C PROGRAMMING ASSIGNMENT: 16

DATE: 17.12.21

SUBMITTED BY: -

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BRANCH: CSE

SECTION: B22

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1.//wap to copy contents of one array to another array in reverse order

Code:

```c
#include <stdio.h>

int main()

{

    int n, ar1[100], ar2[100], i;

    printf("Specify the length of array\n");

    scanf("%d", &n);

    //taking input of elements

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

    {

        printf("Enter the number at index %d\n", i);

        scanf("%d", &ar1[i]);

    }

    //copying elements

    for (i = n; i >= 0; i--)

        ar2[i] = ar1[n - (i+1)];


    //displaying array

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

        printf("%d ", ar2[i]);

    return 0;

}
```

Output:

```
Windows PowerShell
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Try the new cross-platform PowerShell https://aka.ms/pscore6

PS C:\Users\KIIT\Desktop\C programming\lab> cd "c:\Users\KIIT\Desktop\C
le.c -o tempCodeRunnerFile } ; if ($?) { .\tempCodeRunnerFile }
Specify the length of array
5
Enter the number at index 0
1
Enter the number at index 1
2
Enter the number at index 2
3
Enter the number at index 3
4
Enter the number at index 4
7
7 4 3 2 1
PS C:\Users\KIIT\Desktop\C programming\lab\17dec21_lab16>
```

2.Wap to print the distance between 10 coordinates stored in arrays.

Code:

```c
#include <stdio.h>
#include <math.h>
int main()
{
    float dist = 0, y1, x1;
    int x[10][2], i, j;
    printf("Enter the coordinates of 10 points : \n\n");
    for (int i = 0; i < 10; ++i)
    {
        for (int j = 0; j < 2; ++j)
        {
            scanf("%d", &x[i][j]);
        }
    }
    printf("\nEntered coordinates : \n");
    for (int i = 0; i < 10; ++i)
    {
        for (int j = 0; j < 2; ++j)
            printf("%d ", x[i][j]);
        printf("\n");
    }
    for (int i = 0; i < 9; i++)
    {
        x1 = pow(x[i + 1][0] - x[i][0], 2);
        y1 = pow(x[i + 1][1] - x[i][1], 2);
        dist += sqrt(x1 + y1);
    }
    printf("The total distance between first and last point is %f", dist);
    return 0;
}
```

Output:

```
PS C:\Users\KIIT\Desktop\C programming\lab> cd "c:\Users\KIIT\Desktop\C
($?) { .\2 }
Enter the coordinates of 10 points :

1 2
1 4
2 5
3 6
5 88
9 5
2 9
4 3
5 8
6 4

Entered coordinates :
1 2
1 4
2 5
3 6
5 88
9 5
2 9
4 3
5 8
6 4
The total distance between first and last point is 193.558075
PS C:\Users\KIIT\Desktop\C programming\lab\17dec21_lab16>
```

3. WAP to find the largest number in a matrix

Code:

```c
#include <stdio.h>


int main(int argc, char const *argv[])
{
    int a[5][5], largest = 0;
    for (int i = 0; i < 5; i++)
    {
        for (int j = 1; j <= 5; j++)
        {
            printf("Enter number at %d and %d position of array", i, j);
            scanf("%d", &a[i][j]);
        }
    }
    for (int i = 0; i < 5; i++)
    {
        for (int j = 1; j <= 5; j++)
        {
            if (a[i][j] > largest)
            {
                largest = a[i][j];
            }
        }
    }
    printf("largest:%d\n", largest);
    return 0;
}
```

Output:

```
PS C:\Users\KIIT\OneDrive\Desktop\C programming\lab> cd "c:\Users\KIIT\OneD
empCodeRunnerFile.c -o tempCodeRunnerFile } ; if ($?) { .\tempCodeRunnerFil
Enter number at 0 and 1 position of array2
Enter number at 0 and 2 position of array3
Enter number at 0 and 3 position of array4
Enter number at 0 and 4 position of array5
Enter number at 0 and 5 position of array3
Enter number at 1 and 1 position of array4
Enter number at 1 and 2 position of array2
Enter number at 1 and 3 position of array3
Enter number at 1 and 4 position of array4
Enter number at 1 and 5 position of array3
Enter number at 2 and 1 position of array
2
Enter number at 2 and 2 position of array4
Enter number at 2 and 3 position of array6
Enter number at 2 and 4 position of array7
Enter number at 2 and 5 position of array4
Enter number at 3 and 1 position of array5
Enter number at 3 and 2 position of array7
Enter number at 3 and 3 position of array3
Enter number at 3 and 4 position of array
5
Enter number at 3 and 5 position of array8
Enter number at 4 and 1 position of array5
Enter number at 4 and 2 position of array4
Enter number at 4 and 3 position of array3
Enter number at 4 and 4 position of array5
Enter number at 4 and 5 position of array4
largest:8
PS C:\Users\KIIT\OneDrive\Desktop\C programming\lab\17dec21_lab16> 2
```

4. WAP to print elements of array in matrix order

Code:

```c
#include <stdio.h>

int main(int argc, char const *argv[])
{
    int a[5][5];
    for (int i = 0; i < 5; i++)
    {
        for (int j = 1; j <= 5; j++)
        {
            printf("Enter number at %d and %d position of array", i, j);
            scanf("%d", &a[i][j]);
        }
    }
    for (int i = 0; i < 5; i++)
    {
        for (int j = 1; j <= 5; j++)
        {
            printf("%d\t", a[i][j]);
        }
        printf("\n");
    }

    return 0;
}
```

Output:

```
c tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if ($?) { .\tempCodeR
Enter number at 0 and 1 position of array2
Enter number at 0 and 2 position of array3
Enter number at 0 and 3 position of array4
Enter number at 0 and 4 position of array2
Enter number at 0 and 5 position of array3
Enter number at 1 and 1 position of array4
Enter number at 1 and 2 position of array2
Enter number at 1 and 3 position of array3
Enter number at 1 and 4 position of array5
Enter number at 1 and 5 position of array4
Enter number at 2 and 1 position of array56
Enter number at 2 and 2 position of array6
Enter number at 2 and 3 position of array45
Enter number at 2 and 4 position of array4
Enter number at 2 and 5 position of array3
Enter number at 3 and 1 position of array4
Enter number at 3 and 2 position of array2
Enter number at 3 and 3 position of array3
Enter number at 3 and 4 position of array4
Enter number at 3 and 5 position of array5
Enter number at 4 and 1 position of array3
Enter number at 4 and 2 position of array3
Enter number at 4 and 3 position of array5
Enter number at 4 and 4 position of array4
Enter number at 4 and 5 position of array3
2       3       4       2       3
4       2       3       5       4
56      6       45      4       3
4       2       3       4       5
3       3       5       4       5
PS C:\Users\KIIT\OneDrive\Desktop\C programming\lab\17dec21_lab16> 4
```

5. WAP to transpose a 5x5 matrix

Code:

```
#include <stdio.h>
int main(int argc, char const *argv[])
{
    int A[5][5], B[5][5];
    printf("Enter elements in matrix of size 4x4: \n");
    for (int row = 0; row < 5; row++)
    {
        for (int col = 0; col < 5; col++)
        {
            scanf("%d", &A[row][col]);
        }
    }

    /* Find transpose of matrix A*/
    for (int row = 0; row < 5; row++)
    {
        for (int col = 0; col < 5; col++)
        {
            B[row][col] = A[col][row];
        }
    }
    printf("The entered matrix is:\n");
    for (int row = 0; row < 5; row++)
    {
        for (int col = 0; col < 5; col++)
        {
            printf("%d\t", A[row][col]);
        }
        printf("\n");
    }
    printf("The transpose of matrix is:\n");
```

```
    for (int row = 0; row < 5; row++)
    {
        for (int col = 0; col < 5; col++)
        {
            printf("%d\t", B[row][col]);
        }
        printf("\n");
    }
    return 0;
}
```

Output:

```
Enter elements in matrix of size 4x4:
2
5
4
3
6
7
8
5
4
3
2
3
4
5
6
5
5
4
4
6
7
5
4
3
35
The entered matrix is:
2       5       4       3       6
7       8       5       4       3
2       3       4       5       6
5       5       4       4       6
7       5       4       3       35
```

```
The transpose of matrix is:
2       7       2       5       7
5       8       3       5       5
4       5       4       4       4
3       4       5       4       3
6       3       6       6       35
PS C:\Users\KIIT\OneDrive\Desktop\C programming\lab\17dec21_lab16>
```