assignment 7 Ritesh

Date 24-01-2021

Time 15:35:58

ASSIGNMENT-7

Name -Ritesh kumar Mahapatra

Q1) read n number of values in an array and display it in reverse order.
ANSWER

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

OUTPUT

The number of elements to store in the array :

a[1] : 2

a[0] : 1
3

1 2 3
a[2] : 3
The values store into the array are :

The values store into the array in reverse are : 3 2 1

Q2) find the sum of all elements of the array. ANSWER

```
#include void main()
{

inta[30];
int i, n, sum=0;
printf("Input the number of elements:"); scanf("%d",&n);
for(i=0;i{

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


for(i=0; i{

sum += a[i];
}


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

OUTPUT
Input the number of elements:4 a[0] :5
a[1] :7

a[2] :8

a[3] : 0

Sum of all elements is: 20

Q3)copytheelementsofonearrayintoanotherarray. ANSWER

```
#include void main()
{
int a[50], b[60]; int i, n;
printf("Input the number of elements:"); scanf("%d",&n);
for(i=0;i{
printf("a[%d] : ",i);
scanf("%d",&a[i]);
}
for(i=0; i{
b[i] = a[i];
}
printf("copied elements are:\n"); for(i=0; i{
printf("% d", b[i]);
}
```

}
OUTPUT

Input the number of elements:5

a[0] : 7

a[1] :8

a[2] :9

a[3] :0

a[4] : 5

copied elements are: 7 8 9 0 5

Q4)countatotalnumberofduplicateelementsinanarray. ANSWER

#include int main()
{
int arr[6];
int i, j, size, count = 0; printf("Enter array size : "); scanf("%d", &size);
printf("Enter elements in array : "); for(i=0; i{
scanf("%d", &arr[i]);
}
for(i=0; i{
for(j=i+1; j{
if(arr[i] == arr[j])
{
count++; break;
}
}
}

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

return 0;
}
Output

Enter array size : 5

Enter elements in array : 2 3 5 5 7 7

Total number of duplicate elements found in array = 1

Q5) find the maximum and minimum element in an array. ANSWER

```
#include


void main()
{
int arr[100];
int i,max,min,n;


printf("Number of elements :"); scanf("%d",&n);
for(i=0;i{
printf("a[%d] : ",i);
scanf("%d",&arr[i]);
}




max = arr[0]; min = arr[0];

for(i=1; i


{
if(arr[i]>max)
{

max = arr[i];
}




if(arr[i]{

min = arr[i];
}
}

printf("Maximum element is : %d\n", max); printf("Minimum element is : %d", min);
}
```

Output
Number of elements :4 a[0] : 7777777
a[1] : 89098

a[2] :0

a[3] :8
Maximum element is : 7777777 Minimum element is : 0
Q6)separateoddandevenintegersinseparatearrays. ANSWER

```
#include


void main()
{

int a[10],b[10],c[10];
int i,j=0,k=0,n; printf("Number of elements:");

scanf("%d",&n); for(i=0;i{
printf("a[%d] :",i);
scanf("%d",&a[i]);
}
for(i=0;i{
if (a[i]%2 == 0)
{
b[j] = a[i]; j++;
}
else
{
c[k] = a[i]; k++;
}
}
printf("\nThe Even elements are : \n"); for(i=0;i{
printf("%d ",b[i]);
}
printf("\nThe Odd elements are :\n"); for(i=0;i{
printf("%d ", c[i]);
}
}
```

Output

Numberofelements :8

a[0] :6

a[1] :9

a[2] :8

a[3] :4

a[4] : 99

a[5] : 81
a[6] : 77

a[7] : 90

The Even elements are : 6 8 4 90

The Odd elements are : 9 99 81 77

Q7) insert New value in the array. ANSWER

```
#include


void main()
{

int arr1[50],i,n,p,inval;


printf("Input the size of array : "); scanf("%d",&n);
for(i=0;i{

printf("a[%d] : ",i);
scanf("%d",&arr1[i]);
}

printf("Input the value to be inserted : "); scanf("%d",&inval);
printf("The exist array list is :\n "); for(i=0;i
printf(" %d",arr1[i]); for(i=0;i{

p = i; break;
}

for(i=n;i>=p;i--)
arr1[i]= arr1[i-1]; arr1[p]=inval;


printf("\n\nAfter Insert the list is :\n "); for(i=0;i<=n;i++)
printf(" %d",arr1[i]);
}
```

Output
Input the size of array : 4 a[0] :8
a[1] :7

a[2] :9

a[3] : 89

Input the value to be inserted : 100 After Insert the list is :

100 8 7 9 89

Q8) delete an element at desired position from an array.
ANSWER

```
#include
```

```
void main(){
intarr1[50],i,pos,n;
printf("Input the size of array : "); scanf("%d",&n);

for(i=0;i{
printf("a[%d] : ",i);
scanf("%d",&arr1[i]);
}


printf("\nInput the position where to delete: "); scanf("%d",&pos);
i=0;
while(i!=pos-1) i++;
while(i{
arr1[i]=arr1[i+1]; i++;
}
n--;
printf("\nThe new list is : "); for(i=0;i{
printf("%d",arr1[i]);
}
printf("\n\n");


}
```

Output

Input the size of array : 3 a[0] :8
a[1] :9

a[2] :0

Input the position where to delete: 2 The new listis : 8 0

Q9) find the second largest element in an array.

```
#include


int main() {
int array[10];
int size, i, largest, second; printf("enter the size of array:"); scanf("%d",&size);
printf("the value stored in the array is:\n"); for(i=0;iprintf("a[%d]:",i);
scanf("%d",&array[i]);
}
if(array[0] > array[1]) { largest = array[0]; second = array[1];
} else {
largest = array[1]; second = array[0];
}


for(i=2;isecond = largest; largest =array[i];
} else if( second < array[i] ){ second =array[i];
```

```
}
}


printf("Largest - %d \nSecond - %d \n", largest, second);



return0;
}
```

OUTPUT

enter the size of array:3

the value stored in the array is: a[0]5
a[1]7

a[2]9

Largest - 9

Second - 7

Q10) . find the median of two sorted arrays of same size.

```
#include int max(int a, int b)
{
return ((a > b) ? a : b);
}
int min(int a, int b)
{
return ((a < b) ? a : b);
}
int median(int arr[], int size)
{
if (size % 2 == 0)
return (arr[size/2] + arr[size/2-1])/2; else
return arr[size/2];
}
int median2SortedArrays(int arr1[], int arr2[], int size)
{
int med1; int med2;
if(size <= 0) return -1;



if(size == 1) return (arr1[0] + arr2[0])/2;
if (size == 2) return (max(arr1[0], arr2[0]) + min(arr1[1], arr2[1])) / 2; med1 =
median(arr1, size);
med2 = median(arr2, size); if(med1 == med2) return med1; if (med1 < med2)
{
return median2SortedArrays(arr1 + size/2, arr2, size - size/2);
}
else
{
return median2SortedArrays(arr2 + size/2, arr1, size - size/2);
```

```
}
}
int main()
{
int i,m,n;
int arr1[] = {1, 5, 13, 24,35};
int arr2[] = {3, 8, 15, 17,32};
m = sizeof(arr1) n = sizeof(arr2)
printf("The given array - 1 is : "); for(i = 0; i < m; i++)
{
printf("%d ", arr1[i]);
}
printf("\n");
printf("The given array - 2 is : "); for(i = 0; i < n; i++)
{
printf("%d ", arr2[i]);
}


printf("\n");
printf("\nThe Median of the 2 sorted arrays is: %d",median2SortedArrays(arr1, arr2,n));
return0;
}
```

OUTPUT

The given array - 1is: 1 5 13 24 35

The given array - 2is: 3 8 15 17 32

The Median of the 2 sorted arrays is: 14

11. multiplication of two square Matrices

```
#include #define N 4
void multiply(int mat1[][N], int mat2[][N], int res[][N])
{
int i, j, k;
for (i = 0; i < N; i++) { for (j = 0; j < N; j++) {
res[i][j] = 0;
for (k = 0; k < N; k++)
res[i][j] += mat1[i][k] * mat2[k][j];
}
}
}


int main()
{
int mat1[N][N] = { { 1, 1, 1, 1 },
{ 2, 2, 2, 2},
{ 3, 3, 3, 3},
{ 4, 4, 4, 4 } };


int mat2[N][N] = { { 1, 1, 1, 1 },
```

```
{ 2, 2, 2, 2},
{ 3, 3, 3, 3},



{ 4, 4, 4, 4 } };


int res[N][N]; // To store result int i, j;
multiply(mat1, mat2, res);


printf("Result matrix is \n"); for (i = 0; i < N; i++) {
for (j = 0; j < N; j++) printf("%d ", res[i][j]);
printf("\n");
}


return0;
}
```

OUTPUT

Result matrixis 10 10 1010
20 20 20 20

30 30 30 30

40 40 40 40

12. find transpose of a given matrix.

```
#include


void main()


{
int arr1[50][50],brr1[50][50],i,j,r,c;
printf("\nInput the rows and columns of the matrix : "); scanf("%d %d",&r,&c);



printf("Input elements in the first matrix :\n"); for(i=0;i{

for(j=0;j{

printf("element - [%d],[%d] : ",i,j);
scanf("%d",&arr1[i][j]);
}
}
```

```
printf("\nThe matrix is:\n");
for(i=0;i{
printf("\n"); for(j=0;jprintf("%d\t",arr1[i][j]);
}
for(i=0;i{
for(j=0;j{

brr1[j][i]=arr1[i][j];
}
}

printf("\n\nThe transpose of a matrix is : "); for(i=0;iprintf("\n");
for(j=0;jprintf("%d\t",brr1[i][j]);

}
}
}
```

OUTPUT

Input the rows and columns of the matrix : 2 3 Input elements in the first matrix :
element - [0],[0] :1

element - [0],[1] :2

element - [0],[2] :3

element - [1],[0] :4
element - [1],[1] :5

element - [1],[2] : 6 The matrix is :
1 2 3
4 5 6
The transpose of a matrix is : 1 4
2 5

3 6

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

```
#include


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{
for(j=0;j{
printf("element - [%d],[%d] : ",i,j);
scanf("%d",&arr1[i][j]);
```

```
}
}
printf("The matrix is :\n"); for(i=0;i{
for(j=0;j}
for(i=0;i{
m=m-1;
for(j=0;j{
if (j==m)
{
sum= sum+arr1[i][j];
}


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

OUTPUT

Input the size of the square matrix : 2 Input elements in the first matrix : element - [0],[0] :2
element - [0],[1] :5

element - [1],[0] :8
element - [1],[1] : 9 The matrix is :
2 5

8 9

Additionofthe left Diagonal elements is:13

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

```
#include void main()
{
int a[10][10];
int i, j, row, column, count = 1; printf("Enter the order of the matrix A \n"); scanf("%d %d",
&row, &column); printf("Enter the elements of matrix A \n"); for (i = 0; i < row;i++)
{
for (j = 0; j < column; j++)
{
scanf("%d", &a[i][j]);
}
}
printf("MATRIX A is \n"); for (i = 0; i < row; i++)
{
for (j = 0; j < column; j++)
{
printf(" %d", a[i][j]);
}
printf("\n");
```

```
}
for (i = 0; i < row; i++)
{
for (j = 0; j < column; j++)
{
if (a[i][j] != 1 && a[j][i] != 0)



{
count = 0; break;
}
}
}
if (count== 1 )
printf("It is identity matrix \n"); else
printf("It is not a identity matrix \n");
}
```

OUTPUT

```
Enter the order of the matrix A 2
2

Enter the elements of matrix A 1
0

0
MATRIX A is 10
0 1

It is identity matrix
```

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

```
#include
int searchElement(int arr2D[4][4], int n, int x)
{
int i = 0, j = n-1;
while ( i < n && j >= 0 )
{
if ( arr2D[i][j] == x )
{
printf("\nThe element Found at the position in the matrix is: %d, %d", i, j);



return 1;
}
if ( arr2D[i][j] < x ) j--;
else i++;
}
printf("\nThe given element not found in the 2D array."); return 0;
}


int main()
```

```
{
int arr2D[4][4] = { {15, 23, 31, 39},
{18, 26, 36,43},
{25, 28, 37,48},
{30, 34, 39,50},
};
int i,j,v; v=51;
printf("The given array in matrix form is : \n"); for(i = 0; i < 4; i++)
{
for (j=0;j<4;j++)
{
printf("%d ", arr2D[i][j]);
}
printf("\n");
}
printf("The given value for searching is: %d",v); searchElement(arr2D, 4, v);
return 0;
```

```
15
23
31
39

18
26
36
43

25
28
37
48

30
34
39
50
```

Note : This pdf is generated by **PDF Maker** application. This is a free application on play store. We are not responsible for the content of this pdf file. Application Link.