

Practical C++ I

Aim:- To write a simple C++ program to find the maximum of two numbers using the if - else control structure

Code:-

```
#include <iostream.h>
#include <conio.h>
Void main()
{
    int a, b;
    Cout<<"Enter two numbers : ";
    Cin >>a>>b;
    if(a>b)
        Cout<<"Maximum number is :" <<a;
    else
        Cout<<"Maximum number is :" <<b;
}
```

Output:-

Enter two number :

45

90

maximum number is : 90

Practical no 02 (C++)

Aim:- Write a C++ program to initialize an array of 5 integers and calculate the sum of elements using a pointer

Code:-

```
#include <iostream.h>
#include <conio.h>
void main ()
{
    clrscr();
    int arr [5] = {10, 20, 30, 40, 50} ;
    int *ptr;
    int sum=0, i;
    ptr = arr;
    for(i=0; i<5; i++)
    {
        sum = sum + *(ptr+i);
    }
    cout << "Sum of array elements = " << sum;
    getch();
}
```

Output:-

Sum of array element = 150

Practical no 03 (C++)

Aim :- Write a C++ program to initialize an array of 10 integers and sort the array in ascending or descending order using the Bubble sort method :- Display the original and sorted list :-

Code :-

```
#include <iostream.h>
```

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

```
void main ()
```

```
{
```

```
clrscr();
```

```
int i, j, t, sort[10];
```

```
cout << "enter the array element";
```

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

```
{
```

```
cin >> sort[i];
```

```
}
```

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

```
{
```

```
for (j=10; j>0; j--)
```

```
{
```

```
if (sort[j-1] > sort[j])
```

```
{
```

```
    t = sort[j-1];
```

```
    sort[j-1] = sort[j];
```

```
    sort[j] = t;
```

```
}
```

```
}
```

```
}
```

```
Cout << "sorted array is" << endl;
```

```
for(i=0; i<10; i++)
    for(j=i+1; j<10; j++)
```

```
    cout << sort[i] << endl;
}
getch();
```

Output:-

Enter the array element.

2 5 3 8 27 15 17 14 97 106

Sorted array is

3

5

8

14

15

17

27

97

106

X

classmate about 50%

Practical no :- 04 (C++)

Aim:- Write a C++ program whether a given element belongs to a sorted array using the binary Search technique.

Code:-

```
#include <iostream.h>
#include <conio.h>
Void main ()
{
    clrscr ();
    int arr[10] = {5, 10, 15, 20, 25, 30, 35, 40, 45, 50};
    int low = 0, high = 9, mid, num, found = 0;
    cout << "enter number to search: ";
    cin >> num;
    while (low <= high)
    {
        mid = (low + high) / 2;
        if (arr[mid] == num)
        {
            found = 1;
            break;
        }
        else if (num < arr[mid])
        {
            high = mid - 1;
        }
        else
        {
            low = mid + 1;
        }
    }
}
```

1.5.20 : Random Loops

```

    srand();
    int i, j, num, found = 0;
    cout << "Enter number to search: ";
    cin >> num;
    for (i = 0; i < 10; i++) {
        cout << "Enter element " << i + 1 << ": ";
        cin >> arr[i];
        if (arr[i] == num) {
            cout << "The number " << num << " is found at position " << i + 1;
            found = 1;
        }
    }
    if (found == 0)
        cout << "The number " << num << " is not found in the array";
    getch();
}

```

~~Output:-~~

Enter number to search: 10
 the number 10 is found in the array.

Practical number : 05(C++)

Aim :- Write a C++ program to interchange (Swap) two numbers using a function with call by value.

```

: #include <iostream.h>
: #include <conio.h>
: void Swap (int a, int b)
{ int temp;
:   temp=a;
:   a=b;
:   b=temp;
:   cout<<"\n inside swap function (after swapping): \n";
:   cout<<"a = "<<a<<"\n";
:   cout<<"b = "<<b<<"\n";
: }
void main ()
{
: clrscr();
: int num1, num2;
: cout<<"enter first number : ";
: cin>>num1;
: cout<<"enter second number : ";
: cin>>num2;
: cout<<"\n before the calling swap function : \n";
: cout<<"num1 = "<<num1<<"\n";
: cout<<"num2 = "<<num2<<"\n";
: Swap (num1, num2);
: cout<<"\n after calling swap function : \n";
: cout<<"num1 = "<<num1<<"\n";
: cout<<"num2 = "<<num2<<"\n";
: getch();
}

```

Output:-

enter first number : 2
enter second number : 5

before calling Swap function:
num1 = 2
num2 = 5

inside swap function (after swapping):

a = 5
b = 2

after calling Swap function

num1 = 2
num2 = 5

Practical no 6 (C++)

Aim:- Write a C++ program to interchange two numbers using - defined function void swap().

```
#include <iostream.h>
#include <conio.h>
void Swap (int &a, int &b)
{
    int temp;
    temp = a;
    a = b;
    b = temp;
}
Void main()
{
    clrscr();
    int num1, num2;
    cout << "enter first number : ";
    cin >> num1;
    cout << "enter Second number : ";
    cin >> num2;
    cout << "\n before swapping : \n";
    cout << "num1 = " << num1 << "\n";
    cout << "num2 = " << num2 << "\n";
    Swap (num1, num2);
    cout << "\n after swapping : \n";
    cout << "num1 = " << num1 << "\n";
    cout << "num2 = " << num2 << "\n";
    getch();
}
```

Output:-

enter first number: 5

enter second number: 7

before swapping

num 1 = 5

num 2 = 7

after swapping

num 1 = 7

num 2 = 5

Practical no - 7 (C++)

Aim :- write a C++ program to initialize an array of 10 integers and verify whether a given number is present in the array or not using linear search.

```
#include <iostream.h>
#include <conio.h>
void main ()
{
    clrscr ();
    int arr [10] = {23, 45, 12, 78, 34, 89, 56, 10, 67, 90};
    int num, i, found=0;
    cout << "enter a number to search:" ;
    cin >> num;
    for (i=0; i<10; i++)
    {
        if (arr [i] == num)
        {
            found=1;
            break;
        }
    }
    if (found==1)
    {
        cout << "\n the number " << num << " is found in the array:" ;
    }
    else
    {
        cout << "\n the number " << num << " is not found in the array:" ;
    }
    getch();
}
```

Output:-

Enter a number to search : 10
the number 10 is found in the array.

Practical No. 08 (C++)

Aim:- Write a program in C++ to perform function overloading using two classes.

```
#include <iostream.h>
#include <conio.h>
class first
{
public:
    void show (int a)
    {
        cout << "First class - Number : " << a << "\n";
    }
    void show (int a, int b)
    {
        cout << "First class - Sum : " << a+b << "\n";
    }
};

class second
{
public:
    void display (char name [])
    {
        cout << "Second class - Name : " << name << "\n";
    }
    void display (char name [], int age)
    {
        cout << "Second class - Name : " << name << "Age : " << age << "\n";
    }
};

void main ()
{}
```

```
clrscr();  
first /:  
5seconds  
/ show(5,15);  
65. display ("john")  
5. display ("john",18);  
getch();  
}
```

Output

~~first class numbers : 10~~
~~first class number - sum~~
~~first class~~

Output :-
~~first class numbers : 10~~

~~First class - sum : 20~~

~~Second class name : John~~

~~Second class - name : John , age : 18.~~

Practical no :- 09 (C++)

Aim:- Write a C++ program to find the sum of first 100 numbers using a control structure.

```
#include <iostream.h>
```

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

```
Void main()
```

```
{
```

```
clrscr();
```

```
int i, sum = 0;
```

```
for (i=1; i<=100; i++)
```

```
{
```

```
sum = sum + i;
```

```
}
```

```
Cout << "The sum of first 100 natural numbers is : ",
```

```
Cout << "the sum of first 100 natural numbers is : " << sum;
```

```
getch();
```

```
}
```

Output

The sum of first 100 natural numbers is : 5050

Practical 10 (C++)

Aim:- Write a C++ program to convert temperature between Celsius and Fahrenheit.

```
#include <iostream.h>
#include <conio.h>
void main ()
{
    clrscr ();
    float celsius, fahrenheit;
    int choice;
    cout << "temperature conversion menu :\n";
    cout << "1. Celsius to Fahrenheit\n";
    cout << "2. Fahrenheit to Celsius\n";
    cout << "Enter your choice (1 or 2) : ";
    cin >> choice;
    if (choice == 1)
    {
        cout << "Enter temperature in Celsius : ";
        cin >> celsius;
        fahrenheit = (celsius * 9/5) + 32;
        cout << "\n temperature in Fahrenheit = " << fahrenheit;
    }
    else if (choice == 2)
    {
        cout << "Enter temperature in Fahrenheit : ";
        cin >> fahrenheit;
        celsius = (fahrenheit - 32) * 5/9;
        cout << "\n temperature in Celsius = " << celsius;
    }
}
```

```

{ cout << "invalid choice!" ;
} getch();
}

```

~~Output :-~~

temperature conversion menu:

1. Celsius to Fahrenheit

2. Fahrenheit to Celsius

enter your choice (1 or 2)

enter temperature in celsius : 45

temperature in fahrenheit = 113.

Practical II (C++)

Aim:- Write a C++ program to reverse a string.

```
#include <iostream.h>
#include <conio.h>
#include <string.h>
Void main()
{
    clrscr();
    char str[100];
    int len, i;
    cout << "Enter a string : ";
    cin >> str;
    len = strlen(str);
    cout << "Reversed string : ";
    for (i = len - 1; i >= 0; i--)
    {
        cout << str[i];
    }
    getch();
}
```

~~Output :-~~

Enter a string : RAM

reversed string : MAR

Practical No :- 12 (C++)

Aim:- Write a C++ program to find the GCD of two given numbers

```
#include <iostream.h>
#include <conio.h>
int find GCD (int a, int b)
{
    int temp;
    while (b != 0)
    {
        temp = b;
        b = a % b;
        a = temp;
    }
    return a;
}

void main ()
{
    clrscr ();
    int num1, num2, gcd;
    cout << "Enter first number : ";
    cin >> num1;
    cout << "Enter Second number : ";
    cin >> num2;
    gcd = find gcd (num1, num2);
    cout << "\nGCD of " << num1 << " and " << num2 << " is : " << gcd;
    getch ();
}
```

Practical No:-13 C++

Aim :- Write a program in C++ using OOP to create a class fib with constructor, destructor, and a member function void genfib(). Print a message when the object is created and when it is destroyed.

```
#include <iostream.h>
#include <conio.h>
class fib
{
public :
    fib()
    {
        cout << "Object is born\n";
    }
    void genfib()
    {
        int a=0, b=1, c, i;
        cout << "Fibonacci series (first 10 terms) : \n";
        cout << a << b << "\n";
        for (i=3; i <= 10; i++)
        {
            c = a+b;
            cout << c << "\n";
            a = b;
            b = c;
        }
        cout << "\n";
    }
    ~fib()
}
```

(++) Allocations

```
1 { operator() { cout << "Object is born" ; }
  2 cout << " " ; objects.push_back( object );
  3 }
  4 void main()
  5 {
  6     for( int i = 0 ; i < 10 ; i++ )
  7     {
  8         fib fib();
  9         fib.genfib();
10         fib.fetch();
11     }
12 }
```

X

Output:-

Object is born
fibonacci Series (first 10 terms)
0 1 1 2 3 5 8 13 21 34