ue01: Rechnen mit Matrizen Teil 1

```
#include <stdio.h>
#include <stdlib.h>
#include <string.h>

double gibFkZahlEin(char* txt)
{
    char s[80];
    char n;
    double wert;

    do
    {
    printf(" %s: ", txt);

    fgets(s, 80, stdin);
    n = sscanf(s, "%lf", &wert);
    } while(n != 1);

    return wert;
}

void gibMatrixEin(char name, double* a11, double* a12, double*
a21, double* a22)
{
    char kleinbuchstabe;
    char i[100];

    kleinbuchstabe = name - 'A' + 'a';

    printf("Matrix %c\n", name);

    sprintf(&i, "%c 11", kleinbuchstabe);
    *a11 = gibFkZahlEin(i);
    sprintf(&i, "%c 12", kleinbuchstabe);
    *a12 = gibFkZahlEin(i);
    sprintf(&i, "%c 21", kleinbuchstabe);
    *a21 = gibFkZahlEin(i);
    sprintf(&i, "%c 22", kleinbuchstabe);
    *a22 = gibFkZahlEin(i);



}

void gibMatrixAus(char name, double a11, double a12, double a21,
double a22)
{
    printf("Matrix %c\n", name);
```

```
    printf("/ \t %10.3lf \t %10.3lf \t\t\\\n", a11, a12);
    printf("\\\t %10.3lf \t %10.3lf \t\t/\n", a21, a22);

}

void addiereMatrix(double a11, double a12, double a21, double a22,
double b11, double b12, double b21, double b22, double* c11,
double* c12, double* c21, double* c22)
{
    *c11 = a11 + b11;
    *c12 = a12 + b12;
    *c21 = a21 + b21;
    *c22 = a22 + b22;

}


int main ()
{
    double a11;
    double a12;
    double a21;
    double a22;
    double b11;
    double b12;
    double b21;
    double b22;
    double c11;
    double c12;
    double c21;
    double c22;

    gibMatrixEin('A', &a11, &a12, &a21, &a22);

    gibMatrixEin('B', &b11, &b12, &b21, &b22);
    addiereMatrix(a11, a12, a21, a22, b11, b12, b21, b22, &c11,
&c12, &c21, &c22);
    gibMatrixAus('C', c11, c12, c21, c22);

    return 0;
}
```

```
Matrix A
 a 11: 10
 a 12: 11
 a 21: 24
 a 22: 13
Matrix B
 b 11: 13
 b 12: 14
 b 21: 15
 b 22: 16
Matrix C
/           23.000          25.000          \
\           39.000          29.000          /

RUN FINISHED; exit value 0; real time: 32s; user: 0ms; system: 0ms
```