The first picture is combined file that consist of three source files. Below is the transcription of each.

matrixmultiplication.cpp (class)

```cpp
#include <stdio.h>
#include "matrixmultiplication.h"

int row, column, data;
int matrixA[7][7], matrixB[7][7];
int matrixmltplctn[7][7];

void matrixmultiplication::setValues (int r, int c){
    row = r;
    column = c;
}

void matrixmultiplication::setMatrixEquation(int matrix1[7][7], int matrix2[7][7]){
    for (int o = 0; o < row ; o++){
        for (int p = 0; p < column ; p++){
            matrixA[o][p] = matrix1[o][p];
            matrixB[p][o] = matrix2[p][o];
        }
    }
}

int matrixmultiplication::getMatrixA(){
    for (int y = 0; y < row ; y++){
        for (int h = 0; h < column ; h++){
            printf("%i ", matrixA[y][h]);
        }
        printf("\n");
    }
    printf("\n");

    return 0;
}

int matrixmultiplication::getMatrixB(){
    for (int e = 0; e < column ; e++){
        for (int d = 0; d < row ; d++){
            printf("%i ", matrixB[e][d]);
        }
        printf("\n");
    }
    printf("\n");

    return 0;
}

int matrixmultiplication::getMatrixmltplctn1(){
    for (int q = 0; q < row ; q++){
        for (int a = 0; a < row ; a++){
            for (int z = 0; z < column ; z++){
                matrixmltplctn[q][a] += matrixA[q][z] * matrixB[z][a];
            }
            printf("%i ", matrixmltplctn[q][a]);
        }
        printf("\n");
    }

    return 0;
}
```

matrixmultiplication.h (classfile)

```cpp
class matrixmultiplication{

    public:
    void setValues(int r, int c);
    void setMatrixEquation(int matrix1[7][7], int matrix2[7][7]);
    int getMatrixA(void);
    int getMatrixB(void);
    int getMatrixmltplctn1(void);
};
```

testmatrixmultiplication.cpp (test file)

```cpp
#include <stdio.h>
#include "matrixmultiplication.h"

int main (){

    int data[7][7], data2[7][7];
    int r, c, i, j, k, l;

    printf("Enter rows of matrix : ");
    scanf("%i", &r);
    printf("Enter columns of matrix : ");
    scanf("%i", &c);

    printf("Enter matrix A (%ix%i): \n", r, c);
    for (i = 0; i < r; i++){
        for (j = 0; j < c; j++){
            printf("Element [%i][%i]: ", i, j);
            scanf("%i", &data[i][j]);
        }
    }
    printf("\n");

    printf("Enter matrix B (%ix%i): \n", c, r);
    for(k = 0; k < c; k++){
        for(l =0; l <r; l++){
            printf("Element [%i][%i]: ", l, k);
            scanf("%i", &data2[k][l]);
        }
    }

    matrixmultiplication m2;
    m2.setValues(r, c);
    m2.setMatrixEquation (data, data2);
    printf("\n");
    printf("Matrix A\n");
    printf("", m2.getMatrixA());
    printf("Matrix B\n");
    printf("", m2.getMatrixB());
    printf("Matrix Multiplication\n");
    printf("", m2.getMatrixmltplctn1());

    return 0;
}
```

The first picture is combined file that consist of

1) matrixmultiplication.cpp   -   it was the class   (location on the right)
2) matrixmultiplication.h   -   it was the classfile   (location on the middle)
3) testmatrixmultiplication.cpp   -   it was the test file   (location on the left)

then the second picture was the continued code from the previous file.

```
C:\Users\Debby\Documents\cpp\MatrixMult>u
Enter rows of matrix : 3
Enter columns of matrix : 4
Enter matrix A (3x4):
Element [0][0]: 1
Element [0][1]: 2
Element [0][2]: 3
Element [0][3]: 4
Element [1][0]: 5
Element [1][1]: 6
Element [1][2]: 7
Element [1][3]: 8
Element [2][0]: 9
Element [2][1]: 7
Element [2][2]: 2
Element [2][3]: 2

Enter matrix B (4x3):
Element [0][0]: 1
Element [1][0]: 3
Element [2][0]: 4
Element [0][1]: 5
Element [1][1]: 6
Element [2][1]: 7
Element [0][2]: 1
Element [1][2]: 2
Element [2][2]: 4
Element [0][3]: 6
Element [1][3]: 7
Element [2][3]: 8

Matrix A
1 2 3 4
5 6 7 8
9 7 2 2

Matrix B
1 3 4
5 6 7
1 2 4
6 7 8

Matrix Multiplication
38 49 62
```

```
Enter matrix A (3x4):
Element [0][0]: 1
Element [0][1]: 2
Element [0][2]: 3
Element [0][3]: 4
Element [1][0]: 5
Element [1][1]: 6
Element [1][2]: 7
Element [1][3]: 8
Element [2][0]: 9
Element [2][1]: 7
Element [2][2]: 2
Element [2][3]: 2

Enter matrix B (4x3):
Element [0][0]: 1
Element [1][0]: 3
Element [2][0]: 4
Element [0][1]: 5
Element [1][1]: 6
Element [2][1]: 7
Element [0][2]: 1
Element [1][2]: 2
Element [2][2]: 4
Element [0][3]: 6
Element [1][3]: 7
Element [2][3]: 8

Matrix A
1 2 3 4
5 6 7 8
9 7 2 2

Matrix B
1 3 4
5 6 7
1 2 4
6 7 8

Matrix Multiplication
38 49 62
90 121 154
58 87 109
```

Then the 3&4 picture shows the code that was already compiled it into command prompt.

$$\text{Matrix A} \begin{pmatrix} 1 & 2 & 3 & 4 \\ 5 & 6 & 7 & 8 \\ 9 & 7 & 2 & 2 \end{pmatrix}$$

matrix multiplication:

$$\text{Matrix B} \begin{pmatrix} 1 & 3 & 4 \\ 5 & 6 & 7 \\ 1 & 2 & 4 \\ 6 & 7 & 8 \end{pmatrix} \qquad \begin{pmatrix} 38 & 49 & 62 \\ 90 & 121 & 154 \\ 58 & 87 & 109 \end{pmatrix}$$