

# Introduction to Computers and Programming

## Homework 4

2022/10/04

### 1. Deadline

You have one week to complete the homework. Hand in your homework via E3 before 2022/10/10 23:55. Note that late submissions will not be accepted. In addition, make sure that your code can be executed on Visual Studio Community 2019.

### 2. Problems

#### 2.1 Matrix Multiplication

First, input  $m, n, p$ , which is the dimension of two matrices,  $A_{m \times n}$ ,  $B_{n \times p}$ . Then, input the two matrices respectively with row-major. Finally, output the multiplication of  $A$  and  $B$ .

#### Input

$m, n, p$  (max dimension is 10), two matrices  $A, B$

#### Output

Print out the multiplication result of two matrices  $A$  and  $B$ .

It should be a matrix with dimension:  $m \times p$ .

#### Example :

##### Input

6 6 6

1 2 3 4 5 6

7 8 9 10 11 12

13 14 15 16 17 18

19 20 21 22 23 24

25 26 27 28 29 30

31 32 33 34 35 36

37 38 39 40 41 42

43 44 45 46 47 48

49 50 51 52 53 54

55 56 57 58 59 60

61 62 63 64 65 66

67 68 69 70 71 72

## Output

1197 1218 1239 1260 1281 1302

3069 3126 3183 3240 3297 3354

4941 5034 5127 5220 5313 5406

6813 6942 7071 7200 7329 7458

8685 8850 9015 9180 9345 9510

10557 10758 10959 11160 11361 11562

```
6 6 6

1 2 3 4 5 6
7 8 9 10 11 12
13 14 15 16 17 18
19 20 21 22 23 24
25 26 27 28 29 30
31 32 33 34 35 36

37 38 39 40 41 42
43 44 45 46 47 48
49 50 51 52 53 54
55 56 57 58 59 60
61 62 63 64 65 66
67 68 69 70 71 72
1197 1218 1239 1260 1281 1302
3069 3126 3183 3240 3297 3354
4941 5034 5127 5220 5313 5406
6813 6942 7071 7200 7329 7458
8685 8850 9015 9180 9345 9510
10557 10758 10959 11160 11361 11562
```

## 2.2 Big Number Addition

First, input two big number A and B, each of them is out of the range of long long int.

Then, Add A and B.

Finally, output the sum of A and B.

### Hint

Using string to store two big numbers, and convert them to int with ASCII code.

```
// ASCII CODE(49 ~ 57) -> int(1 ~ 9)
```

### Input

Two big numbers A and B (each one will be 20 digits).

### Output

Addition of two big numbers.

### Example:

#### Input

12345678912345678912

98765432198765432198

#### Output

11111111111111111110

```
12345678912345678912
98765432198765432198
11111111111111111110
```