

## Assignment #1.2

Goal : Print 1! to N!

Guide :

Each printed factorials must be of precise value. That is, you are supposed to store these values with integers, not floating points.

Note that the data type integer is of limited 32 bits or 64 bits, which is not sufficient to store large numbers. For large N (such as N=50), N! cannot be stored with an integer. Therefore, here you should use an array for storage. For example, to store 3264 you can associate an array of size 4:

|   |   |   |   |
|---|---|---|---|
| 3 | 2 | 6 | 4 |
|---|---|---|---|

Each element in this array can, in fact, be used to store an integer (32 bits or 64 bits). However, here we use one element to store only one digit (0 to 9). To perform a multiplication, such as  $3264 \times 25$ , you can refer to the following progress:

|   |   |   |   |   |   |
|---|---|---|---|---|---|
| 0 | 0 | 3 | 2 | 6 | 4 |
|---|---|---|---|---|---|

\* 25

|   |   |    |    |     |     |
|---|---|----|----|-----|-----|
| 0 | 0 | 75 | 50 | 150 | 100 |
|---|---|----|----|-----|-----|

Carry from units to tens:

|   |   |    |    |     |   |
|---|---|----|----|-----|---|
| 0 | 0 | 75 | 50 | 160 | 0 |
|---|---|----|----|-----|---|

Carry from tens to hundreds:

|   |   |    |    |   |   |
|---|---|----|----|---|---|
| 0 | 0 | 75 | 66 | 0 | 0 |
|---|---|----|----|---|---|

Carry from hundreds to thousands:

|   |   |    |   |   |   |
|---|---|----|---|---|---|
| 0 | 0 | 81 | 6 | 0 | 0 |
|---|---|----|---|---|---|

Carry from thousands to ten-thousands:

|   |   |   |   |   |   |
|---|---|---|---|---|---|
| 0 | 8 | 1 | 6 | 0 | 0 |
|---|---|---|---|---|---|

Sample output :

1!=1

2!=2

3!=6

4!=24

5!=120

6!=720

50!=.....