Arrays

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1.Read and print array elements

- **create a number array of length 6**
- **take input from user (6 int values)**
- **save it in the number array**
- **display the content of number array**

a) #include<stdio.h>

```
int main(){

int a[]={32,53,4,8,2,1};

int i;

int size=sizeof(a)/sizeof(a[0]);


printf("Elements are : ");

for(i=0;i<size;i++){

printf("%d\t",a[i]);

}

return 0;

}
```

Output:

Elements are : 32 53 4 8 2 1

Process returned 0 (0x0)   execution time : 0.538 s

Press any key to continue.

b) #include<stdio.h>

```
int main(){
int n,i;

printf("Enter number of array elements : ");
scanf("%d",&n);
int arr[n];

printf("Enter elements: ");
for(i=0;i<n;i++){
scanf("%d",&arr[i]);
}

printf("Elements are : ");
for(i=0;i<n;i++){
printf("%d\t",arr[i]);
}
return 0;
}
```

Enter number of array elements : 5

Enter elements: 23 43 23 12 43

Elements are : 23 43 23 12 43

Process returned 0 (0x0) execution time : 8.200 s

Press any key to continue.

2.Search element in array (linear)

- **create a number array of length 10 and hardcode the values**
- **ask question to user to enter search element**
- **if the search element is available in the list then show each instance of the element and the index of that element**
- **if the search element is not present then show element not found**

```
#include<stdio.h>


int main() {
   int a[10] = {1, 2, 3, 4, 5, 6, 7, 8, 9, 10};
   int found = 0, search_element;


   printf("Array elements are : ");
   for(int i = 0; i < 10; i++){
      printf("%d ", a[i]);
   }
```

```
    printf("\nEnter element to search: ");
    scanf("%d", &search_element);

    for(int i = 0; i < 10; i++) {
        if(a[i] == search_element) {
            found = 1;
            break;
        }
    }

    if(found) {
        printf("Element found\n");
    } else {
        printf("Element not found\n");
    }

    return 0;
}
```

Output:

```
Array elements are : 1 2 3 4 5 6 7 8 9 10
Enter element to search: 56
Element not found
```

Array elements are : 1 2 3 4 5 6 7 8 9 10

Enter element to search: 5

Element found

3.Merge two sorted arrays

- **take 2 sorted arrays**
- **calculated the length of each array using sizeof() feature**
- **create a new array with size = length of array1 +**

  length of array 2
- **merge the 2 array in this new array such that the elements in this new array should be in sorted manner.**
- **Example:**
- **Array1 = 1, 5, 8, 26, 65, 100.**
- **Array2 = 3, 40, 55, 60, 78, 162.**
- **Array3 = 1,3,5,26,55,60,65,78,100,162. (Answer)**

```
#include<stdio.h>


int main() {
   int a[] = {1, 5,8,26,65,100};
   int b[] = {3,40,55,60,162};


   int s1=sizeof(a)/sizeof(a[0]);
   int s2=sizeof(b)/sizeof(b[0]);
```

```
int c[s2+s1];

int i=0,j=0,k=0;

while(i<s1 && j<s2){
        if(a[i] < b[j]){
            c[k++]=a[i++];

        }
        else {
            c[k++]=b[j++];
        }
}

while(i<s1) c[k++]==a[i++];
while(i<s2) c[k++]==b[j++];

printf("merged and sorted array is : ");
for(i=0;i<s1+s2;i++){
    printf("%d\t",c[i]);
}
```

```
    return 0;
}
```

Output:

```
merged and sorted array is : 1  3       5       8       26      40      55      60      65      100
162
```