

Week : 2.01.24 - 9.01.24

13. Maximum and minimum number :

```
#include <stdio.h>
#include <conio.h>

int main()
{
    int a[1000],i,n,min,max;

    printf("Enter size of the array : ");
    scanf("%d",&n);

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

    min=max=a[0];
    for(i=1; i<n; i++)
    {
        if(min>a[i])
            min=a[i];
        if(max<a[i])
            max=a[i];
    }
    printf("minimum of array is : %d",min);
    printf("\nmaximum of array is : %d",max);

    return 0;
}
```

14. Third largest element:

```
#include<stdio.h>
void thirdLargest(int arr[],int arr_size);
int main()
{
```

```

int n,a[1000],i;
scanf("%d",&n);
for(i=0;i<n;i++)
{
    scanf("%d",&a[i]);
}
thirdLargest(a,n);
return 0;
}
void thirdLargest(int arr[],int arr_size)
{
    int i,j,temp;
    for(i=0;i<arr_size-1;i++)
    {
        for(j=0;j<arr_size-i-1;j++)
        {
            if(arr[j]>arr[j+1])
            {
                temp=arr[j];
                arr[j]=arr[j+1];
                arr[j+1]=temp;
            }
        }
    }
    printf("The third Largest element is %d",arr[arr_size-3]);
}

```

16. Search Elements in array :

```

#include <stdio.h>
int main()
{
    int arr[50],i,n,ele;
    printf("enter the size of array:");
    scanf("%d",&n);
    printf("elements in array:");
    for(i=0;i<n;i++)
    {
        scanf("%d",&arr[i]);
    }
    printf("enter element to search:");
    scanf("%d",&ele);
    for(i=0;i<n;i++)

```

```

{
    if(arr[i]==ele)
    {
        printf("%d found at position %d",ele,i+1);
        return 0;
    }
}
printf("element not found");
}

```

17. Missing numbers:

```

#include <stdio.h>
void findMissing(int arr[], int N)
{
    int temp[N + 1];

    for (int i = 0; i <= N; i++) {

        temp[i] = 0;

    }

    for (int i = 0; i < N; i++) {

        temp[arr[i] - 1] = 1;

    }

    int ans;

    for (int i = 0; i <= N; i++) {

        if (temp[i] == 0)

            ans = i + 1;

    }

    printf("%d", ans);
}
int main()
In{

```

```

int arr[] = { 1, 3, 7, 5, 6, 2 };

int n = sizeof(arr) / sizeof(arr[0]);

findMissing(arr, n);
}

```

18. Repeated numbers:

```

#include<stdio.h>

void main()
{
    int i,arr[50],j,no;

    printf("Enter size of array: ");
    scanf("%d",&no);
    printf("Enter any %d elements in array: ",no);
    for(i=0;i<no;i++)
    {
        scanf("%d",&arr[i]);
    }
    printf("Duplicate elements are: ");
    for(i=0; i<no; i++)
    {
        for(j=i+1;j<no;j++)
        {
            if(arr[i]==arr[j])
            {
                printf("%d\n",arr[i]);
            }
        }
    }
}

```

19. Sort 0s 1s 2s

```

#include <stdio.h>

void swap(int* a, int* b);

```

```
void sort012(int a[], int arr_size)
{
    int lo = 0;

    int hi = arr_size - 1;

    int mid = 0;

    while (mid <= hi) {
        switch (a[mid]) {

            // If the element is 0

            case 0:

                swap(&a[lo++], &a[mid++]);

                break;

            // If the element is 1

            case 1:

                mid++;

                break;

            // If the element is 2

            case 2:

                swap(&a[mid], &a[hi--]);

                break;

        }
    }
}
```

```

void swap(int* a, int* b)
{
    int temp = *a;

    *a = *b;

    *b = temp;
}

```

```

void printArray(int arr[], int arr_size)
{
    int i;

    for (i = 0; i < arr_size; i++)

        printf("%d ", arr[i]);
}

```

```

int main()
{
    int arr[] = { 0, 1, 1, 0, 1, 2, 1, 2, 0, 0, 0, 1 };

    int arr_size = sizeof(arr) / sizeof(arr[0]);

    int i;

    sort012(arr, arr_size);

    printArray(arr, arr_size);

    getchar();

    return 0;
}

```

20. Numbers are same or not:

```

include <stdio.h>
int main()
{
    int n1, n2, i, j, count = 0;
    printf("enter size of array 1 : ");
    scanf("%d",&n1);
    int arr1[n1];
    printf("enter elements of array 1 : ");
    for(i=0; i<n1; i++)
    {
        scanf("%d",&arr1[i]);
    }
    printf("enter size of array 2 : ");
    scanf("%d",&n2);
    int arr2[n2];
    printf("enter elements of array 2 : ");
    for(i=0; i<n2; i++)
    {
        scanf("%d",&arr2[i]);
    }
    for(i=0; i<n1; i++)
    {
        for(j=0; j<n2; j++)
        {
            if(arr1[i]==arr2[j])
            {
                count++;
                break;
            }
        }
    }
    if((count==n1)&&(count==n2))
    {
        printf("Arrays are same");
    }
    else
    {
        printf("Arrays are not same");
    }
    return 0;
}

```

21. Rotate by 1

```
include<stdio.h>

int main()
{
    int arr[] = { 10, 20, 30, 40, 50, 60, 70};
    int n = sizeof(arr)/sizeof(arr[0]);
    int k = 3;

    int temp[k];
    for(int i=0; i<k; i++)
        temp[i] = arr[i];

    int x = k;
    for(int i=0; x < n; i++){
        arr[i] = arr[x++];
    }
    x = 0;

    for(int i=n-k; i<n; i++)
        arr[i] = temp[x++];
    for (int i = 0; i < n; i++)
        printf("%d ", arr[i]);

    return 0;
}
```

22. Rotate by k

```
#include <stdio.h>

void rotateArray(int arr[], int n, int k) {
    // Create a temporary array to store rotated elements
    int temp[k];

    // Store the last k elements in the temporary array
    for (int i = 0; i < k; i++) {
        temp[i] = arr[n - k + i];
    }

    // Shift the remaining elements to the right
```



```

    for (int i = n - 1; i >= k; i--) {
        arr[i] = arr[i - k];
    }

    // Copy the temporary array elements to the beginning of the array
    for (int i = 0; i < k; i++) {
        arr[i] = temp[i];
    }
}

int main() {
    int n, k;

    printf("Enter the size of the array: ");
    scanf("%d", &n);

    int arr[n];

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

    printf("Enter the number of positions to rotate by: ");
    scanf("%d", &k);

    // Rotate the array
    rotateArray(arr, n, k);

    // Print the rotated array
    printf("Rotated array:\n");
    for (int i = 0; i < n; i++) {
        printf("%d ", arr[i]);
    }

    return 0;
}

```

21.b Rotate array by 1

```

#include <stdio.h>
void rotate(int arr[], int n)
{

```

```
// store the last element in a variable

int last_el = arr[n - 1];

for (int i = n - 1; i > 0; i--)

    arr[i] = arr[i - 1];

// assign the last element to first element

arr[0] = last_el;
}
```

```
int main()
{

    int arr[] = { 1, 2, 3, 4, 5 }, i;

    int n = sizeof(arr) / sizeof(arr[0]);

    printf("Given array is\n");

    for (i = 0; i < n; i++)

        printf("%d ", arr[i]);
    rotate(arr, n);
    printf("\nRotated array is\n");

    for (i = 0; i < n; i++)

        printf("%d ", arr[i]);

    return 0;
}
```