Programming Exercise for chapter 8

6.

Input:

```
#include<stdio.h>
int main(){
int a[5]={1,3,5,7,9};
int b[5]={2,4,6,8,10};
printf("\nBefore Merge The array is: \nArray A[5] :
");
for(int i=0 ; i<5 ; i++)
{
printf("%d ",a[i]);
}
printf("\nArray B[5]: ");
for(int i=0 ; i<5 ; i++)
{
printf("%d ",b[i]);
}
printf("\n");
printf("\nAfert merging and sorting in ascending
order, The New array C[10] is : \n");
int c[10];
for(int i=0 ; i<10 ; i++)
{
if(i<5)
{
c[i]=a[i];
} else
c[i]=b[i-5];
}
for(int i=0; i<10 ; i++)
{
for(int j=i; j<10; j++)
{
int temp;
if(c[i]>c[j])
```

```
{
temp=c[i];
c[i]=c[j];
c[j]=temp;
}
}
}
for(int i=0 ; i<10 ; i++)
{
printf("%d ",c[i]);
}
printf("\n\n");
}
```

Output:

Before Merge The array is:

Array A[5] : 1 3 5 7 9

Array B[5]: 2 4 6 8 10

Afert merging and sorting in ascending order, The New array C[10] is :

1 2 3 4 5 6 7 8 9 10

7.

Input:

```
#include <stdio.h>
#include <conio.h>
#define M 2
int main(void)
{
    int i, j, k, a[M][M], b[M][M], c[M][M];
    printf("Enter the matrix A:\n");
    for (i = 0; i < M; i++)
    {
```

```
        for (j = 0; j < M; j++)
        {
            scanf("%d", &a[i][j]);
        }
    }
    printf("\nEnter the matrix B:\n");
    for (i = 0; i < M; i++)
    {
        for (j = 0; j < M; j++)
        {
            scanf("%d", &b[i][j]);
        }
    }
    // calculation begins
    for (i = 0; i < M; i++)
    {
        for (j = 0; j < M; j++)
        {
            c[i][j] = 0;
            for (k = 0; k < M; k++)
            {
                c[i][j] = c[i][j] + (a[i][k] * b[k][j]);
            }
        }
    }
    printf("\nThe resultant matrix C is:\n");
    for (i = 0; i < M; i++)
    {
        for (j = 0; j < M; j++)
        {
            printf("%d", c[i][j]);
        }
        printf("\n");
    }
}
```

Output:

Enter the matrix A:

1 2

4 5

Enter the matrix B:

3 6

8 9

The resultant matrix C is:

1924

5269

9.

Input:

```c
#include<stdio.h>
int main(){
int a[10]={11,9,4,10,19,112,8,3,0,2};
printf("\nGiven Numbers before sorting are: ");
for(int i=0 ; i< 10 ; i++)
printf("%d ",a[i]);
printf("\n\n");
printf("After Sorting, The numbers in array are: ");
for(int i=0 ; i<10 ; i++){
for(int j = 0 ; j<10-i-1 ; j++){
int temp;
if(a[j]>a[j+1]){
temp=a[j];
a[j]=a[j+1];
a[j+1]=temp;
}
}
}
for(int i=0 ; i<10 ; i++)
printf("%d ",a[i]);
printf("\n\n");
```

```
}
```

Output:

Given Numbers before sorting are: 11 9 4 10 19 112 8 3 0 2

After Sorting, The numbers in array are: 0 2 3 4 8 9 10 11 19 112

10.

Input:

```
#include<stdio.h>
int main()
{
int a[]={2,4,6,8,10,12,14,16,18,20};
printf("\nThe given list is first 10 even number.\n");
printf("Enter an even number from 2 to 20 to find its
location in array a[10]:\n");
int n;
scanf("%d",&n);
// Binary Searching...
int s=0,e=9,mid;
int c=-1;
while(e>=s)
{
mid=(s+e)/2;
if(a[mid]==n)
{
printf("\n%d in a[%d] position\n\n",n,mid);
c++;
break;
}
else if(a[mid]<n)
{
s=mid+1;
}else if(a[mid]>n)
{
e=mid-1;
```

```
}
}
if(c==-1)
{
printf("\nYour input is not in my list\n\n");
}
}
```

Output:

The given list is first 10 even number.

Enter an even number from 2 to 20 to find its location in array a[10]:

16

16 in a[7] position

11.

Input:

```
#include<stdio.h>
#include<string.h>
int main()
{
char a[100];
printf("\nEnter a String: \n");
scanf("%[^\n]s",a);
int x;
x= strlen(a);
printf("\n\nThe length of given string is %d\n\n\n",x);
```

```
}
```

Output:

Enter a String:

56

The length of given string is 2

13.

Input:

```
#include<stdio.h>
int main()
{
int m,n;
printf("\nEnter m and n for m x n matrix:  ");
scanf("%d%d",&m,&n);
int a[m][n];
printf("\nEnter value of %d x %d matrix: \n",m,n);
// ------- scanning the input ---------//
for(int i=0 ; i<m ; i++)
{
for(int j = 0 ; j<n ; j++)
{
scanf("%d",&a[i][j]);
}
}
// ----------- Printing The Transpose Matrix ---------//
printf("\nTranspose of that Matrix is:\n");
```

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

Output:

Enter m and n for m x n matrix: 2 3

Enter value of 2 x 3 matrix:

1 2 2

2 3 3

Transpose of that Matrix is:

1 2

2 3

2 3

16.

Input:

```c
#include<stdio.h>
int main()
{
int a[5]={2,2,3,3,5};
int b[5]={4,4,6,6,10};
int c[5];
for(int i=0 ; i<5 ; i++)
{
c[i]= a[i]+b[i];
}
printf("\nValues of Array a[5] is :\n");
for(int i=0 ; i<5 ; i++)
{
printf("%d ",a[i]);
}
printf("\n");
printf("\nValues of Array b[5] is :\n");
for(int i=0 ; i<5 ; i++)
{
printf("%d ",b[i]);
}
printf("\n\na and b are summed into array c.");
printf("\nValues of Array c[5] is :\n");
for(int i=0 ; i<5 ; i++)
{
printf("%d ",c[i]);
}
printf("\n\n");
}
```

Output:

Values of Array a[5] is :

2 2 3 3 5

Values of Array b[5] is :

4 4 6 6 10

a and b are summed into array c.

Values of Array c[5] is :

6 6 9 9 15

17.

Input:

```
#include<stdio.h>
int main()
{
int a[10];
printf("\nEnter 10 Number:\n");
for(int i=0 ; i<10 ; i++){
scanf("%d",&a[i]);
}
int sum=0,count=0;
printf("\nOdd Numbers from given values are: \n");
for(int i=0 ; i<10 ; i++)
{
if(a[i]%2!=0)
{
printf("%d\n",a[i]);
sum+=a[i];
count++;
}
}
printf("\nTotal odd number count is : %d\n",count);
```

```
printf("\nThe sum of all Odd number of the given
array is: %d\n",sum);
}
```

Output:

Enter 10 Number:

3 4 52 45 88 12 23 23 34 98

Odd Numbers from given values are:

3

45

23

23

Total odd number count is : 4