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Practice Problem 14

Task 1

Code:

```
#include<stdio.h>

int main()
{
    int matrix[4][3];

    for (int i=0; i<4; i++)
    {
        for (int j=0 ;j<3 ;j++){
            scanf("%d",&matrix[i][j]);

        }

    }

    printf("Transpose of Matrix is \n\n");

    for (int i=0; i<3; i++)
    {
        for (int j=0 ;j<4 ;j++){
            printf("%d ",matrix[j][i]);

        }
        printf("\n");
    }

}
```

Output:

```
muhammad@muhammad-Latitude-5490:~/Desktop$ gcc pflabpp14a.c
muhammad@muhammad-Latitude-5490:~/Desktop$ ./a.out
1 2 3
5 6 7
9 0 6
2 5 7
Transpose of Matrix is

1 5 9 2
2 6 0 5
3 7 6 7
muhammad@muhammad-Latitude-5490:~/Desktop$
```

Task 2

Code:

```
#include<stdio.h>

int main()
{

    int matrix[2][2];

    for (int i=0; i<2; i++)
    {
        for (int j=0 ;j<2;j++){
            scanf("%d",&matrix[i][j]);

        }

    }

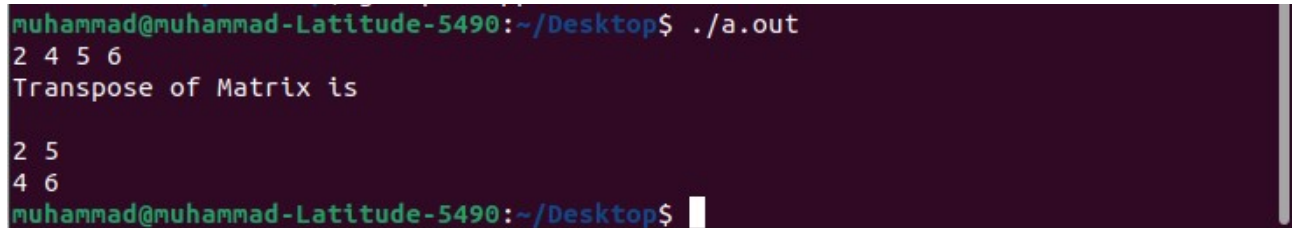
    printf("Transpose of Matrix is \n\n");

    for (int i=0; i<2; i++)
    {
        for (int j=0 ;j<2;j++){
            printf("%d ",matrix[j][i]);

        }
        printf("\n");
    }

}
```

Output:



```
muhammad@muhammad-Latitude-5490:~/Desktop$ ./a.out
2 4 5 6
Transpose of Matrix is

2 5
4 6
muhammad@muhammad-Latitude-5490:~/Desktop$
```

Task 3

Code

```
#include<stdio.h>

int main()
{

    int matrix[2][3];

    for (int i=0; i<2; i++)
    {
        for (int j=0 ;j<3 ;j++){
            scanf("%d",&matrix[i][j]);

        }

    }

    int result =0;
    int result1=0;


    for (int i=0; i<1; i++)
    {
        for (int j=0 ;j<3 ;j++){

            result +=matrix[i][j];

        }

        printf("Sum of elements of row 1 is %d\n",result);
    }

    printf("\n\n");

    for (int i=1; i<2; i++)
    {
        for (int j=0 ;j<3 ;j++){

            result1 +=matrix[i][j];

        }

    }
```

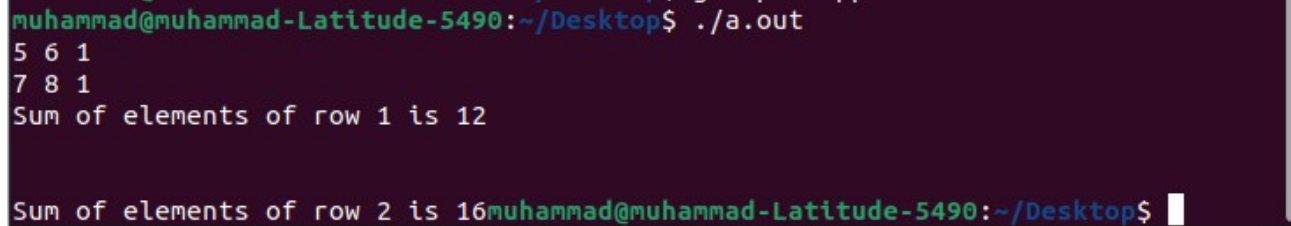
```

printf("Sum of elements of row 2 is %d",result1);
}

}

```

Output



```

muhammad@muhammad-Latitude-5490:~/Desktop$ ./a.out
5 6 1
7 8 1
Sum of elements of row 1 is 12

Sum of elements of row 2 is 16muhammad@muhammad-Latitude-5490:~/Desktop$

```

Task 4

Code

```

#include <stdio.h>

int main()
{
    int rows1,columns1,rows2,columns2;

    printf("Enter number of rows of matrix 1:");
    scanf("%d",&rows1);
    printf("Enter number of cols of matrix 1:");
    scanf("%d",&columns1);
    int arr1[rows1][columns1];

    for (int i=0; i<rows1; i++)
    {
        for (int j=0; j<columns1;j++)
        {
            scanf("%d",&arr1[i][j]);
        }
    }
    printf("Enter number of rows of matrix 2:");
    scanf("%d",&rows2);
    printf("Enter number of cols of matrix 2:");
    scanf("%d",&columns2);

    int arr2[rows2][columns2];

    for (int i=0; i<rows2; i++)
    {
        for (int j=0; j<columns2;j++)
        {
            scanf("%d",&arr2[i][j]);

```

```

    }
}

int result[2][2];

int rc = 2;

if (columns1 != rows2)
{
printf("Matrices can't multiplied");
}

else
{
for(int i=0; i<rows1;i++)
for(int j=0; j<columns2; j++)
{
    result[i][j]=0;

    for (int k=0; k<rc;k++)
    {
        result[i][j] += arr1[i][k] * arr1[k][j];
    }
}

for(int i=0; i<rows1;i++)
{
    for(int j=0; j<columns2; j++)
    {
        printf("product is %d ",result[i][j]);
    }
    printf ("\n");
}
}
return 0;
}

```

Output

```

muhammad@muhammad-Latitude-5490:~/Desktop$ ./a.out
Enter number of rows of matrix 1:2
Enter number of cols of matrix 1:3
2 4 5
8 7 9
Enter number of rows of matrix 2:3
Enter number of cols of matrix 2:2
4 7
0 3
6 2
36 36
72 81

```

Task 5

Code

```
#include <stdio.h>

int main() {
    int no_of_students, student_number, clas;
    char name[50], father_name[50];

    printf("Enter number of students:");
    scanf("%d", &no_of_students);

    for (int i = 0; i < no_of_students; i++) {
        printf("Enter student number:");
        scanf("%d", &student_number);

        printf("Enter student name:");
        scanf("%s", name);

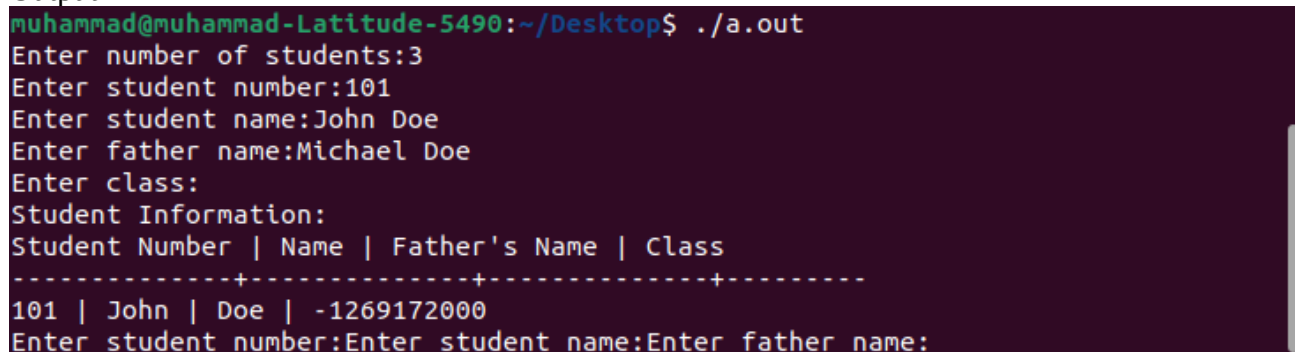
        printf("Enter father name:");
        scanf(" %s\n", father_name);

        printf("Enter class:");
        scanf(" %d", &clas);

        printf("\nStudent Information:\n");
        printf("Student Number | Name | Father's Name | Class\n");
        printf("-----+-----+-----+-----\n");
        printf("%d | %s | %s | %d\n", student_number, name, father_name, clas);
    }

    return 0;
}
```

Output



```
muhammad@muhammad-Latitude-5490:~/Desktop$ ./a.out
Enter number of students:3
Enter student number:101
Enter student name:John Doe
Enter father name:Michael Doe
Enter class:
Student Information:
Student Number | Name | Father's Name | Class
-----+-----+-----+-----
101 | John | Doe | -1269172000
Enter student number:Enter student name:Enter father name:
```