**NIGER DELTA UNIVERSITY,**

***WILBERFORCE ISLAND, AMASSOMA BAYELSA STATE***

***P.M.B. 71***

**DEPARTMENT OF MATHEMATICS/COMPUTER SCIENCE**

**CMP 401 ORGANIZATION OF PROGRAMMING LANGUAGES CONTINIOUS ASSESMENT**

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1. Implementation of a binary search algorithm in c++ programming language.

Solution

##### ****Algorithm to perform Binary Search –****

1. Take input array, left, right & x
2. START LOOP – while(left greater than or equal to right)

- mid = left + (right-left)/2

- if(arr[mid]==x) then

- return m

- else if(arr[mid] less than x) then

- left = m + 1

- else

- right= mid – 1

**3**. END LOOP

**4**. return -1

##### ****C++ Program to Implement Binary Search**** ****–****

#include < iostream >using namespace std;int binarySearch(int arr[], int left, int right, int x) {while (left <= right) {int mid = left + (right - left) / 2;if (arr[mid] == x) {return mid;} else if (arr[mid] < x) {left = mid + 1;} else {right = mid - 1; } }

return -1;}int main() { int myarr[10]; int num; int output;cout << "Please enter 10 elements ASCENDING order" << endl;for (int i = 0; i < 10; i++) {

cin >> myarr[i]; }cout << "Please enter an element to search" << endl;cin >> num;output = binarySearch(myarr, 0, 9, num);if (output == -1) {cout << "No Match Found" << endl; } else {

cout << "Match found at position: " << output << endl; } return 0;}

**2.** Implementation of a sequential search in c++ Programming.

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| 1  2  3  4  5  6  7  8  9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24  25  26  27  28  29  30  31 | #include<iostream.h>  #include<conio.h>  main()  {  **int** arr1[5];  **int** req;  **int** location=-5;  cout<<"Enter 5 numbers to store in array: "<<endl;  **for**(**int** i=0; i<5; i++)  {  cin>>arr1[i];  }  cout<<endl;  cout<<"Enter the number you want to find :";  cin>>req;  cout<<endl;    **for**(**int** w=0;w<5;w++)  {  **if**(arr1[w] == req)  location=w;  }  **if**(location !=-5)  {  cout<<"Required number is found out at the location:"<<location+1;  cout<<endl;  }  **else**  cout<<"Number is not found ";  getch();  } |