ASSIGNMENT 7 ANSWER

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1.read n number of values in an array and display it in reverse order.

Program:-

```
#include <stdio.h>

int main() {
 int a[10],i,s;
   printf("Enter size of array: ");
   scanf("%d",&s);
   printf("enter elements: \n");
   for(i=1;i<=s;i++)
   {
      scanf("%d",&a[i]);
         }
         printf("elements are : \n");
          for(i=1;i<=s;i++)
          {
         printf("%d\t",a[i]);
          }
          printf("\nreverse of the avove no is: \n");
          for(i=s;i>=1;--i)
          {
             printf("%d\t",a[i]);
          }

   return 0;
}
```

Output:-

```
Enter size of array: 3
enter elements:
1
```

```
2
3
elements are :
1       2       3
reverse of the avove no is:
3       2       1
```

2. find the sum of all elements of the array.

Program:-

```
#include <stdio.h>
int main() {
 int a[10],i,s,sum=0;
   printf("Enter size of array: ");
   scanf("%d",&s);
   printf("enter elements: \n");
   for(i=1;i<=s;i++)
   {
      scanf("%d",&a[i]);
      sum=sum+i;
         }
         printf("elements are : \n");
          for(i=1;i<=s;i++)
          {
         printf("%d\t",a[i]);
          }
          printf("\nsum of the above elements are: %d",sum);
          return 0;
}
```

Output:-

```
Enter size of array: 4
enter elements:
1
5
4
10
```

```
elements are :
1       5       4       10
sum of the above elements are: 10
```

3. copy the elements of one array into another array.

Program:-

```
        #include <stdio.h>
int main() {
  int a[15],b[15],i,n;
    printf("Enter elements size : ");
    scanf("%d",&n);
    printf("enter elements : ");
    for(i=0;i<n;i++)
    {
       scanf("%d",&a[i]);
    }
    printf("after coping elements are :\n");
    for(i=0;i<n;i++)
    {
       b[i]=a[i];
       printf("%d\t",b[i]);
    }

   return 0;
}
```

Output:-

```
Enter elements size : 4
enter elements: 1
2
3
4
after coping elements are :
1          2          3          4
```

4. count a total number of duplicate elements in an array.

Program:-

```
            #include <stdio.h>
int main() {
  int a[15],i,j,n,c=0;
     printf("Enter elements size : ");
     scanf("%d",&n);
     printf("enter elements : ");
     for(i=0;i<n;i++)
     {
        scanf("%d",&a[i]);
           }
     for(i=0;i<n;i++)
     {
     for(j=i+1;j<n;j++)
        {
        if(a[i]==a[j])
        {
        c++;
        break;
        }
     }
        }
         printf("total no of duplicate elements are : %d ",c);
```

```
        return 0;
}
```

Output:-

```
Enter elements size : 5
enter elements  : 4
5
6
4
4
total no of duplicate elements are : 2
```

5. find the maximum and minimum element in an array.

Program:-

```
        #include<stdio.h>
int main()
{
   int a[30],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;
}
```

Output:-

```
Enter size of the array : 5
Enter elements in array : 6
7
8
9
7
minimum of array is : 6
maximum of array is : 9
```

6. separate odd and even integers in separate arrays.

Program:-

```
          #include<stdio.h>
int main()
{
   int a[30],i,n,e[30],o[30];
     printf("Enter size of the array : ");
   scanf("%d",&n);

   printf("Enter elements in array : ");
   for(i=0; i<n; i++)
   {
      scanf("%d",&a[i]);

   }
   printf("even elements are: \n");
    for(i=0; i<n; i++)
   {
```

```
        if(a[i]%2==0)
                        e[i]=a[i];
                                printf("%d \t",e[i]);
    }
    printf("\n odd elements are: \n");
                                 for(i=0; i<n; i++)
    {
                                printf("%d\t",o[i]);
                              }
     return 0;
}
```

Output:-

```
Enter size of the array : 6
Enter elements in array : 1
2
3
4
5
6
even elements are:
0       2       0       4       0       6
 odd elements are:
1       0       3       0       5       0
```

7. insert New value in the array.

Program:-

```
#include <stdio.h>
int main()
{
  int a[30], p, i, n,v;

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

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

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

```
printf("Your entered elements are : ");
   for (i= 0; i< n; i++)
   {
     printf("%d\t",a[i]);
   }

  printf("\nEnter the position where to add a element\n");
  scanf("%d", &p);
  printf("Enter the value of element : \n");
  scanf("%d", &v);

  if (p> n)
     printf("\nEntered wrong postion of array.\n");
  else
  {
     for (i = p ; i>=n ; i--)

        a[i] = a[i-1];
        a[i-1]=v;

     printf("\nafter delete an element the array is :\n");

     for (i = 0; i < n; i++)
        printf("%d\t", a[i]);
  }

  return 0;
}
```

Output:-

```
Enter number of elements in array : 3
Enter 3 elements
1
5
3
Your entered elements are : 15          3
Enter the position where to add a element
2
Enter the value of element :
2
after delete an element the array is :
```

1 2 3

8. delete an element at desired position from an array.

Program:-

```
#include <stdio.h>
int main()
{
  int a[30], p, i, n;

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

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

  for (i= 0; i< n; i++)
    scanf("%d", &a[i]);
printf("Your entered elements are : ");
   for (i= 0; i< n; i++)
   {
    printf("%d",a[i]);
   }

  printf("\nEnter the position to delete a element\n");
  scanf("%d", &p);

  if (p>= n+1)
    printf("\nEntered wrong postion of array.\n");
  else
  {
    for (i = p - 1; i < n-1 ; i++)
      a[i] = a[i+1];

    printf("\nafter delete an element the array is :\n");

    for (i = 0; i < n-1; i++)
      printf("%d\t", a[i]);
  }

  return 0;
}
```

Output:-

```
Enter number of elements in array : 5
Enter 5 elements
1
10
11
20
```

```
15
Your entered elements are : 1 10        11        20        15
Enter the position to delete a element :
2
after delete an element the array is :
1         11        20        15
```

9. find the second largest element in an array.

Program:-

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

```
  int a[10], p, i;
  int n,l,sl,j;

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

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

  for (i= 0; i< n; i++)
    scanf("%d", &a[i]);
    l=a[0];
    sl=a[1];
printf("Your entered elements are : \n");
   for (i= 0; i< n; i++)
   {
    printf("%d\t",a[i]);
   }
    for (i= 0; i< n; i++)
   {
        if (a[i]>l)
        {
    sl=l;
 l=a[i];
        }
     else if (a[i]>sl&&a[i]!=l)
     {
   sl=a[i];
        }}
   printf("sl element is : %d",sl);


  return 0;
}
```

Output:-

```
Enter number of elements in array : 3
Enter 3 elements
5
7
9
Your entered elements are :
5       7       9       sl element is : 7
```

10. find the median of two sorted arrays of same size.

Program:-

```
#include <stdio.h>
int getMedian(int ar1[], int ar2[], int n)
{
   int i = 0;
   int j = 0;
   int count;
   int m1 = -1, m2 = -1;
   for (count = 0; count <= n; count++)
   {
      if (i == n)
      {
         m1 = m2;
         m2 = ar2[0];
         break;
      }
       else if (j == n)
      {
         m1 = m2;
         m2 = ar1[0];
         break;
      }
       if (ar1[i] < ar2[j])
      {
         m1 = m2;
         m2 = ar1[i];
         i++;
      }
      else
      {
         m1 = m2;
         m2 = ar2[j];
         j++;
      }
   }
     return (m1 + m2)/2;
}
int main()
{
```

```
    int ar1[] = {1, 12, 15, 26, 38};
    int ar2[] = {2, 13, 17, 30, 45};

    int n1 = sizeof(ar1)/sizeof(ar1[0]);
    int n2 = sizeof(ar2)/sizeof(ar2[0]);
    if (n1 == n2)
       printf("Median is %d", getMedian(ar1, ar2, n1));
    else
       printf("Doesn't work for arrays of unequal size");
    getchar();
    return 0;
}
```

Output:-

Median is 16

11. multiplication of two square Matrices.

Program:-

```
#include <stdio.h>
int main() {
   int a[10][10],b[10][10],mp[10][10];
   int i,j,r1,c1,r2,c2,m,sum=0;
   printf("Enter size of 1st array row: ");
   scanf("%d",&r1);
    printf("Enter size of 1st array column: ");
   scanf("%d",&c1);
    printf("Enter size of 2nd array row: ");
   scanf("%d",&r2);
    printf("Enter size of 2nd array column: ");
   scanf("%d",&c2);
   if(c1!=r2)
   printf("array is not same size so multiplication not possible.");
   else
   printf("Enter elements of 1st matrix: \n");
   for(i=0;i<r1;i++)
   {
      for(j=0;j<c1;j++)
      {
         printf("value of [%d][%d]= ",i,j);
         scanf("%d",&a[i][j]);
      }
   }

    printf("Enter elements of 2nd matrix: \n");
   for(i=0;i<r2;i++)
   {
      for(j=0;j<c2;j++)
      {
         printf("value of [%d][%d]= ",i,j);
         scanf("%d",&b[i][j]);
      }
   }
   //for multiplication
      for(i=0;i<r1;i++)
   {
      for(j=0;j<c2;j++)
      {
    for(m=0;m<r1;m++)
      {
```

```
     sum=sum+a[i][m]*b[m][j];
          }
    mp[i][j]=sum;
    sum=0;
   }
   }
   printf("after multiplication: \n") ;
         for(i=0;i<r2;i++)
   {
      for(j=0;j<c2;j++)
      {
         printf("%d\t",mp[i][j]);
      }
      printf("\n");
   }
         return 0;
}
```

Output:-

```
Enter size of 1st array row: 2
Enter size of 1st array column: 2
Enter size of 2nd array row: 2
Enter size of 2nd array column: 2
Enter elements of 1st matrix:
value of [0][0]= 1
value of [0][1]= 2
value of [1][0]= 3
value of [1][1]= 4
Enter elements of 2nd matrix:
value of [0][0]= 5
value of [0][1]= 6
value of [1][0]= 7
value of [1][1]= 8
after multiplication:
19      22
43      50
```

12. find transpose of a given matrix.

Program:-

```
#include <stdio.h>
int main()
{
   int a[10][10],t[10][10];
   int i,j,r,c;

   printf("Enter size of row: ");
   scanf("%d",&r);
    printf("Enter size of column: ");
   scanf("%d",&c);

   printf("Enter the elements of array: \n");
   for(i=0;i<r;i++)
   {
      for(j=0;j<c;j++)
      {
scanf("%d",&a[i][j]);
}
}
printf("your entered matrix is : \n");
for(i=0;i<r;i++)
   {
      for(j=0;j<c;j++)
      {
printf("%d\t",a[i][j]);
}
printf("\n");
}

for(i=0;i<r;i++)
   {
      for(j=0;j<c;j++)
      {
t[j][i]=a[i][j];
}
```

```
}
printf("transforce of matrix: \n");
for(i=0;i<c;i++)
   {
      for(j=0;j<r;j++)
      {
printf("%d\t",t[i][j]);
}
printf("\n");
}
return 0;
}
```

Output:-

```
Enter size of row: 2
Enter size of column: 3
Enter the elements of array:
1
2
3
4
5
6
your entered matrix is :
1       2       3
4       5       6
transforce of matrix:
1       4
2       5
3       6
```

13. find the sum of left diagonals of a matrix.

Program:-

```
#include <stdio.h>
void main()
{
int i,j,a[10][10],sum=0,n,m=0;
printf("enter size of the matrix : ");
scanf("%d", &n);
m=n;
printf("enter elements of matrix :\n");
for(i=0;i<n;i++)
{
for(j=0;j<n;j++)
{
printf("value of [%d][%d] : ",i,j);
scanf("%d",&a[i][j]);
}
}
printf("entered matrix is :\n");
for(i=0;i<n;i++)
{
for(j=0;j<n ;j++)
{
   printf("%d\t",a[i][j]);
}
printf("\n");
}

for(i=0;i<n;i++)
{
m=m-1;
for(j=0;j<n ;j++)
```

```
{
if (j==m)
{
sum= sum+a[i][j];
}
}
}
printf("Adding the left Diagonal elements is :%d \n",sum);
}
```

Output:-

```
enter size of the  matrix : 2
enter elements of matrix :
value of [0][0] : 2
value of [0][1] : 2
value of [1][0] : 2
value of [1][1] : 2
entered matrix is :
2       2
2       2
Adding the left Diagonal elements is :4
```

14. check whether a given matrix is an identity matrix.

Program:-

```
#include <stdio.h>
int main()
{
   int a[10][10];
   int i,j,r,c,flag=1;

   printf("Enter size of row: ");
   scanf("%d",&r);
```

```
    printf("Enter size of column: ");
   scanf("%d",&c);

   printf("Enter the elements of array: \n");
   for(i=0;i<r;i++)
   {
      for(j=0;j<c;j++)
      {
scanf("%d",&a[i][j]);
}
}
printf("your entered matrix is : \n");
for(i=0;i<r;i++)
   {
      for(j=0;j<c;j++)
      {
printf("%d\t",a[i][j]);
}
printf("\n");
}
for(i=0;i<r;i++)
{
for (j = 0; j < c; j++)
{
if (a[i][j] != 1 && a[j][i] != 0)
{
flag = 0;
break;
}
}
}
if (flag==1)
printf(" your matrix is a identity matrix. \n");
else
{
printf("your matrix is not a identity matrix. \n");
}

return 0;
}
```

Output:-

```
Enter size of row: 2
Enter size of column: 2
Enter the elements of array:
1
0
0
1
your entered matrix is :
1       0
0       1
 your matrix is a identity matrix.
```

15. search an element in a row wise and column wise sorted matrix.

Program:-

```
#include <stdio.h>
int main()
{
   int a[10][10];
   int i,j,r,c,f;

   printf("Enter size of row: ");
   scanf("%d",&r);
    printf("Enter size of column: ");
   scanf("%d",&c);

   printf("Enter the elements of array: \n");
   for(i=0;i<r;i++)
   {
```

```
        for(j=0;j<c;j++)
        {
scanf("%d",&a[i][j]);
}
}
printf("your entered matrix is : \n");
for(i=0;i<r;i++)
   {
      for(j=0;j<c;j++)
      {
printf("%d\t",a[i][j]);
}
printf("\n");
}
printf("enter whose address want to search : \n");
scanf("%d",&f);

for(i=0;i<r;i++)
{
for (j = 0; j < c; j++)
{
   if (f==a[i][j])
   printf("row[%d] column[%d]= value %d ",i,j,f);
}
}
return 0;
}
```

Output:-

```
Enter size of row: 2

Enter size of column: 2

Enter the elements of array:

11

12
```

13

14

your entered matrix is :

11 12

13 14

enter whose address want to search :

14

row[1] column[1]= value 14