

Assignment - (5)

- ① write a function to find the greatest number from the given array of any size (TSRS)

```
#include <stdio.h>
int fun (int [], int);
int main()
{
    int a[20], b;
    printf("Enter size of array");
    scanf("%d", &b);
    printf("Greatest number is = %d", fun(a, b));
    return 0;
}

int fun(int b[], int n)
{
    int i;
    printf("enter %d numbers\n", n);
    for (i=0; i<n; i++)
    {
        scanf("%d", &b[i]);
        if (b[0] < b[i])
        {
            b[0] = b[i];
        }
    }
    return b[0];
}
```

- ② write a program function to find the smallest number from the given array of any size (TSRS)

```
#include <stdio.h>
int fun (int [], int);
int main()
{
    int a[20], b;
    printf("Enter size of array");
    scanf("%d", &b);
    printf("Greatest number is = %d", fun(a, b));
    return 0;
}

int fun(int b[], int n)
{
    int i;
    printf("enter %d number\n", n);
    for (i=0; i<n; i++)
    {
```

```

scanf("%d", &b[i]);
if (b[0] > b[i])
{
    b[0] < b[i];
}
}
return 0;
}

```

③ write a function to sort an array of any size (TSRS)

```

#include <stdio.h>
int fun(int [], int);
int main()
{
    int a[20], b, i;
    printf("enter size of array = ");
    scanf("%d", &b);
    a[b] = fun(a, b);
    for (i = 0; i < b; i++)
        printf("%d", a[i]);
    return 0;
}

int fun(int b[], int n)
{
    int i, j, t;
    printf("enter %d number\n", n);
    for (i = 0; i < n; i++)
    {
        scanf("%d", &b[i]);
    }
    for (i = 1; i < n; i++)
    {
        for (j = 0; j < n - i; j++)
        {
            if (b[j] > b[j+1])
            {
                t = b[j+1];
                b[j+1] = b[j];
                b[j] = t;
            }
        }
    }
    return b[j];
}

```

④ write a program function to rotate an array by n position in d direction. The d is an indicative of value left or Right

```
#include <stdio.h>
#define RIGHT 1
#define LEFT 0
void input(int[], int);
void rotate(int a[], int, int, int);
void display(int[], int);
int i;
int main()
{
    int a[10], n, ROT;
    printf("Enter a number of array = ");
    scanf("%d", &n);
    input(a, n);
    printf("Enter the number of rotation = ");
    scanf("%d", &ROT);
    rotate(a, n, RIGHT, ROT);
    display(a, n);
}

void input(int a[], int n)
{
    printf("Enter %d numbers of array - \n", n);
    for (i = 0; i < n; i++)
        scanf("%d", &a[i]);
}

void rotate(int a[], int n, int dir, int shift-count)
{
    int temp, i;
    if (dir == RIGHT)
    {
        while (shift-count)
        {
            temp = a[n-1];
            for (i = n-1; i > 0; i--)
            {
                a[i] = a[i-1];
            }
            a[0] = temp;
            shift-count--;
        }
    }
    else
    {
        while (shift-count)
        {
            temp = a[0];
            for (i = 0; i < n-1; i++)
            {
                a[i] = a[i+1];
            }
            a[n-1] = temp;
            shift-count--;
        }
    }
}

void display(int a[], int n)
{
    for (i = 0; i < n; i++)
        printf("%d ", a[i]);
}
```

5) write a function to find the first occurrence of adjacent duplicate value in the array -
 Function has no return the value of the element.

```
#include <stdio.h>
void duplicate(int[], int);
void input(int[], int);
int i;
int main()
{
    int a[20], n;
    printf("Enter the size of array = ");
    scanf("%d", &n);
    input(a, n);
    printf("First occurrence of adjacent duplicate value in the array is = %d", duplicate(a, n));
    return 0;
}

void input(int a[], int n)
{
    printf("Enter the value of %d array - \n", n);
    for (i = 0; i < n; i++)
        scanf("%d", &a[i]);
}

int duplicate(int a[], int n)
{
    int j;
    for (i = 0; i < n - 1; i++)
    {
        for (j = i + 1; j < n; j++)
        {
            if (a[i] == a[j])
                return a[i];
        }
    }
    if (n - 1 == i)
        return 0;
}
```

6) write a function in C to read n number of value in an array and display it in reverse order.

```
#include <stdio.h>
void input(int[], int);
void reverse(int[], int);
void display(int[], int);
int i;
int main()
{
    int a[20], n;
    printf("Enter the number of array = ");
    scanf("%d", &n);
    input(a, n);
    reverse(a, n);
    display(a, n);
    return 0;
}

void input(int b[], int m)
{
    printf("Enter %d number of array (n, m);", m);
    for (i = 0; i < m; i++)
        scanf("%d", &b[i]);
}
```

```
void reverse(int b[], int m)
{
    int x;
    for (i = 0; i < m / 2; i++)
    {
        x = b[m - 1 - i];
        b[m - 1 - i] = b[i];
        b[m - 1 - i] = b[i];
        b[i] = x;
    }
}

void display(int b[], int m)
{
    printf("After reverse array is = ");
    for (i = 0; i < m; i++)
        printf("%d", b[i]);
    return 0;
}
```

7) write a function in c to count a total number of duplicate elements in an array.

```
#include <stdio.h>
void input (int[], int);
int duplicate (int[], int);
int duplicate (int a[], int n)
{
    int i, j, d = 0;
    for (i = 0; i < n - 1; i++)
    {
        for (j = i + 1; j < n; j++)
        {
            if (a[i] == a[j])
            {
                d++;
                break;
            }
        }
    }
    return d;
}
void input (int a[], int n)
{
    int i;
    printf("Enter %d numbers - \n", n);
    for (i = 0; i < n; i++)
    {
        scanf("%d", &a[i]);
    }
}
int main()
{
    int a[20], n;
    printf("Enter size of array = ");
    scanf("%d", &n);
    input(a, n);
    printf("All duplicate element in this array is = %d", duplicate(a, n));
    return 0;
}
```

```
int a[20], n;
printf("Enter size of array = ");
scanf("%d", &n);
input(a, n);
printf("All duplicate element in this array is = %d", duplicate(a, n));
return 0;
}
```

8) write a function in c to print all unique elements in an array.

```
#include <stdio.h>
void input (int[], int, int[]);
void unique (int[], int, int[]);
int main()
{
    int n, a[20], arr[20];
    printf("Enter the size of array = ");
    scanf("%d", &n);
    input(a, n, arr);
    unique(a, n, arr);
    return 0;
}
void input (int a[], int n, int arr[])
{
    int i;
    printf("Enter %d number - \n", n);
    for (i = 0; i < n - 1; i++)
    {
        scanf("%d", &a[i]);
        arr[i] = 1;
    }
}
void unique (int a[], int n, int arr[])
{
    int i, j;
    printf("All unique element in this array is = ");
    for (i = 0; i < n - 1; i++)
    {
        if (arr[i] == 0)
        {
            printf("%d", a[i]);
        }
    }
    return 0;
}
```

```
{
    continue;
}
for (j = i + 1; j < n - 1; j++)
{
    if (a[i] == a[j])
    {
        arr[i] = arr[j] = 0;
    }
}
if (arr[i] == 0)
{
    printf("%d", a[i]);
}
}
return 0;
}
```


Q) write a function in C to merge two arrays of the same size sorted in descending order.

```
#include <stdio.h>
void input1(int[], int);
void input2(int[], int);
int merge(int[], int[], int[], int, int);
void sorted(int[], int);
int i;
int main()
{
    int n1, n2, a[20], b[20], c[40], n3, n1x;
    printf("Enter the size of 1'st array = ");
    scanf("%d", &n1);
    input1(a, n1);
    printf("Enter the size of 2'nd array = ");
    scanf("%d", &n2);
    n3 = n1 + n2;
    input2(b, n2);
    merge(a, b, c, n2, n3);
    sorted(c, n3);
    return 0;
}

void input1(int a[], int n1)
{
    printf("Enter %d numbers for 1'st array | n1, n1);
    for (i = 0; i < n1; i++)
        scanf("%d", &a[i]);
}

int merge(int a[], int b[], int c[], int n2, int n3)
{
    int j, l;
    int k = 0;
    for (i = 0; i < n3; i++)
        if (i > n2 - 1)
        {
            c[i] = a[k];
            k++;
        }
        else
        {
            c[i] = b[i];
        }
    return c[i];
}

void sorted(int c[], int n3)
{
    int j, l;
    printf("After merging two arrays of the same size sorted in descending order is - | n");
    for (i = 1; i < n3; i++)
    {
        for (j = 0; j < n3 - i; j++)
        {
            if (c[j] < c[j+1])
            {
                l = c[j];
                c[j] = c[j+1];
                c[j+1] = l;
            }
        }
    }
}
```

for (j = 0; j < n3; j++)
printf("%d", c[j]);

(16) write a function in C to count the frequency of each element of an array.

```
#include <stdio.h>
void input(int[], int);
void frequency(int[], int[], int);
void output(int[], int[], int n);
int i;
int main()
{
    int n, a[20], b[20];
    printf("Enter the size of array = ");
    scanf("%d", &n);
    input(a, n);
    frequency(a, b, n);
    output(a, b, n);
    return 0;
}

void input(int a[], int n)
{
    printf("Enter %d number\n", n);
    for (i = 0; i < n; i++)
    {
        scanf("%d", &a[i]);
    }
}

void frequency(int a[], int b[], int n)
{
    int j;
    for (i = 0; i < n; i++)
    {
        int c = 1;
        if (a[i] != -1)
        {
            for (j = i + 1; j < n; j++)
            {
                if (a[i] == a[j])
                {
                    c++;
                    a[j] = -1;
                }
            }
            b[i] = c;
        }
    }
}

void output(int a[], int b[], int n)
{
    for (i = 0; i < n; i++)
    {
        if (a[i] != -1)
        {
            printf("Number %d is = %d\n", a[i], b[i]);
        }
    }
}
```