C PROGRAMMING ASSIGNMENT: 15

DATE: 16.12.21

SUBMITTED BY: -

NAME: MUKTESH MISHRA

BRANCH: CSE

SECTION: B22

ROLL NO.: 21052258

1. WAP to Enter twenty numbers and wap to check whether they are positive negative even or odd

Code:

```c
#include <stdio.h>
int main(int argc, char const *argv[])
{
    int a[5][4];
    for (int i = 0; i < 5; i++)
    {
        for (int j = 1; j <= 4; j++)
        {
            printf("Enter number at %d and %d position of array", i, j);
            scanf("%d", &a[i][j]);
        }
    }
    printf("Printing the positive numbers\n");
    for (int i = 0; i < 5; i++)
    {
        for (int j = 1; j <= 4; j++)
        {
            if (a[i][j] > 0)
            {
                printf(" %d \n", a[i][j]);
            }
        }
    }

    printf("Printing the negative numbers\n");
    for (int i = 0; i < 5; i++)
    {
        for (int j = 1; j <= 4; j++)
        {
            if (a[i][j] < 0)
            {
                printf("%d\n", a[i][j]);
```

```
            }
        }
    }
    printf("Printing the Even numbers\n");
    for (int i = 0; i < 5; i++)
    {
        for (int j = 1; j <= 4; j++)
        {
            if (a[i][j] % 2 == 0)
            {
                printf(" %d \n", a[i][j]);
            }
        }
    }
    printf("Printing the odd numbers\n");
    for (int i = 0; i < 5; i++)
    {
        for (int j = 1; j <= 4; j++)
        {
            if (a[i][j] % 2 != 0)
            {
                printf(" %d\n", a[i][j]);
            }
        }
    }
    return 0;
}
```

Output:

```
 Enter number at 0 and 3 position of array4
 Enter number at 0 and 4 position of array43
 Enter number at 1 and 1 position of array2
 Enter number at 1 and 2 position of array3
 Enter number at 1 and 3 position of array3
 Enter number at 1 and 4 position of array56
 Enter number at 2 and 1 position of array3
 Enter number at 2 and 2 position of array1
 Enter number at 2 and 3 position of array54
 Enter number at 2 and 4 position of array3
 Enter number at 3 and 1 position of array3
 Enter number at 3 and 2 position of array5
 Enter number at 3 and 3 position of array76
 Enter number at 3 and 4 position of array3
 Enter number at 4 and 1 position of array6
 Enter number at 4 and 2 position of array3
 Enter number at 4 and 3 position of array2
 Enter number at 4 and 4 position of array56
 Printing the positive numbers
  2
  3
  4
  43
  2
  3
  3
  56
  3
  1
  54
  3
  3
  5
  76
  3
  6
```

```
 3
 2
 56
Printing the negative numbers
Printing the Even numbers
 2
 4
 2
 56
 54
 76
 6
 2
 56
Printing the odd numbers
 3
 43
 3
 3
 3
 1
 3
 3
 5
 3
 3
PS C:\Users\KIIT\Desktop\C programming\lab\16dec21_lab15> 74
```

2. Write a C Program to Perform Scalar Matrix Multiplication

Code:

```
#include<stdio.h>

// C Program to Perform Scalar Matrix Multiplication

int main()

{

    int i, j,Multiplication[3][4], Number;



    printf("\n Enter the Matrix Elements \n");

    for(i = 0; i < 3; i++)

    {

        for(j = 0;j < 4;j++)

        {

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

        }

    }


    printf("\n Please Enter the Multiplication Value  :  ");

    scanf("%d", &Number);


    for(i = 0; i <3; i++)

    {

        for(j = 0; j < 4; j++)

        {

            Multiplication[i][j] = Number * Multiplication[i][j];

        }

    }


    printf("\n The Result of a Scalar Matrix Multiplication is : \n");

    for(i = 0; i <3; i++)

    {

        for(j = 0; j < 4; j++)

        {
```

```
            printf("%d \t ", Multiplication[i][j]);
        }
        printf("\n");
    }
    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 pro
c -o tempCodeRunnerFile } ; if ($?) { .\tempCodeRunnerFile }

 Enter the Matrix Elements
2
3
4
5
3
2
45
6
43
3
2
4

 Please Enter the Multiplication Value  :  5

 The Result of a Scalar Matrix Multiplication is :
10      15      20      25
15      10      225     30
215     15      10      20
PS C:\Users\KIIT\Desktop\C programming\lab\16dec21_lab15> 6
```

3. **WAP to add two 2d matrix of 4x4**

Code:

```c
#include <stdio.h>

int main(int argc, char const *argv[])

{

    int a[4][4], b[4][4], c[4][4];

    printf("Take inputs for array 1\n");

    for (int i = 0; i < 4; i++)

    {

        for (int j = 1; j <= 4; j++)

        {

            printf("Enter number at %d and %d position of array", i, j);

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

        }

    }

    printf("Take inputs for array 2\n");

    for (int i = 0; i < 4; i++)

    {

        for (int j = 1; j <= 4; j++)

        {

            printf("Enter number at %d and %d position of array", i, j);

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

        }

    }

    printf("On summation of array 1 and 2\n");

    for (int i = 0; i < 4; i++)

    {

        for (int j = 1; j <= 4; j++)

        {

            c[i][j] = a[i][j] + b[i][j];

            printf("%d\t",c[i][j]);

        }

        printf("\n");

    }

}
```

Output:

```
PS C:\Users\KIIT\Desktop\C programming\lab> cd "c:\Users\KIIT\Desktop\C programmi
le.c -o tempCodeRunnerFile } ; if ($?) { .\tempCodeRunnerFile }
Take inputs for array 1
Enter number at 0 and 1 position of array5
Enter number at 0 and 2 position of array2
Enter number at 0 and 3 position of array4
Enter number at 0 and 4 position of array1
Enter number at 1 and 1 position of array0
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 array6
Enter number at 2 and 1 position of array9
Enter number at 2 and 2 position of array8
Enter number at 2 and 3 position of array5
Enter number at 2 and 4 position of array2
Enter number at 3 and 1 position of array0
Enter number at 3 and 2 position of array1
Enter number at 3 and 3 position of array47
Enter number at 3 and 4 position of array585
Take inputs for array 2
Enter number at 0 and 1 position of array5
Enter number at 0 and 3 position of array2
Enter number at 0 and 4 position of array5
Enter number at 1 and 1 position of array63
Enter number at 1 and 2 position of array2
Enter number at 1 and 3 position of array5
Enter number at 1 and 4 position of array58
Enter number at 2 and 1 position of array5
Enter number at 2 and 2 position of array1
Enter number at 2 and 3 position of array5
Enter number at 2 and 4 position of array2
Enter number at 3 and 1 position of array45
Enter number at 3 and 2 position of array
5
Enter number at 3 and 3 position of array2
Enter number at 3 and 4 position of array5
```

```
On summation of array 1 and 2
10      7       6       6
63      4       8       64
14      9       10      4
45      6       49      9
PS C:\Users\KIIT\Desktop\C programming\lab\16dec21_lab15> 5
```

4. WAP to check for symmetric matrix

Code:

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

    /* Find transpose of matrix A*/
    for (row = 0; row < 4; row++)
    {
        for (col = 0; col < 4; col++)
        {
            B[row][col] = A[col][row];
        }
    }
    /* Check whether matrix A is equal to its transpose or not*/
    isSymmetric = 1;
    for (row = 0; row < 4 && isSymmetric; row++)
    {
        for (col = 0; col < 4; col++)
        {
            if (A[row][col] != B[row][col])
            {
```

```
                isSymmetric = 0;
                break;
            }
        }
    }
    //If the given matrix is symmetric.
    if (isSymmetric == 1)
    {
        printf("\nThe given matrix is Symmetric matrix: \n");
        for (row = 0; row < 4; row++)
        {
            for (col = 0; col < 4; col++)
            {
                printf("%d ", A[row][col]);
            }
            printf("\n");
        }
    }
    else
    {
        printf("\nThe given matrix is not Symmetric matrix.");
    }
    return 0;
}
```

Output:

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

PS C:\Users\KIIT\Desktop\C programming\lab> cd "c:\Users\KIIT\De
c -o tempCodeRunnerFile } ; if ($?) { .\tempCodeRunnerFile }
Enter elements in matrix of size 4x4:
2
3
4
5
65
76
4
4
32
2
43
45
5
6
6
45

The given matrix is not Symmetric matrix.
```