Assignment – 8 || Arrays Using Function

Arjun Patel – FRN006

Q)Find max and min element in array

```c
#include <stdio.h>

void storeArr(int *arr, int size)
{
    for (int i = 0; i < size; i++)
    {
        printf("Enter value for index %d: ", i);
        scanf("%d", &arr[i]);
    }
}

void printArr(int arr[], int size)
{
    printf("[ ");
    for (int i = 0; i < size; i++)
    {
        printf("%d ,", arr[i]);
    }
    printf("\b ]");
}

int findMinInArr(int arr[], int size)
{
    int min = arr[0];
    for (int i = 0; i < size; i++)
    {
        if (arr[i] < min)
            min = arr[i];
    }
    return min;
}

int findMaxInArr(int arr[], int size)
{
    int max = arr[0];
```

```c
    for (int i = 0; i < size; i++)
    {
        if (arr[i] > max)
            max = arr[i];
    }
    return max;
}

// int *findMaxNMinEle(int arr[], int size)
// {
//     int maxMinArr[2];
//     for (int i = 0; i < size; i++)
//     {
//         int max = arr[0], min = arr[0];
//         if (arr[i] < min)
//         {
//             maxMinArr[0] = arr[i];
//         }
//         if (arr[i] > max)
//         {
//             maxMinArr[1] = arr[i];
//         }
//     }
//     return maxMinArr;
// }

int main()
{
    int n;
    printf("\nEnter the size of array\n");
    scanf("%d", &n);

    int arr[n];
    storeArr(arr, n);
    printArr(arr, n);

    printf("\nLargest number in array is %d\n", findMaxInArr(arr,
n));
    printf("Smallest number in array is %d\n", findMinInArr(arr,
n));

    return 0;
```

```
}
```

```
Enter the size of array
5
Enter value for index 0: 10
Enter value for index 1: 20
Enter value for index 2: -25
Enter value for index 3: 46
Enter value for index 4: 0
[ 10 ,20 ,-25 ,46 ,0  ]
Largest number in array is 46
Smallest number in array is -25
```

Q)Search given number in array

```c
#include <stdio.h>

void storeArr(int *arr, int size)
{
    for (int i = 0; i < size; i++)
    {
        printf("Enter value for index %d: ", i);
        scanf("%d", &arr[i]);
    }
}

int searchInArray(int arr[], int size, int num)
{
    for (int i = 0; i < size; i++)
        if (arr[i] == num)
            return i;
    return -1;
}

int main()
{
    int n;
    printf("Enter the size of an array:\n");
    scanf("%d", &n);

    int arr[n], searchNum;
    storeArr(arr, n);
    printf("\nEnter a number u want to search in array\n");
    scanf("%d", &searchNum);
```

```
    int res = searchInArray(arr, n, searchNum);

    res==-1 ? printf("Number not found in array\n") : printf("%d
found at index %d",searchNum, res);

    return 0;
}
```

```
Enter the size of an array:
5
Enter value for index 0: 10
Enter value for index 1: 20
Enter value for index 2: 30
Enter value for index 3: 15
Enter value for index 4: 25

Enter a number u want to search in array
15
15 found at index 3
```

Q3)Find sum of all elements of array using function

```
#include<stdio.h>

int storeNSum(int arr[], int size){
    int sum = 0;
    for (int i = 0; i < size; i++)
    {
        printf("Enter the value at index %d: ", i);
        scanf("%d", &arr[i]);
        sum += arr[i];
    }
    return sum;
}

int main(){
    int n;
    printf("Enter the size of an array:\n");
    scanf("%d", &n);

    int arr[n];

    printf("Sum of all elements of array is %d", storeNSum(arr,n));
    return 0;
}
```

```
Enter the size of an array:
4
Enter the value at index 0: 1
Enter the value at index 1: 2
Enter the value at index 2: 3
Enter the value at index 3: 4
Sum of all elements of array is 10
```

Q4)Print odd and even numbers in array

```c
#include<stdio.h>

void storeArr(int *arr, int size)
{
    for (int i = 0; i < size; i++)
    {
        printf("Enter value for index %d: ", i);
        scanf("%d", &arr[i]);
    }
}

void printOddEven(int arr[], int size){
    printf("\n--------Even Nums in Array-------\n");
    for (int  i = 0; i < size; i++)
        !(arr[i]%2) && printf("%d ", arr[i]);

    printf("\n--------Odd Nums in Array-------\n");
    for (int  i = 0; i < size; i++)
        arr[i]%2 && printf("%d ", arr[i]);
}

int main(){
    int n;
    printf("Enter the size of an array:\n");
    scanf("%d", &n);

    int arr[n];
    storeArr(arr, n);
    printOddEven(arr, n);

    return 0;
}
```

```
Enter the size of an array:
6
Enter the value at index 0: 1
Enter the value at index 1: 2
Enter the value at index 2: 3
Enter the value at index 3: 4
Enter the value at index 4: 5
Enter the value at index 5: 6
--------Even Nums in Array-------
2 4 6
--------Odd Nums in Array-------
1 3 5
```

Q5) Print Alternate Numbers in array

```c
#include<stdio.h>

void storeArr(int *arr, int size)
{
    for (int i = 0; i < size; i++)
    {
        printf("Enter value for index %d: ", i);
        scanf("%d", &arr[i]);
    }
}

void printAlternate(int arr[], int size){
    for (int i = 0; i < size; i=i+2)
    {
        printf("%d ", arr[i]);
    }
}

int main(){
    int n;
    printf("Enter the size of an array:\n");
    scanf("%d", &n);

    int arr[n];
    storeArr(arr, n);
    printAlternate(arr, n);
    return 0;
}
```

```
189e0853Enter the size of an array:
5
Enter value for index 0: 10
Enter value for index 1: 20
Enter value for index 2: 30
Enter value for index 3: 40
Enter value for index 4: 50
10 30 50
```

Q6) Print prime nums in array

```c
#include <stdio.h>

void checkPrime(int arr[], int size)
{
    for (int i = 0; i < size; i++)
    {
        if(arr[i]==1) continue;

        int isPrime = 1;
        for (int j = 2; j * j <= arr[i]; j++)
        {
            if (arr[i] % j == 0)
            {
                isPrime = 0;
                break;
            }
        }
        isPrime && printf("%d ", arr[i]);
    }
}

int main()
{
    int n;
    printf("Enter the size of an array:\n");
    scanf("%d", &n);

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

    checkPrime(arr, n);

    return 0;
}
```

```
Enter the size of an array:
6
Enter the value at index 0: 10
Enter the value at index 1: 12
Enter the value at index 2: 11
Enter the value at index 3: 14
Enter the value at index 4: 13
Enter the value at index 5: 29
11 13 29
```

Q7) Take two array and add sum in third array

Ex. Arr[5] = {1,2,3,4,5}

Brr[5] = {10,20,30,40,50}

Crr[5] = {11,22,33,44,55}

```c
/*
7. Take two array and add sum in third array
Examplearr[
5]= {1,2, 3, 4,5}
brr[5]={10,20,30, 40, 50}
crr[5]={11,22,33,44,55}
*/

#include<stdio.h>

void storeArr(int arr[], int size){
    for (int i = 0; i < size; i++)
    {
        printf("Enter the value at index %d: ", i);
        scanf("%d", &arr[i]);
    }
}

void findSum(int arr[], int brr[], int size){
    int crr[size];
    for (int i = 0; i < size; i++)
    {
        crr[i] = arr[i]+ brr[i];
        printf("%d ", crr[i]);
    }

}

int main(){
    int n;
    printf("Enter the size of an array:\n");
    scanf("%d", &n);

    int arr[n], sum = 0;

    //taking arr 1 from user
    printf("------Array 1 - arr --------\n");
    storeArr(arr,n);

    int brr[n], crr[n];

    //taking brr (2) from user
    printf("------Array 2 - brr --------\n");
    storeArr(brr,n);

    //find sum and adding in crr in respective element
    findSum(arr,brr, n);
    return 0;
}
```

```
1768bEnter the size of an array:
3
------Array 1 - arr --------
Enter the value at index 0: 10
Enter the value at index 1: 20
Enter the value at index 2: 30
------Array 2 - brr --------
Enter the value at index 0: 5
Enter the value at index 1: 10
Enter the value at index 2: 15
15 30 45
```

Q8)Merge Two arrays

```c
#include<stdio.h>

void storeArr(int arr[], int size){
    for (int i = 0; i < size; i++)
    {
        printf("Enter the value at index %d: ", i);
        scanf("%d", &arr[i]);
    }
}
void displayArr(int arr[], int size){
    for (int i = 0; i < size; i++)
    {
        printf("%d ", arr[i]);
    }
}

void mergeArr(int arr1[], int size1, int arr2[], int size2, int arr3[]){
    for (int i = 0; i < size1+size2 ; i++)
    {
        arr3[i] = i<size1 ? arr1[i] : arr2[i-size1];
    }
}

int main(){
    int n1;
    printf("Enter the size of an array1:\n");
    scanf("%d", &n1);

    int arr1[n1];

    //taking arr 1 from user
    printf("-----Enter values for Array 1-----\n");
    storeArr(arr1, n1);

    int n2;
    printf("Enter the size of an array1:\n");
    scanf("%d", &n2);

    int arr2[n2], n3 = n1+n2;

    //taking arr 2 from user
    printf("-----Enter values for Array 2-----\n");
    storeArr(arr2,n2);
```

```
    int arr3[n3];
    //adding values from arr1 to arr3
    mergeArr(arr1, n1, arr2, n2, arr3);


    //printing arr3
    displayArr(arr3, n3);

    return 0;
}
```

```
Enter the size of an array1:
3
-----Enter values for Array 1-----
Enter the value at index 0: 1
Enter the value at index 1: 2
Enter the value at index 2: 3
Enter the size of an array1:
4
-----Enter values for Array 2-----
Enter the value at index 0: 10
Enter the value at index 1: 20
Enter the value at index 2: 30
Enter the value at index 3: 40
1 2 3 10 20 30 40
```

Q)Reverse an array

```c
#include <stdio.h>

void displayArr(int arr[], int size)
{
    for (int i = 0; i < size; i++)
        printf("%d ", arr[i]);
}

void storeArr(int arr[], int size)
{
    for (int i = 0; i < size; i++)
    {
        printf("Enter the value for index %d: ", i);
        scanf("%d", &arr[i]);
    }
}

void reverseArray(int arr[], int n)
{
    for (int i = 0; i <= n / 2; i++)
    {
        int temp = arr[i];       // 1 2
        arr[i] = arr[n - i - 1]; // a[0] = a[3-0-1] = a[2] = 3 2
        arr[n - i - 1] = temp;   // a[2] = temp = 1 2
```

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

int main()
{
    int n;
    printf("Enter the size of an array:\n");
    scanf("%d", &n);

    int arr[n];

    // taking arr from user
    printf("-----Enter values for Array 1-----\n");
    storeArr(arr, n);

    // reverse array
    reverseArray(arr, n);

    // printing array
    displayArr(arr, n);

    return 0;
}
```

```
CEnter the size of an array:
4
-----Enter values for Array 1-----
Enter the value for index 0: 1
Enter the value for index 1: 23
Enter the value for index 2: 2
Enter the value for index 3: 45
45 23 2 1
```

Q)Sort array using function

```
#include <stdio.h>

void displayArr(int arr[], int size)
{
    for (int i = 0; i < size; i++)
        printf("%d ", arr[i]);
}

void storeArr(int arr[], int size)
{
    for (int i = 0; i < size; i++)
    {
        printf("Enter the value for index %d: ", i);
        scanf("%d", &arr[i]);
    }
```

```c
}

void sortArray(int arr[], int n)
{
    for (int i = 0; i < n; i++)
    {
        for (int j = i + 1; j < n; j++)
        {
            if (arr[i] > arr[j])
            {
                int temp = arr[i];
                arr[i] = arr[j];
                arr[j] = temp;
            }
        }
    }
}

int main()
{
    int n;
    printf("Enter the size of an array:\n");
    scanf("%d", &n);

    int arr[n];

    // taking arr from user
    storeArr(arr,n);

    //sort array
    sortArray(arr, n);

    // printing array
    displayArr(arr,n);

    return 0;
}
```

```
Enter the size of an array:
4
Enter the value for index 0: 10
Enter the value for index 1: 50
Enter the value for index 2: -1
Enter the value for index 3: 25
-1 10 25 50
```

-----End-----