**TITLE 18**

Write a C program for Binary search

**OBJECTIVE:**

By the end of this activity we will be able to Implement Binary search in C

**PROBLEM STATEMENT:**

In this problem we aim to input numbers in an array and find the element and its index. It requires input from the user:

**Enter the numbers:**

Once input data is collected and sorted, the elements are stored in an array

**ALGORITHM:**

START

Define variables: first,c,last,middle,n,search

INPUT: Read input from keyboard

COMPUTATION: All the elements are entered and an array is formed

DISPLAY: Print the element to search and its index

STOP

**PROGRAM:**

#include <stdio.h>

int main()  
{  
  int c, first, last, middle, n, search, array[1000];

  printf("Enter number of elements:**\n**");  
  scanf("%d", &n);

  printf("Enter the %d numbers**\n**", n);

  for (c = 0; c < n; c++)  
    scanf("%d", &array[c]);

  printf("Enter value to find**\n**");  
  scanf("%d", &search);

  first = 0;  
  last = n - 1;  
  middle = (first+last)/2;

  while (first <= last) {  
    if (array[middle] < search)  
      first = middle + 1;  
    else if (array[middle] == search) {  
      printf("%d found at location %d.**\n**", search, middle+1);  
      **break**;  
    }  
    else  
      last = middle - 1;

    middle = (first + last)/2;  
  }  
  if (first > last)  
    printf("Not found! %d isn't present in the list.**\n**", search);

  return 0;  
}

**CONCLUSION:**

The simulation of the above C program helped me to understand how Binary search is implemented in C.

**OUTPUT:**

Enter number of elements:

6

Enter the %d numbers:

-9

7

50

78

86

90

Enter value to find

50

50 found at location 3.