#Write a Program to search a number in given array using binary search

```
#include<stdio.h>
#include<conio.h>
void main()
{
   int arr[10] = {1,2,3,9,11,13,17,25,57,90};
   int mid, lower =0,upper=9, num , flag =1;
   printf("Enter the number to be search:");
   scanf("%d",&num);
   for(mid=(lower+upper)/2 ; lower<=upper; mid=(lower+upper)/2)
   {
      if(arr[mid]== num)
      {
         printf("The number is at position %d in the array.\n",mid);
         flag=0;
         break;
      }
      if(arr[mid]>num)
      {
         upper = mid-1;
            }
      else
      {
         lower = mid+1;
      }
   }
      if(flag)
      {
         printf("Element is not present in the array.\n");

      }

getch();
}
```

```
***** Search String using Binary Search*****


#include <stdio.h>                    //standard input output functions
#include<string.h>                     //console functions
#define max 20                           //define max as 20
void search(char [][20],int,char[]);        //search function
void main()                  //main function
{
    char string[max][20],t[20],word[20];        //variables
    int i, j, n;
    printf("Enter the number of words: \n");
    scanf("%d", &n);                              //getting number of words
    printf("Enter 5the words: \n");
    for (i = 0; i < n; i++)                    //entering words
            scanf("%s",string[i]);
    printf("Input words \n");                     //displaying the words
    for (i = 0; i < n; i++)
         printf("%s\n", string[i]);

    /*  sorting elements as for binary search elements should be sorted */
    for (i = 1; i < n; i++)
    {
      for (j = 1; j < n; j++)
      {                                              //if the previous string
is greater than next
          if (strcmp(string[j - 1], string[j]) > 0)
          {                                          //swap their positions
              strcpy(t, string[j - 1]);
              strcpy(string[j - 1], string[j]);
              strcpy(string[j], t);
          }
      }
   }
   printf("Enter the element to be searched: \n");
   scanf("%s",word);                                  //entering the word to
be searched
   search(string,n,word);                            //calling search function
}

/*  Binary searching begins */
void search(char string[][20],int n,char word[])
{
    int lb, mid, ub;
    lb = 0;                              //lower bound to 0
    ub = n;                              //upper bound to n
    do
    {
```

```
        mid = (lb + ub) / 2;             //finding the mid of the array
        if ((strcmp(word,string[mid]))<0)       //compare the word with mid
            ub = mid - 1;                          //if small then decrement
ub
        else if ((strcmp(word,string[mid]))>0)
            lb = mid + 1;                          //if greater then increment
lb
     /*repeat2 the process till lb doesn't becomes ub and string is found */
    } while ((strcmp(word,string[mid])!=0) && lb <= ub);
    if ((strcmp(word,string[mid]))==0)              //if string is found
          printf("SEARCH SUCCESSFUL \n");
    else                                           //if not found
          printf("SEARCH FAILED \n");
}
```