FCP Assignment 5

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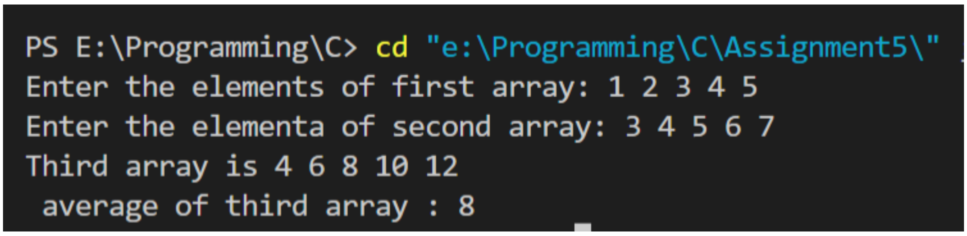
F-05

U21CS070

1. WAP to add corresponding elements of two 1-Dimensional arrays and store in the third

array, also calculate the average of the third array.

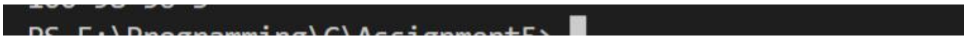
```
//assignment 5

#include <stdio.h>

int main(){

    int a[5],b[5],c[5],i,average;

    printf("Enter the elementa of first array");

    for(i=0;i<5;i++){

        scanf("%d",&a[i]);

    }

    printf("Enter the elementa of second array");

    for(i=0;i<5;i++){

        scanf("%d",&b[i]);

    }

    for(i=0;i<5;i++){

        c[i] = a[i] +b[i];

        average += c[i];

    }

    average /= 5;
    printf("Third array is ");
    for(i=0;i<5;i++){
        printf("%d ",c[i]);
    }
    printf("\n average of third array : %d",average);
}
```



```
PS E:\Programming\C> cd "e:\Programming\C\Assignment5\"
Enter the elements of first array: 1 2 3 4 5
Enter the elementa of second array: 3 4 5 6 7
Third array is 4 6 8 10 12
 average of third array : 8
```

2. WAP to sort an array in descending order.

```
//assignment 5
#include <stdio.h>
int main(){
    //sorting array in descending order
    int len,i,temp;
    printf("Enter the length of array");
    scanf("%d",&len);
    int arr[len];
    printf("enter the elements of arrray: ");
    for(i=0;i<len;i++){
        scanf("%d",&arr[i]);
    }
    int flag=0;
    do{
        flag=0;
        for( i=0;i<len-1;i++){

            if(arr[i] < arr[i+1]){

                temp = arr[i+1];

                arr[i+1] = arr[i];

                arr[i] = temp;

                flag++;

            }

        }

    }while(flag != 0);


    printf("sorted array is : \n");

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

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

    }

    return 0;

}
```



```
100 90 50 5
PS E:\Programming\C\Assignment5>
```

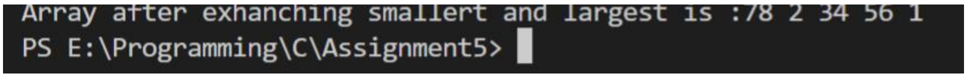
3. WAP to count total no of odd and even numbers from the 1-D array.

```
//assignment 5

#include <stdio.h>

int main(){

    int len,i,odds=0,evens=0;

    printf("Enter the length of array : ");

    scanf("%d",&len);

    int arr[len];

    printf("enter the elements of arrray: ");

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

        scanf("%d",&arr[i]);
    }
    //count total number of odd and even numbers
    for(i=0;i<len;i++){
        if(arr[i]%2==0){
            evens++;
        }
        else{
            odds++;
        }
    }
    printf("Number of ODDs : %d \n EVENs : %d",odds,evens);
}
```

```
 EVENs : 4
```

4. WAP to exchange the smallest and largest values in 1-D array.

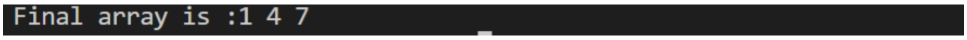
```
//assignment 5
#include <stdio.h>
int main(){
    int len,i,temp;
    printf("Enter the length of array : ");
    scanf("%d",&len);
    int arr[len];
    printf("enter the elements of arrray: ");
    for(i=0;i<len;i++){
        scanf("%d",&arr[i]);
    }
    int min=0, max=0;
    for(i=0;i<len;i++){
        if(arr[i] > arr[max]){
            max = i;
        }
        else if(arr[i] < arr[min]){
            min = i;
        }
    }

    //exchanging maximum and minimum;
    temp = arr[max];
    arr[max] = arr[min];
    arr[min] = temp;

    printf("Array after exhanching smallert and largest is :");
    for(i=0;i<len;i++){
        printf("%d ",arr[i]);
    }
}
```



```
Array after exhanching smallert and largest is :78 2 34 56 1
PS E:\Programming\C\Assignment5> 
```

5. WAP to delete an element of an array given by the user.

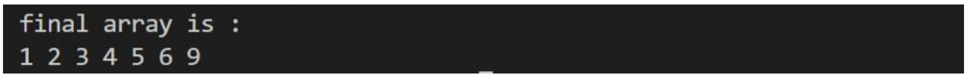
```
#include <stdio.h>
int main(){
    int len,i,temp;
    printf("Enter the length of array : ");
    scanf("%d",&len);
    int arr[len];
    printf("enter the elements of arrray: ");
    for(i=0;i<len;i++){
        scanf("%d",&arr[i]);
    }
    printf("emter the element to delete : ");
    int del,j=0;
    scanf("%d",&del);

    int len_=0;
    //scanning for deletion element
    for(i=0;i<len;i++){
        if(arr[i] != del){
            len_++;
        }
    }

    int fin[len_];

    for(i=0;i<len;i++){
        if(arr[i] != del){
            fin[j++] = arr[i];
        }
        else{
            continue;
        }
    }
    printf("Final array is :");

    for(i=0;i<len_;i++){
        printf("%d ",fin[i]);
    }
}
```



```
Final array is :1 4 7
```

6. WAP to insert an element in an array specified by the user.

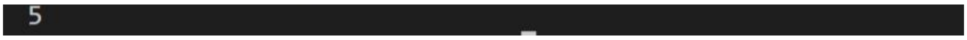
```c
//input an element to array given by user

#include <stdio.h>

int main(){

    int len,i,el;

    printf("Enter the length of array : ");

    scanf("%d",&len);

    int arr[len],fin[len+1];

    printf("enter the elements of arrray: ");

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

        scanf("%d",&arr[i]);

        fin[i] = arr[i];

    }

    printf("enter the element to be inserted : ");

    scanf("%d",&el);

    fin[len] = el;

    printf("final array is : \n");

    for(i=0;i<len+1;i++){

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

    }


    return 0;

}
```



```
final array is :
1 2 3 4 5 6 9
```

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

```
int main(){
    int i,j,len;
    long long int sum=0;
    printf("Enter the length of array : ");
    scanf("%d",&len);
    int arr[len];
    printf("enter the array : ");
    for(i=0;i<len;i++){
        scanf("%d",&arr[i]);
    }
    for(i=0;i<len;i++){
        for(j=0;j<len;j++){
            // printf("%d / %d \n",arr[i],arr[j]);
            sum += arr[i]%arr[j];
        }
    }
    printf("%d",sum % 1000000007);
}
```



```
5
```

8. WAP to perform matrix multiplication of 3*3 matrixes .

```
//matrix multiplication;
#include <stdio.h>
int main(){
    int i,j,prod;
    int m1[3][3],m2[3][3],m3[3][3];
    printf("enter the matrix 1 element row wise : ");
    for(i=0;i<3;i++){
        for(j=0;j<3;j++){
            scanf("%d",&m1[i][j]);
        }
    }
    printf("Matrix M1 is :\n");
    for(i=0;i<3;i++){
        for(j=0;j<3;j++){
            printf("%d ",m1[i][j]);
        }
        printf("\n");
    }
    //for matrix 2
    printf("enter the matrix 2 element row wise : ");
    for(i=0;i<3;i++){
        for(j=0;j<3;j++){
            scanf("%d",&m2[i][j]);
        }
    }
    printf("Matrix M2 is :\n");
    for(i=0;i<3;i++){
        for(j=0;j<3;j++){
            printf("%d ",m2[i][j]);
        }
        printf("\n");
    }

    m3[0][0] = m1[0][0] * m2[0][0] + m1[0][1] * m2[1][0] + m1[0][2] * m2[2][0];
    m3[0][1] = m1[0][0] * m2[0][1] + m1[0][1] * m2[1][1] + m1[0][2] * m2[2][1];
    m3[0][2] = m1[0][0] * m2[0][2] + m1[0][1] * m2[1][2] + m1[0][2] * m2[2][2];
    m3[1][0] = m1[1][0] * m2[0][0] + m1[1][1] * m2[1][0] + m1[1][2] *
m2[2][0];

    m3[1][1] = m1[1][0] * m2[0][1] + m1[1][1] * m2[1][1] + m1[1][2] *
m2[2][1];

    m3[1][2] = m1[1][0] * m2[0][2] + m1[1][1] * m2[1][2] + m1[1][2] *
m2[2][2];



    m3[2][0] = m1[2][0] * m2[0][0] + m1[2][1] * m2[1][0] + m1[2][2] *
m2[2][0];

    m3[2][1] = m1[2][0] * m2[0][1] + m1[2][1] * m2[1][1] + m1[2][2] *
m2[2][1];

    m3[2][2] = m1[2][0] * m2[0][2] + m1[2][1] * m2[1][2] + m1[2][2] *
m2[2][2];


    printf("Matrix M3 = M1 X M2 \n M3 = \n");

    for(i=0;i<3;i++){

        for(j=0;j<3;j++){

            printf("%d ",m3[i][j]);

        }

        printf("\n");

    }

}
```

```
366 390 414
```

9. Given an array of integers of size n, find out if the numbers in the array appear in a

palindromic order. A palindrome is a sequence that reads the same when you flip it. For

example, 121 is a palindrome, 3 is a palindrome, and 234432 is also a palindrome

```
#include <stdio.h>

int main(){
    int i,j,len;
    long long int sum=0;
    printf("Enter the length of array : ");
    scanf("%d",&len);
    int arr[len];
    printf("enter the array : ");
    for(i=0;i<len;i++){
        scanf("%d",&arr[i]);
    }

    int flag = 0;
    for(i=0;i<len/2;i++){
        if(arr[i] == arr[len-1-i]){
            //nothing;
        }
        else{
            flag = 1;
            break;
        }
    }

    if(flag == 1){
        printf("given array is not Palindrome.");
    }
    else{
        printf("Given array is Palindrome");
    }
    return 0;
}
```

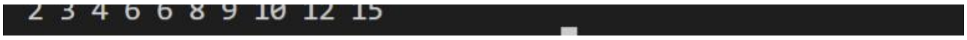
```
given array is not Palindrome.
```

10. Given two sorted arrays of sizes m and n, write a program that merges the two into

another array of size m + n such that this new array also remains sorted.

```
//merge two sorted array to one new sorted array;

#include <stdio.h>

int main(){

    int i,j,len,len2;

    long long int sum=0;

    printf("Enter the size of array1 : ");

    scanf("%d",&len);

    int arr1[len];

    printf("enter the sorted array1 : ");

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

        scanf("%d",&arr1[i]);

    }



    printf("Enter the size of array2 : ");

    scanf("%d",&len2);

    int arr2[len2];

    printf("enter the sorted array2 : ");

    for(i=0;i<len2;i++){

        scanf("%d",&arr2[i]);

    }



    int sortedArr[len+len2],k=0,flag=0;

    i=0,j=0;
```

```
while(k <= i+j && j<len2 && i<len){
    if(arr1[i] > arr2[j]){
        sortedArr[k++] = arr2[j++];
    }
    else if(arr1[i] == arr2[j]){
        sortedArr[k++] = arr2[j++];
    }
    else{
        sortedArr[k++] = arr1[i++];
    }
}
if(i==j){
    flag=0;
}
else if(i==len){
    flag=1;
}
else if(j==len2){
    flag=2;
}


if(flag==1){
    //first array filled, need to fill second;
    while(j != len2){
        sortedArr[k++] = arr2[j++];
    }
}
else if(flag==2){
    //second array filled, need to fill second;
    while(i != len){
        sortedArr[k++] = arr1[i++];
        }
    }
    else{
        //nothing
    }    //printing;
    printf("sorted combined Array is :\n");
    for(i=0;i<len+len2;i++){
        printf("%d ",sortedArr[i]);
    }

    return 0;
}
```



```
 2 3 4 6 6 8 9 10 12 15
```

11. WAP to subtract 2-D Matrices.

```
#include <stdio.h>
void main(){
    //subtractions of 2d matrices;
    int i,j,len,lenx;
    printf("Enter the number of rows of array : ");
    scanf("%d",&len);
    printf("Enter the number of cols of array : ");
    scanf("%d",&lenx);
    int arr1[len][lenx];
    printf("enter the array1 row wise: \n");
    for(i=0;i<len;i++){
        for(j=0;j<lenx;j++){
            scanf("%d",&arr1[i][j]);
        }
    }
    printf("Array M1 is :\n");
    for(i=0;i<len;i++){
        for(j=0;j<lenx;j++){
            printf("%d ",arr1[i][j]);
        }
        printf("\n");
    }
    //for array 2;
    int arr2[len][lenx];
    printf("enter the array2 row wise: \n");
    for(i=0;i<len;i++){
        for(j=0;j<lenx;j++){
            scanf("%d",&arr2[i][j]);
        }
    }
    printf("Array M2 is :\n");
    for(i=0;i<len;i++){
        for(j=0;j<lenx;j++){
            printf("%d ",arr2[i][j]);
        }
        printf("\n");
    }


    int arr3[len][lenx];
    for(i=0;i<len;i++){
        for(j=0;j<len;j++){
            arr3[i][j] = arr1[i][j] - arr2[i][j];
        }
    }
```

```
    printf("M3 = M1 - M2 \n M3 = \n");
    for(i=0;i<len;i++){
        for(j=0;j<lenx;j++){
            printf("%d ",arr3[i][j]);
        }
        printf("\n");
    }
}
```

```
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```

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Thank You!