

Report No: 1

Report Name: WAP to read a sorted array. Now search an item and if the item is not found then insert the item into sorted array.

Code:

```
#include <iostream>
using namespace std;

int main()
{
    int i, j, size, search, loc = -1, pos;
    cout << "Enter size of an array: ";
    cin >> size;
    int myArray[size];

    cout << "Note: Insert a sorted array";
    for (i = 0; i < size; i++)
    {
        cout << "\nEnter " << (i + 1) << " element: ";
        cin >> myArray[i];
    };

    cout << "\nEnter search item: ";
    cin >> search;

    for (i = 0; i < size; i++)
    {
        if (myArray[i] == search)
        {
            loc = i;
            cout << "Find " << search << " element in position: " << (loc + 1);
        }
        if (myArray[i] < search)
        {
            pos = i + 1;
        }
    }

    if (loc == -1)
    {
        cout << "\nNot found, Now we are insert this element ";
        if (pos <= size)
        {
            for (i = size; i >= pos; i--)
            {
                myArray[i + 1] = myArray[i];
            }
        }
    }
}
```

```

        myArray[pos] = search;

        cout << "\nInsert the item into sorted array. New array: ";
        for (int i = 0; i <= size; i++)
        {
            cout << myArray[i] << " ";
        }
        cout << endl;
    }
}
}

```

Input:

Enter size of an array: 4
 Note: Insert a sorted array
 Enter 1 element: 2
 Enter 2 element: 6
 Enter 3 element: 12
 Enter 4 element: 16
 Enter search item: 7

Output:

Not found, Now we are insert this element
 Insert the item into sorted array. New array: 2 6 7 12 16

Report No: 2

Report Name: WAP to search an element in an array using linear searching algorithm. If found then print the element with its position and if the element is not found then print search unsuccessful.

Code:

```

#include <iostream>
using namespace std;

int main()
{
    int i, j, size, search, loc = -1;
    cout << "Enter size of an array: ";
    cin >> size;
    int myArray[size];

    for (i = 0; i < size; i++)
    {
        cout << "\nEnter " << (i + 1) << " element: ";
        cin >> myArray[i];
    };
}

```

```

cout << "\nEnter search item: ";
cin >> search;

for (i = 0; i < size; i++)
{
    if (myArray[i] == search)
    {
        loc = i;
        cout << "Find " << search << " element in position: " << (loc + 1);
    }
}

if (loc == -1)
{
    cout << "Search is unsuccessful ";
    myArray[size] = search;
}
}

```

Input:

Enter size of an array: 4

Enter 1 element: 26

Enter 2 element: 35

Enter 3 element: 14

Enter 4 element: 65

Enter search item: 14

Output:

Find 14 element in position: 3

Report No: 3

Report Name: WAP to sort data element(descending order) in an array. Now search and item using binary search algorithm . If item found then show a message "Search is successful. If not then print "Item isn't found"

Code:

```

#include <iostream>
using namespace std;

int main()
{
    int i, j, size, search;
    cout << "Enter size of an array: ";
    cin >> size;
    int myArray[size];

```

```

for (i = 0; i < size; i++)
{
    cout << "\nEnter " << (i + 1) << " element: ";
    cin >> myArray[i];
};

for (i = 0; i < size; i++) {
    for (j = 0; j < size - 1; j++)
    {
        if (myArray[j] < myArray[j + 1])
        {
            int temp = myArray[j + 1];
            myArray[j + 1] = myArray[j];
            myArray[j] = temp;
        }
    }
}

cout << "Descending order: ";
for (i = 0; i < size; i++)
{
    cout << myArray[i] << " ";
}

cout << "\nEnter search item: ";
cin >> search;

int loc = -1 , beg = 0 , end = size-1;
int mid = (beg + end)/2;

while(beg <= end){
    if(myArray[mid] == search){
        loc = mid;
        cout << "index: " << loc << " Search Value: " << search;
        break;
    }else if(myArray[mid] < search){
        end = mid - 1;
    }else if( myArray[mid] > search){
        beg = mid + 1;
    }
    mid = (beg + end)/2;
}
if(loc == -1){
    cout << "Result not found";
}
}

```

Input:

Enter size of an array: 4

Enter 1 element: 65

Enter 2 element: 14

Enter 3 element: 2

Enter 4 element: 98

Descending order: 98 65 14 2

Enter search item: 5

Input:

Result not found