION SECTION

Main() Function section

{

Declaration part

Executable part

}

SUBPROGRAM SECTION

User defined functions

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

This statement tells compiler to include this `stdio.h` file in the program. This is a standard input output file that contains the definitions of common input output functions such as `scanf()` and `printf()`. In the above program we are using `printf()` function.

2. `int main()`

`void main()`

– Here `main()` is the function name and `int` is the return type of this function. Every C program must have this function because the execution of program begins with the `main()` function. The 0 return value of this function represents successful execution of program while the return value 1 represents the unsuccessful execution of program. This is the reason we have `return 0;` statement at the end of this main function.

-The `void main()` indicates that the `main()` function will not return any value, but the `int main()` indicates that the `main()` can return integer type data. When our program is simple, and it is not going to terminate before reaching the last line of the code, or the code is error free, then we can use the `void main()`.

3. `printf ("Hello World");` – This function displays the content within double quotes as it is on the screen.

4. `scanf()` is one of the commonly used function to take input from the user. The `scanf()` function reads formatted input from the standard input such as keyboards.

5. `return 0;`

`getch()`

– As mentioned above, the value 0 means successful execution of `main()` function

-`getch()` method pauses the Output Console until a key is pressed.

Simple C Programs

1. Hello World Program in C
2. Program to Add Two Integers
3. C program to check whether the given number is positive or negative
4. Reverse an input number using recursion
5. Program to find greatest of three numbers
6. C Program to print Fibonacci series in a given range
7. C Program to find factorial of a given number.
8. Find Prime numbers in a given range

Hello World Program in C

```
#include <stdio.h>
#include <conio.h>
int main()
printf("Hello World");
    return 0;
}
```

Output:

```
Hello World
```

2. Program to Add Two Integers

3.

```
4.     #include <stdio.h>
5.     int main() {
6.
7.         int number1, number2, sum;
8.
9.         printf("Enter two integers: ");
10.        scanf("%d %d", &number1, &number2);
11.
12.        // calculating sum
```

```
13.     sum = number1 + number2;
14.
15.     printf("%d + %d = %d", number1, number2, sum);
16.     return 0;
17. }
```

```
18.
```

C program to check whether the given number is positive or negative

```
#include <stdio.h>

void main()
{
    int num;

    printf("Enter a number: \n");
    scanf("%d", &num);
    if (num > 0)
        printf("%d is a positive number \n", num);
    else if (num < 0)
        printf("%d is a negative number \n", num);
    else
        printf("0 is neither positive nor negative");
}
```

Output 1:

```
Enter a number:
0
0 is neither positive nor negative
```

Output 2:

```
Enter a number:
-3
-3 is a negative number
```

Output 3:

Reverse an input number using recursion

```

#include<stdio.h>
int main(){
    int num,reverse_number;

    //User would input the number
    printf("\nEnter any number:");
    scanf("%d",&num);

    //Calling user defined function to perform reverse
    reverse_number=reverse_function(num);
    printf("\nAfter reverse the no is :%d",reverse_number);
    return 0;
}
int sum=0,rem;
reverse_function(int num){
    if(num){
        rem=num%10;
        sum=sum*10+rem;
        reverse_function(num/10);
    }
    else
        return sum;
    return sum;
}

```

Output:

```

Enter any number: 23456
After reverse the no is :65432

```

Program to find greatest of three numbers

```

#include<stdio.h>
int main()
{
    int num1,num2,num3;

    printf("\nEnter value of num1, num2 and num3:");
    scanf("%d %d %d",&num1,&num2,&num3);

    if((num1>num2)&&(num1>num3))
        printf("\n Number1 is greatest");
}

```

```
else if((num2>num3)&&(num2>num1))
    printf("\n Number2 is greatest");
else
    printf("\n Number3 is greatest");
return 0;
}
```

Output:

```
Enter value of num1, num2 and num3: 15 200 101
Number2 is greatest
```

C Program to print Fibonacci series in a given range

```
#include<stdio.h>
int main()
{
    int count, first_term = 0, second_term = 1, next_term, i;

    //Ask user to input number of terms
    printf("Enter the number of terms:\n");
    scanf("%d",&count);

    printf("First %d terms of Fibonacci series:\n",count);
    for ( i = 0 ; i < count ; i++ )
    {
        if ( i <= 1 )
            next_term = i;
        else
        {
            next_term = first_term + second_term;
            first_term = second_term;
            second_term = next_term;
        }
        printf("%d\n",next_term);
    }

    return 0;
}
```

Output:

```
Enter the number of terms: 8
```

First 8 terms of Fibonacci series:

0
1
1
2
3
5
8
13

C Program to find factorial of a given number.

```
#include <stdio.h>
int main() {
    int n, i;
    unsigned long long fact = 1;
    printf("Enter an integer: ");
    scanf("%d", &n);

    // shows error if the user enters a negative integer
    if (n < 0)
        printf("Error! Factorial of a negative number doesn't
exist.");
    else {
        for (i = 1; i <= n; ++i) {
            fact *= i;
        }
        printf("Factorial of %d = %llu", n, fact);
    }

    return 0;
}
```

Output

```
Enter an integer: 10
Factorial of 10 = 3628800
```

Program to find prime numbers

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

```

{
    int num1, num2, flag_var, i, j;

    printf("Enter two range(input integer numbers only):");

    scanf("%d %d", &num1, &num2);

    printf("Prime numbers from %d and %d are:\n", num1, num2);
    for(i=num1+1; i<num2; ++i)
    {
        flag_var=0;
        for(j=2; j<=i/2; ++j)
        {
            if(i%j==0)
            {
                flag_var=1;
                break;
            }
        }
        if(flag_var==0)
            printf("%d\n",i);
    }
    return 0;
}

```

Output:

```

Enter two range(input integer numbers only):
Prime numbers from 1 and 50 are: 1 50
2
3
5
7
11
13
17
19
23
29
31
37
41
43
47

```


PRACTICAL SYLLABUS -

Core-1 Practical: Programming Fundamentals using C Lab

1. Write a Program to find greatest among three numbers.
2. Write a Program to all arithmetic operation using switch case.
3. Write a Program to print the sum and product of digits of an integer.
4. Write a Program to reverse a number.
5. Write a Program to compute the sum of the first n terms of the following series
 $S = 1 + 1/2 + 1/3 + 1/4 + \dots$
6. Write a Program to compute the sum of the first n terms of the following series

$S = 1 - 2 + 3 - 4 + 5 - \dots$

7. Write a function that checks whether a given string is Palindrome or not. Use this function to find whether the string entered by user is Palindrome or not.

8. Write a function to find whether a given no. is prime or not. Use the same to generate the prime numbers less than 100.

9. Write a Program to compute the factors of a given number.

10. Write a program to swap two numbers using macro.

11. Write a Program to print a triangle of stars as follows (take number of lines from user):

```
 *
 ***
*****
*****
```

12. Write a Program to perform following actions on an array entered by the user:

a) Print the even-valued elements

b) Print the odd-valued elements

c) Calculate and print the sum and average of the elements of array

d) Print the maximum and minimum element of array

e) Remove the duplicates from the array

f) Print the array in reverse order

The program should present a menu to the user and ask for one of the options. The menu should also include options to re-enter array and to quit the program.

13. Write a Program that prints a table indicating the number of occurrences of each alphabet in

the text entered as command line arguments.

14. Write a program that swaps two numbers using pointers.

15. Write a program in which a function is passed address of two variables and then alter its contents.

16. Write a program which takes the radius of a circle as input from the user, passes it to another

function that computes the area and the circumference of the circle and displays the value of

area and circumference from the main() function.

17. Write a program to find sum and average of n elements entered by the user. To write this

program, allocate memory dynamically using malloc() / calloc() functions.

18. Write a menu driven program to perform following operations on strings:

a) Show address of each character in string

b) Concatenate two strings without using strcat function.

c) Concatenate two strings using strcat function.

d) Compare two strings

e) Calculate length of the string (use pointers)

f) Convert all lowercase characters to uppercase

g) Convert all uppercase characters to lowercase

h) Calculate number of vowels

i) Reverse the string

19. Given two ordered arrays of integers, write a program to merge the two-arrays to get an ordered array.

20. Write a program to copy the content of one file to other.

1.

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

```
int main()
```

```
{
```

```
    int A, B, C;
```

```
    printf("Enter the numbers A, B and C: ");
```

```
    scanf("%d %d %d", &A, &B, &C);
```

```
    if (A >= B && A >= C)
```

```
        printf("%d is the largest number.", A);
```

```
    if (B >= A && B >= C)
```

```
        printf("%d is the largest number.", B);
```

```
    if (C >= A && C >= B)
```

```
        printf("%d is the largest number.", C);
```

```
    return 0;
```

```

2.
#include<stdio.h>
#include<conio.h>
int main()
{
    int a,b;
    int op;
    printf(" 1.Addition\n 2.Subtraction\n 3.Multiplication\n 4.Division\n");
    printf("Enter the values of a & b: ");
    scanf("%d %d",&a,&b);
    printf("Enter your Choice : ");
    scanf("%d",&op);
    switch(op)
    {
    case 1 :
        printf("Sum of %d and %d is : %d",a,b,a+b);
        break;
    case 2 :
        printf("Difference of %d and %d is : %d",a,b,a-b);
        break;
    case 3 :
        printf("Multiplication of %d and %d is : %d",a,b,a*b);
        break;
    case 4 :
        printf("Division of Two Numbers is %d : ",a/b);
        break;
    default :
        printf(" Enter Your Correct Choice.");
        break;
    }
    return 0;
}

```

Output for Program:

```

1.Addition
2.Subtraction
3.Multiplication
4.Division
Enter the values of a & b:  20 15

```

```
Enter your Choice : 1
Sum of 20 and 15 is : 35
```

3.

```
#include <stdio.h>

int main()
{
    int n;
    int dig, sum,pro;

    printf("\nEnter an integer number :");
    scanf("%d",&n);

    /*Calculating Sum and Product*/
    sum=0;
    pro=1;

    while(n>0)
    {
        dig=n%10; /*get digit*/
        sum+=dig;
        pro*=dig;
        n=n/10;
    }

    printf("\nSUM of all Digits is : %d",sum);
    printf("\nPRODUCT of all digits: %d",pro);

    return 0;
}
```

OUTPUT

```
Enter an integer number-1234
Sum of all integer:-10
Product of all integer:-24
```

4.

```
#include<stdio.h>
int main()
{
int n, reverse=0, rem;
printf("Enter a number: ");
scanf("%d", &n);
while(n!=0)
{
rem=n%10;
reverse=reverse*10+rem;
n/=10;
}
printf("Reversed Number: %d",reverse);
return 0;
}
```

Output:

```
Enter a number: 123
Reversed Number: 321
```

5. #include <stdio.h>

```
void main()
{
double number, sum = 0, i;

printf("\n enter the number ");
scanf("%lf", &number);
for (i = 1; i <= number; i++)
{
sum = sum + (1 / i);
if (i == 1)
printf("\n 1 +");
else if (i == number)
printf(" (1 / %lf)", i);
else
```

```
        printf(" (1 / %lf) + ", i);
    }
    printf("\n The sum of the given series is %.2lf", sum);
}
```

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

//function for creating the sum of the
//series up to Nth term
int series_sum(int n)
{
    if (n % 2 == 0)
        return -(n / 2);
    else
        return ((n + 1) / 2);
}

// main code
int main()
{
    int n;
    printf("Series:1-2+3-4+5-6+7-8.....N\n");
    printf("Want some up to N terms?\nEnter the N
term:");
    scanf("%d", &n);

    printf("Sum is:%d", series_sum(n));

    return 0;
}
```

```
Series:1-2+3-4+5-6+7-8.....N
Want some up to N terms?
Enter the N term:10
Sum is:-5
```


7.

```
#include <stdio.h>

#include <string.h>

int main(){

    char string1[20];

    int i, length;

    int flag = 0;

    printf("Enter a string:");

    scanf("%s", string1);

    length = strlen(string1);

    for(i=0;i < length ;i++){

        if(string1[i] != string1[length-i-1]){

            flag = 1;

            break;

        }

    }

    if (flag) {

        printf("%s is not a palindrome", string1);

    }

    else {

        printf("%s is a palindrome", string1);

    }

    return 0;
```

```
}
```

Program Output:

```
Enter a string :-csc  
Csc is palindrome
```

```
Enter a string -Computer  
Computer is not a palindrome
```

8.

```
#include<stdio.h>  
  
int main() {  
    int num,i,count;  
  
    for(num = 1;num<=100;num++){  
        count = 0;  
  
        for(i=2;i<=num/2;i++){  
            if(num%i==0){  
                count++;  
                break;  
            }  
        }  
  
        if(count==0 && num!= 1)  
            printf("%d ",num);  
    }  
  
    return 0;  
}
```

Output:

```
2 3 5 7 11 13 17 19 23 29 31 37 41 43 47 53 59 61 67 71 73 79  
83 89 97
```

```
#include <stdio.h>
int main() {
    int n, i;
    unsigned long long fact = 1;
    printf("Enter an integer: ");
    scanf("%d", &n);

    // shows error if the user enters a negative integer
    if (n < 0)
        printf("Error! Factorial of a negative number doesn't
exist.");
    else {
        for (i = 1; i <= n; ++i) {
            fact *= i;
        }
        printf("Factorial of %d = %llu", n, fact);
    }

    return 0;
}
```

Output

```
Enter an integer: 10
Factorial of 10 = 3628800
```

```

10
#include <stdio.h>

int main()
{
    int num1, num2;

    // Input two numbers from users
    printf("Enter any two number to swap: ");
    scanf("%d%d", &num1, &num2);

    printf("Values before swapping\n");
    printf("num1 = %d, num2 = %d\n\n", num1, num2);

    SWAP(num1, num2);

    printf("Values after swapping\n");
    printf("num1 = %d, num2 = %d\n", num1, num2);

    return 0;
}

```

Enter any two number to swap: 10 20

Values before swapping

num1 = 10, num2 = 20

Values after swapping

num1 = 20

11.

```

#include <stdio.h>

int main()
{
    int n;
    printf("Enter the number of rows");
    scanf("%d",&n);
    for(int i=1;i<=n;i++)
    {
        for(int j=1;j<=i;j++)
        {
            printf("* ");
        }
        printf("\n");
    }
    return 0;
}

```

```
}
```

OutPut

```
 *
***
*****
*****
```

12. Write a Program to perform following actions on an array entered by the user:

- a) Print the even-valued elements
- b) Print the odd-valued elements
- c) Calculate and print the sum and average of the elements of array
- d) Print the maximum and minimum element of array
- e) Remove the duplicates from the array
- f) Print the array in reverse order

The program should present a menu to the user and ask for one of the options. The menu should also include options to re-enter array and to quit the program.

Answer

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

void even(); //User defined function to check the even elements of the array
void odd(); //User defined function to check the odd elements of the array
void sum_and_avg(); //User defined function to find the sum and average of elements of the array
void max_and_min(); //User defined function to the maximum and minimum element of the array
void remove_duplicates(); //User defined function to remove duplicate elements of the array
void reverse(); //User defined function to reverse the array

int main()
{
    int option; //Declaring variables
    char choice; //Declaring variable

    do{
        //Displaying Menu options
        printf("\n _____MENU_____");

        printf("\n 1. Print the even-valued elements of the array");

        printf("\n 2. Print the odd-valued elements of the array");

        printf("\n 3. Calculate and print the sum and average of the elements of array");
```

```

printf("\n 4. Print the maximum and minimum element of array");

printf("\n 5. Remove the duplicates from the array");

printf("\n 6. Print the array in reverse order");

printf("\n 7. Exit");

printf("\n\n Enter Your Choice : "); //Inputting the choice from the user
scanf("%d", &option);

switch(option) //Checking the entered choice
{
    case 1:
        even(); //Calling the function
        break;
    case 2:
        odd(); //Calling the function
        break;
    case 3:
        sum_and_avg(); //Calling the function
        break;
    case 4:
        max_and_min(); //Calling the function
        break;
    case 5:
        remove_duplicates(); //Calling the function
        break;
    case 6:
        reverse(); //Calling the function
        break;
    case 7:
        printf("Exiting Program.....");
        exit(1);
    default:
        printf("\n Invalid Choice !");
        break;
}
printf("Do you want to continue (Y/N)? ");
choice=getch();
}
while(choice=='Y' || choice=='y'); //repeat the loop until user wants to exit the program
}

//Defining the function even()
void even()
{
    char op;
    int i, num, even=0; //Initializations and declaration of variables

    printf("\n Enter the size of an array : "); //Inputting the size of the array
    scanf("%d", &num);

    int array[num]; //Initializing array of same size
    printf("\n Enter the elements of the array : "); //Inputting the elements in the array
    for (i = 0; i < num; i++)
    {
        scanf("%d", &array[i]);
    }
    printf("\n Even numbers in the array are : "); //Displaying the even elements of the array
    for (i = 0; i < num; i++)
    {
        if (array[i] % 2 == 0)
        {
            even++;
            printf("%d\t", array[i]);
        }
    }
}

```

```
}  
}
```

```
}//End of function even()
```

```
//Defining the function odd()
```

```
void odd()
```

```
{
```

```
    char op;//Initialization of variable
```

```
    int i, num,odd=0;//Initialization and Declaration of Variables
```

```
    printf("\n Enter the size of an array : ");//Initializations and declaration of variables
```

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

```
    int array[num];//Initializing array of same size
```

```
    printf("\n Enter the elements of the array : ");//Inputting the size of the array
```

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

```
    {
```

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

```
    }
```

```
    printf("\n Odd numbers in the array are :");//Displaying the odd elements of the array
```

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

```
    {
```

```
        if (array[i] % 2 != 0)
```

```
        {
```

```
            odd++;
```

```
            printf("%d\t", array[i]);
```

```
        }
```

```
    }
```

```
}//End of function odd()
```

```
//Defining the function sum_and_avg()
```

```
void sum_and_avg()
```

```
{
```

```
    char op;
```

```
    int size, i, sum = 0;//Initialization and Declaration of Variables
```

```
    printf("\n Enter the size of the arrays : ");//Inputting the size of the array
```

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

```
    int arr[size];//Initializing the array of entered size
```

```
    printf("\n Enter the elements of the array :");//Inputting the elements in the array
```

```
    //Calculating the Sum of elements of the array
```

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

```
    {
```

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

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

```
    }
```

```
    printf("\n The sum of the array is : %d\n", sum);//Displaying the sum of the elements of the array
```

```
    printf("\n The average of the array is : %f", (float)sum / size);//Displaying the average of the
```

```
elements
```

```
of the array
```

```
}//End of function sum_and_avg()
```

```
//Defining the function max_min()
```

```
void max_and_min()
```

```

{
char op;
int i, max, min, size;//Declaration of Variables

printf("\n Enter the size of the arrays : ");//Inputting the size of the array
scanf("%d", &size);

int arr[size];
printf("\n Enter the elements of the array : ");//Inputting the elements in the array

    for(i=0; i<size; i++)
    {
        scanf("%d", &arr[i]);
    }

/* Assume first element as maximum and minimum */
max = arr[0];
min = arr[0];

/* Find maximum and minimum in all array elements*/
for(i=1; i<size; i++)
{
    /* If current element is greater than max */
    if(arr[i] > max)
    {
        max = arr[i];
    }

    /* If current element is smaller than min */
    if(arr[i] < min)
    {
        min = arr[i];
    }
}

/* Print maximum and minimum element */
printf("\n Maximum element = %d\n", max);
printf("\n Minimum element = %d", min);

}

} //end of function max_and_min()

```

```

//Defining the function remove_duplicates()
void remove_duplicates()
{
char op;
int i, j, k, n;//Declaration of variables

printf("\n Enter array size: ");//Inputting the size of the array
scanf("%d", &n);

int arr[n];//Initializing an array of entered size

printf("\n Enter %d array elements: ", n);//Entering the elements into the array

for(i = 0; i < n; i++)
{
    scanf("%d", &arr[i]);
}

printf("\n Original array is: ");//Displaying the Original array
for(i = 0; i < n; i++)
{
    printf(" %d", arr[i]);
}
}

```



```

}

printf("\n New array is: "); //Displayin the new array after removing duplicate items

//Calculating the duplicate items and deleting those elements
for(i = 0; i < n; i++)
{
    for(j = i+1; j < n; )
    {
        if(arr[j] == arr[i])
        {
            for(k = j; k < n; k++)
            {
                arr[k] = arr[k+1];
            }
            n--;
        }
        else
        {
            j++;
        }
    }
}

for(i = 0; i < n; i++)
{
    printf("%d ", arr[i]); //Displaying elements
}

} //end of function remove_duplicates()

void reverse()
{
    char op; //Declarations of Variables
    int size, i; //Declarations of Variables

    /* Input size of array */
    printf("\n Enter size of the array : ");
    scanf("%d", &size);

    int arr[size];
    /* Input array elements */
    printf("\n Enter elements in array: ");
    for(i=0; i<size; i++)
    {
        scanf("%d", &arr[i]);
    }
    /*Print array in reversed order*/
    printf("\n Array in reverse order: ");
    for(i = size-1; i>=0; i--)
    {
        printf("%d ", arr[i]);
    }
}
}

```

Output:

_____MENU_____

1. Print the even-valued elements of the array
2. Print the odd-valued elements of the array

3. Calculate and print the sum and average of the elements of array
4. Print the maximum and minimum element of array
5. Remove the duplicates from the array
6. Print the array in reverse order
7. Exit

Enter Your Choice : 1

Enter the size of an array : 5

Enter the elements of the array : 10

11

12

13

14

Even numbers in the array are : 10 12 14 Do you want to continue
(Y/N)?

_____MENU_____

1. Print the even-valued elements of the array
2. Print the odd-valued elements of the array
3. Calculate and print the sum and average of the elements of array
4. Print the maximum and minimum element of array
5. Remove the duplicates from the array
6. Print the array in reverse order
7. Exit

Enter Your Choice : 2

Enter the size of an array : 5

Enter the elements of the array : 10

12

11

13

14

Odd numbers in the array are: 11 13 Do you want to continue (Y/N)?

_____MENU_____

1. Print the even-valued elements of the array
2. Print the odd-valued elements of the array
3. Calculate and print the sum and average of the elements of array
4. Print the maximum and minimum element of array
5. Remove the duplicates from the array
6. Print the array in reverse order
7. Exit

Enter Your Choice : 3

Enter the size of the arrays : 5

Enter the elements of the array :10

11
12
13
14

The sum of the array is : 60

The average of the array is : 12.000000Do you want to continue (Y/N)?

_____MENU_____

1. Print the even-valued elements of the array
2. Print the odd-valued elements of the array
3. Calculate and print the sum and average of the elements of array
4. Print the maximum and minimum element of array
5. Remove the duplicates from the array
6. Print the array in reverse order
7. Exit

Enter Your Choice : 4

Enter the size of the arrays : 5

Enter the elements of the array : 10

11

12

13

14

Maximum element = 14

Minimum element = 10 Do you want to continue (Y/N)?

_____MENU_____

1. Print the even-valued elements of the array
2. Print the odd-valued elements of the array
3. Calculate and print the sum and average of the elements of array
4. Print the maximum and minimum element of array
5. Remove the duplicates from the array
6. Print the array in reverse order
7. Exit

Enter Your Choice : 5

Enter array size: 5

Enter 5 array elements: 10

11

12

13

14

Original array is: 10 11 12 13 14

New array is: 10 11 12 13 14 Do you want to continue (Y/N)?

1. Print the even-valued elements of the array
2. Print the odd-valued elements of the array
3. Calculate and print the sum and average of the elements of array
4. Print the maximum and minimum element of array
5. Remove the duplicates from the array
6. Print the array in reverse order

7. Exit

Enter Your Choice : 6

Enter size of the array : 5

Enter elements in array: 10

11

12

13

14

Array in reverse order: 14 13 12 11 10 Do you want to continue (Y/N)?

_____MENU_____

1. Print the even-valued elements of the array
2. Print the odd-valued elements of the array
3. Calculate and print the sum and average of the elements of array
4. Print the maximum and minimum element of array
5. Remove the duplicates from the array
6. Print the array in reverse order
7. Exit

Enter Your Choice : 7

Exiting Program.....

13.

```
1. #include <stdio.h>
2. #include <string.h>
3. #include <ctype.h>
4.
5. struct detail
6. {
7.     char c;
8.     int freq;
9. };
10.
11. int main()
12. {
13.     struct detail s[26];
14.     char string[100], c;
15.     int i = 0, index;
```

```

16.
17.     for (i = 0; i < 26; i++)
18.     {
19.         s[i].c = i + 'a';
20.         s[i].freq = 0;
21.     }
22.     printf("Enter string: ");
23.     i = 0;
24.     do
25.     {
26.         fflush(stdin);
27.         c = getchar();
28.         string[i++] = c;
29.         if (c == '\n')
30.         {
31.             break;
32.         }
33.         c = tolower(c);
34.         index = c - 'a';
35.         s[index].freq++;
36.     } while (1);
37.     string[i - 1] = '\0';
38.     printf("The string entered is: %s\n", string);
39.
40.     printf("*****\nCharacter\tFrequency\n*****
*****\n");
41.     for (i = 0; i < 26; i++)
42.     {
43.         if (s[i].freq)
44.         {
45.             printf("          %c\t\t\t\t\t %d\n", s[i].c,
s[i].freq);
46.         }
47.     }
48.
49.     return 0;
50. }

```

Enter string: A quIck brOwn fox JumpEd over a lazy dOg
The string entered is: A quIck brOwn fox JumpEd over a lazy dOg

Character Frequency

a	3
b	1
c	1
d	2
e	2
f	1
g	1
i	1
j	1
k	1
l	1
m	1
n	1

o	4
p	1
q	1
r	2
u	2
v	1
w	1
x	1
y	1
z	1