ASSIGNMENT-7

QUESTION 1

```
#include <stdio.h>
void main()
{
  int i,n,a[100];
  printf("Input the number of elements to store in the array :");
  scanf("%d",&n);
  for(i=0;i<n;i++)
    {
          printf("%d place -  : ",i);
          scanf("%d",&a[i]);
          }
  printf("\nThe values store into the array are : \n");
  for(i=0;i<n;i++)
   {
           printf("% 2d",a[i]);
         }
  printf("\n\nThe values store into the array in reverse are :\n");
  for(i=n-1;i>=0;i--)
    {
           printf("% 2d",a[i]);
          }
  printf("\n\n");
}
```

QUESTION 2

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

```
void main()
{
   int a[150];
   int i, n, sum=0;
    printf("Input the number of elements:");
    scanf("%d",&n);
      for(i=0;i<n;i++)
       {
                printf("%d place  : ",i);
                scanf("%d",&a[i]);
               }

   for(i=0; i<n; i++)
   {
      sum += a[i];
   }

   printf("Sum of all elements is : %d\n\n", sum);
}
```

QUESTION 3

```
#include <stdio.h>
int main()
{
   int a1[100], a2[100];
   int i, size;
   printf("Enter the size of the array : ");
   scanf("%d", &size);
   printf("Enter elements of source array : ");
   for(i=0; i<size; i++)
   {
```

```
        scanf("%d", &a1[i]);
    }
    for(i=0; i<size; i++)
    {
        a2[i] = a1[i];
    }
    printf("\nElements of source array are : ");
    for(i=0; i<size; i++)
    {
        printf("% 2d\t", a1[i]);
    }
    printf("\nElements of dest array are : ");
    for(i=0; i<size; i++)
    {
        printf("%d\t", a2[i]);
    }

    return 0;
}
```

QUESTION 4

```
#include <stdio.h>
int main()
{
    int arr[150];
    int i, j, size, count = 0;
    printf("Enter size of the array : ");
    scanf("%d", &size);
    printf("Enter elements in array : ");
    for(i=0; i<size; i++)
```

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

    for(i=0; i<size; i++)
    {
        for(j=i+1; j<size; j++)
        {
            if(arr[i] == arr[j])
            {
                count++;
                break;
            }
        }
    }

    printf("\nTotal number of duplicate elements found in array = %d", count);

    return 0;
```

QUESTION 5

```
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;
}
```

QUESTION 6

```
#include <stdio.h>

void main()
 {
   int arr1[10], odd[10], even[10];
   int i,j=0,k=0,n;
     printf("Input the number of elements to be stored in the array :");
     scanf("%d",&n);
     for(i=0;i<n;i++)
         {
              printf(" %d place  : ",i);
              scanf("%d",&arr1[i]);
             }

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

```
        if (arr1[i]%2 == 0)
        {
          even[j] = arr1[i];
          j++;
        }
        else
        {
          odd[k] = arr1[i];
          k++;
        }
    }

    printf("\nThe Even elements are : \n");
    for(i=0;i<j;i++)
    {
        printf(" % 2d ",even[i]);
    }

    printf("\nThe Odd elements are :\n");
    for(i=0;i<k;i++)
    {
        printf("% 2d ", odd[i]);
    }
    printf("\n\n");
 }
```

QUESTION 7

```
#include <stdio.h>

void main()
{
```

```
  int arr1[100],i,n,p,x;
      printf("Input the size of array : ");
      scanf("%d", &n);
      for(i=0;i<n;i++)
     {
                printf("%d element  : ",i);
                scanf("%d",&arr1[i]);
               }


  printf("Input the value to be inserted : ");
  scanf("%d",&x);
  printf("Input the Position, where the value to be inserted :");
  scanf("%d",&p);

  printf("The curren array is :\n");
  for(i=0;i<n;i++)
    printf("% 5d",arr1[i]);

  for(i=n;i>=p;i--)
  {
    arr1[i]= arr1[i-1];
  }
    arr1[p-1]=x;
  printf("\n\nAfter Insert the element the new list is :\n");
  for(i=0;i<=n;i++)
    printf("% 5d",arr1[i]);
            printf("\n\n");
}
```

QUESTION 8

```
#include <stdio.h>

int main()
{
   int array[100], position, i, n;

   printf("Enter number of elements in array\n");
   scanf("%d", &n);

   printf("Enter %d elements\n", n);

   for ( i = 0 ; i < n ; i++ )
   scanf("%d", &array[i]);

   printf("Enter the location where you wish to delete element\n");
   scanf("%d", &position);

   if ( position >= n+1 )
   printf("Deletion not possible.\n");

   else
   {
      for ( i = position - 1 ; i < n - 1 ; i++ )
      array[i] = array[i+1];
   }
      printf("Resultant array is\n");

      for( i = 0 ; i < n - 1 ; i++ )
      printf("% 3d", array[i]);
```

```
    }
    return 0;
}
```

QUESTION 9

```
#include <stdio.h>


void main(){
  int arr1[50],n,i,j=0,fst,tnd;
       printf("Input the size of array : ");
       scanf("%d", &n);
       for(i=0;i<n;i++)
        {
                  printf(" %d place : ",i);
                  scanf("%d",&arr1[i]);
                 }
   fst=0;
  for(i=0;i<n;i++)
  {
     if(fst<arr1[i])
              {
          fst=arr1[i];
          j = i;
     }
  }
   tnd=0;
  for(i=0;i<n;i++)
  {
    if(i==j)
       {
         i++;
```

```
                    i--;
      }
     else
      {
        if(tnd<arr1[i])
              {
            tnd=arr1[i];
          }
      }
  }

  printf("The Second largest element in the array is :  %d \n\n", tnd);
}
```

QUESTION 10

```
#include <stdio.h>

int getMedian(int ar1[], int ar2[], int n, int m)
{
    int i = 0; /* Current index of input array ar1[] */
    int j = 0; /* Current index of input array ar2[] */
    int count;
    int m1 = -1, m2 = -1;
    if((m + n) % 2 == 1) {
       for (count = 0; count <= (n + m)/2; count++) {
          if(i != n && j != m){
          m1 = (ar1[i] > ar2[j]) ? ar2[j++] : ar1[i++];
          }
          else if(i < n){
          m1 = ar1[i++];
```

```
            }
            else{
            m1 = ar2[j++];
            }
        }
        return m1;
    }

    else {
        for (count = 0; count <= (n + m)/2; count++) {
            m2 = m1;
            if(i != n && j != m){
            m1 = (ar1[i] > ar2[j]) ? ar2[j++] : ar1[i++];
            }
            else if(i < n){
            m1 = ar1[i++];
            }
            else{
            m1 = ar1[j++];
            }
        }
        return (m1 + m2)/2;
    }
}

int main()
{
    int ar1[] = {4, 9, 16, 45};
    int ar2[] = {3, 8, 11, 20};

    int n1 = sizeof(ar1)/sizeof(ar1[0]);
```

```
    int n2 = sizeof(ar2)/sizeof(ar2[0]);
    printf("%d", getMedian(ar1, ar2, n1, n2));
    getchar();
    return 0;
}
```

QUESTION 11

```
#include <stdio.h>

int main()
{
  int m, n, p, q, c, d, k, sum = 0;
  int first[10][10], second[10][10], multiply[10][10];

  printf("Enter number of rows and columns of first matrix\n");
  scanf("%d%d", &m, &n);
  printf("Enter elements of first matrix\n");

  for (c = 0; c < m; c++)
    for (d = 0; d < n; d++)
      scanf("%d", &first[c][d]);

  printf("Enter number of rows and columns of second matrix\n");
  scanf("%d%d", &p, &q);

  if (n != p)
    printf("The multiplication isn't possible.\n");
  else
  {
    printf("Enter elements of second matrix\n");
```

```
   for (c = 0; c < p; c++)
     for (d = 0; d < q; d++)
       scanf("%d", &second[c][d]);

   for (c = 0; c < m; c++) {
     for (d = 0; d < q; d++) {
       for (k = 0; k < p; k++) {
         sum = sum + first[c][k]*second[k][d];
       }

       multiply[c][d] = sum;
       sum = 0;
     }
   }

   printf("Product of the matrices:\n");

   for (c = 0; c < m; c++) {
     for (d = 0; d < q; d++)
       printf("%d\t", multiply[c][d]);

     printf("\n");
   }
 }

  Return 0;
}
```

QUESTION 12

```
include <stdio.h>
int main() {
```

```
    int a[10][10], transpose[10][10], r, c, i, j;
    printf("Enter rows and columns: ");
    scanf("%d %d", &r, &c);

    printf("\nEnter matrix elements:\n");
    for (i = 0; i < r; ++i)
        for (j = 0; j < c; ++j) {
            printf("Enter element a%d%d: ", i + 1, j + 1);
            scanf("%d", &a[i][j]);
        }
    printf("\nEntered matrix: \n");
    for (i = 0; i < r; ++i)
        for (j = 0; j < c; ++j) {
            printf("%d  ", a[i][j]);
            if (j == c - 1)
                printf("\n");
        }
    for (i = 0; i < r; ++i)
        for (j = 0; j < c; ++j) {
            transpose[j][i] = a[i][j];
        }

    printf("\nTranspose of the matrix:\n");
    for (i = 0; i < c; ++i)
        for (j = 0; j < r; ++j) {
            printf("%d  ", transpose[i][j]);
            if (j == r - 1)
                printf("\n");
        }
    return 0;
}
```

Output

QUESTION 13

```
#include <stdio.h>


void main()


  {
    int i,j,arr1[50][50],sum=0,n,m=0;


            printf("Input the size of the square matrix : ");
    scanf("%d", &n);
        m=n;
            printf("Input elements in the first matrix :\n");
      for(i=0;i<n;i++)
      {
         for(j=0;j<n;j++)
         {
                    printf("element - [%d],[%d] : ",i,j);
                    scanf("%d",&arr1[i][j]);
         }
      }
            printf("The matrix is :\n");
            for(i=0;i<n;i++)
            {
              for(j=0;j<n ;j++)
                 printf("% 4d",arr1[i][j]);
              printf("\n");
            }


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

```
        {
      m=m-1;
         for(j=0;j<n ;j++)
      {
       if (j==m)
        {
         sum= sum+arr1[i][j];
        }

      }
        }
   printf("Addition of the  left Diagonal elements is :%d\n",sum);
  }
```

QUESTION 14

```
#include <stdio.h>

int main (void)
{
        int a[10][10];
        int i = 0, j = 0, row = 0, col = 0;

        printf ("Enter the order of the matrix (mxn):\n");
        printf ("where m = number of rows; and\n");
        printf ("     n = number of columns\n");
        scanf ("%d %d", &row, &col);

        int flag = 0;

        printf ("Enter the elements of the matrix\n");
```

```
for (i = 0; i < row; i++)
{
	for (j = 0; j < col; j++)
	{
		scanf ("%d", &a[i][j]);
	}
}

for (i = 0; i < row; i++)
{
	for (j = 0; j < col; j++)
	{
		if (i == j && a[i][j] != 1)
		{
			flag = -1;
			break;
		}
		else if (i != j && a[i][j] != 0)
		{
			flag = -1;
			break;
		}
	}
}

if (flag == 0)
{
	printf ("It is a IDENTITY MATRIX\n");
}
else
{
```

```
                printf ("It is NOT an identity matrix\n");
        }

        return 0;
}
```

QUESTION 15

```
#include <stdio.h>

int search(int mat[4][4], int n, int x)
{
    if (n == 0)
        return -1;
    int smallest = mat[0][0], largest = mat[n - 1][n - 1];
    if (x < smallest || x > largest)
        return -1;

    int i = 0, j = n - 1;
    while (i < n && j >= 0)
    {
        if (mat[i][j] == x)
        {
            printf("\n Found at %d, %d", i, j);
            return 1;
        }
        if (mat[i][j] > x)
            j--;
        else // if mat[i][j] < x
            i++;
    }
```

```
    printf("n Element not found");
    return 0; // if ( i==n || j== -1 )
}

int main()
{
    int mat[4][4] = {
        { 11, 20, 17, 80 },
        { 15, 35, 35, 45 },
        { 27, 29,72 , 38 },
        { 30, 8, 39, 65 },
    };
    search(mat, 4, 20);
    return 0;
}
```