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#include <stdio.h>

void read(int arr[], int *limit)
{
    int i;
    printf("\nEnter number of elements:");
    scanf("%d", limit);

    printf("\nEnter elements in ascending order : ");
    for( i = 0; i < *limit; i++ )
        scanf("%d", &arr[i]);
}

int binarySearch(int arr[], int lower, int upper, int element)
{
    int mid;

    if (upper >= lower)
    {
        mid = lower + (upper - lower) / 2;

        if (arr[mid] == element)
            return mid;

        if (arr[mid] > element)
            return binarySearch(arr, lower, mid - 1, element);

        return binarySearch(arr, mid + 1, upper, element);
    }

    return -1;
}

void display(int arr[], int *limit)
{
    int i;

    if( *limit > 0 )
    {
        printf("\nThe array elements are: ");
        for( i = 0; i < *limit; i++ )
            printf("%d ", arr[i]);
    }
    else
        printf("\nArray is empty. Please call read option\n");
}

int main()
{
    int arr[10], element, result;
    int lowerlimit = 0, upperlimit = -1;
    int ch, e = 1;

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while( e )
{
    printf("\n-----MENU-----\n");
    printf("\n\t1. Read Elements\n\t2. Binary Search\n\t3. Display\n\t4. Exit\n");
    printf("\n-----\n");
    printf("Enter your choice:");
    scanf("%d", &ch);
    switch( ch )
    {
        case 1: read(arr, &upperlimit);
                break;
        case 2: if(upperlimit > 0)
                {
                    printf("\nEnter the element to search:");
                    scanf("%d",&element);
                    result = binarySearch(arr, lowerlimit, upperlimit, element);
                    /* Conditional operator is also known as a ternary operator in C */
                    (result == -1) ? printf("Element is not present in the array"):
printf("Element is present at the position %d",result + 1);
                }
                else
                    printf("\nArray is empty. Please call read option\n");
                break;
        case 3: display(arr, &upperlimit);
                break;
        case 4: e = 0;
                printf("\n Exiting from the program\n");
                break;
        default: printf("\nPlease enter valid choice\n");
    }
}

return 0;
}

```