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25 April Lab questions

#1. Matrix Multiplication

Code:

```c
#include <stdio.h>
int main()
{
    int a_285[10][10],b_285[10][10],c_285[10][10];
    int i_285,j_285,k_285,m_285,n_285,p_285,q_285;
    printf("Provide the order of the first matrix=>");
    scanf("%d%d",&m_285,&n_285);
    printf("Provide the order of the second matrix=>");
    scanf("%d%d",&p_285,&q_285);
    if(n_285==p_285)
    {
    printf("Provide the elements of the first matrix\n");
    for(i_285=0;i_285<m_285;i_285++)
    {
        for(j_285=0;j_285<n_285;j_285++)
        {
            printf("A[%d][%d]=",i_285,j_285);
            scanf("%d",&a_285[i_285][j_285]);
        }
    }
    printf("Please provide elements of your second matrix\n");
    for(i_285=0;i_285<p_285;i_285++)
    {
        for(j_285=0;j_285<q_285;j_285++)
        {
            printf("b[%d][%d]=",i_285,j_285);
            scanf("%d",&b_285[i_285][j_285]);
        }
    }
        for(i_285=0;i_285<m_285;i_285++)
        {
            for(j_285=0;j_285<q_285;j_285++)
            {
                c_285[i_285][j_285]=0;
                for(k_285=0;k_285<n_285;k_285++)
                {
                    c_285[i_285][j_285]+=a_285[i_285][k_285]*b_285[k_285][j_285];
                }
            }
        }
    printf("The resulting matrix is\n");
    for(i_285=0;i_285<m_285;i_285++)
    {
        for(j_285=0;j_285<q_285;j_285++)
        {
            printf("%d\t",c_285[i_285][j_285]);
            if(j_285==q_285-1)
            printf("\n");
        }
    }
    }
    else
    printf("Multiplication not allowed");
    return 0;
}
```

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Output:

```
PS C:\Users\KIIT\Desktop\Programming\25_april Multiplication and 3D> gcc Multiplication.c
PS C:\Users\KIIT\Desktop\Programming\25_april Multiplication and 3D> ./a.exe
Provide the order of the first matrix=>2 3
Provide the order of the second matrix=>3 2
Provide the elements of the first matrix
A[0][0]=1
A[0][1]=2
A[0][2]=3
A[1][0]=4
A[1][1]=5
A[1][2]=6
Please provide elements of your second matrix
b[0][0]=7
b[0][1]=8
b[1][0]=9
b[1][1]=1
b[2][0]=2
b[2][1]=3
The resulting matrix is
31      19
85      55
PS C:\Users\KIIT\Desktop\Programming\25_april Multiplication and 3D>
```

```
PROBLEMS  OUTPUT  TERMINAL
TERMINAL
PS C:\Users\KIIT\Desktop\Programming\25_april Multiplication and 3D> ./a.exe
Provide the order of the first matrix=>2 3
Provide the order of the second matrix=>2 3
Multiplication not allowed
PS C:\Users\KIIT\Desktop\Programming\25_april Multiplication and 3D>
```

#2. 3D array

Code:

```c
#include <stdio.h>
int main()
{
    int a_285[10][10][10];
    int i_285,j_285,k_285,q_285,p_285,r_285;
    printf("Please provide the order of your 3D matrix\n");
    scanf("%d%d%d",&p_285,&q_285,&r_285);
    printf("Please provide the elements of your 3D matrix respectively\n");
    for(i_285=0;i_285<p_285;i_285++)
    {
        for(j_285=0;j_285<q_285;j_285++)
        {
            for(k_285=0;k_285<r_285;k_285++)
            {
                printf("a[%d][%d][%d]=",i_285,j_285,k_285);
                scanf("%d",&a_285[i_285][j_285][k_285]);
```

KIDUS ABEBE MEKONEN
Roll No- 2106285
Section A11
IT department

```
            }
        }
    }
    printf("The matrix is as follows=>\n");
    for(i_285=0;i_285<p_285;i_285++)
    {
        for(j_285=0;j_285<q_285;j_285++)
        {
            for(k_285=0;k_285<r_285;k_285++)
            {
                printf("Element[%d][%d][%d]=> %d\n",i_285,j_285,k_285,a_285[i_285][j_285][k_28
5]);
            }
        }
    }
    return 0;
}
```

Output:

```
PS C:\Users\KIIT\Desktop\Programming\25_april Multiplication and 3D> gcc 3D_array.c
PS C:\Users\KIIT\Desktop\Programming\25_april Multiplication and 3D> ./a.exe
Please provide the order of your 3D matrix
2 3 2
Please provide the elements of your 3D matrix respectively
a[0][0][0]=1
a[0][0][1]=2
a[0][1][0]=3
a[0][1][1]=4
a[0][2][0]=5
a[0][2][1]=6
a[1][0][0]=7
a[1][0][1]=8
a[1][1][0]=9
a[1][1][1]=0
a[1][2][0]=1
a[1][2][1]=2
The matrix is as follows=>
Element[0][0][0]=> 1
Element[0][0][1]=> 2
Element[0][1][0]=> 3
Element[0][1][1]=> 4
Element[0][2][0]=> 5
Element[0][2][1]=> 6
Element[1][0][0]=> 7
Element[1][0][1]=> 8
Element[1][1][0]=> 9
Element[1][1][1]=> 0
Element[1][2][0]=> 1
Element[1][2][1]=> 2
PS C:\Users\KIIT\Desktop\Programming\25_april Multiplication and 3D>
```

#3. use GETS,PUTS/ PRINTF,SCANF

Code:

```
#include <stdio.h>
#include <string.h>
int main()
{
    //gets and puts
    char A_285[20];
    printf("Give a sentence with less than 19 characters\n");
    gets(A_285);
```

KIDUS ABEBE MEKONEN
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```
    printf("\n");
    puts(A_285);
    printf("\n");

    //scanf and printf
```

```
    printf("Give a sentence with less than 19 characters(see change when we use printf)\n");
    // scanf stops at space...
    scanf("%s",A_285);
    printf("\n");
    printf("Your sentence is=>>\n");
    printf("%s",A_285);
    printf("\n");
}
```

Output:

```
PROBLEMS  OUTPUT  TERMINAL
TERMINAL

PS C:\Users\KIIT\Desktop\Programming\25_april Multiplication and 3D> ./a.exe
Give a sentence with less than 19 characters
I am Kidus Abebe

I am Kidus Abebe

Give a sentence with less than 19 characters(see change when we use printf)
Information Technology

Your sentence is=>>
Information
PS C:\Users\KIIT\Desktop\Programming\25_april Multiplication and 3D>
```

#4. Reverse string

Code:

```
#include <stdio.h>
#include <string.h>
int main()
{
    int n_285,i_285;
    char A_285[30];
    printf("Give a string\n");
    gets(A_285);
    n_285= strlen(A_285);
    printf("The reverse of your string is=>\n");
    for(i_285=n_285-1;i_285>=0;i_285--)
    {
        printf("%c",A_285[i_285]);
    }
    return 0;
}
```

Output:

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