

Computer Programming -- Quiz I

(Open books, Open note, **60** minutes)

Return the Exam Sheet (試卷請寫名字與學號，考完繳回)

Quiz Submission Procedure

1. If you run into any problem during the quiz, please raise your hand and ask TA immediately.
2. You should submit your final AC codes in Jupyter notebook. If you cannot pass online judge, you should submit your best version of codes Jupyter notebook.
3. Name a folder using your student ID and Quiz number (e.g., b10501020_Quiz1), put all the Jupyter notebooks into the folder and zip the folder (e.g., b10501020_Quiz1.zip). The .zip file should contain only .ipynb files.
4. Submit your .zip file directly through the course website.

Name: _____ Student ID: _____

Please download Quiz1_Dist.zip from the course website. Unzip the file and you will find Quiz1.pdf. In addition, you will find problem1 and problem2 folders that contain three sets of test data for each problem, respectively.

1. **(50 points)** Name your file Mul_Table.ipynb. Write a function called `print_multiplication_table`. The function should receive four arguments: `starting_row`, `ending_row`, `starting_column` and `ending_column`. For first row of the table, you should print the integer start from `starting_row` to `ending_row` increasingly. For first column of the table, you should print the integer start from `starting_column` to `ending_column` increasingly. For other entries in the table, you should print out the multiplication of their corresponding row value and column value.

Input:

Each input contains four lines. Each line contains an integer representing `starting_row`, `ending_row`, `starting_column` and `ending_column`, respectively.

Output:

Print out the table with a specific format. Please check Sample Output for more format details. For the first three samples we provide ground truth to prevent ambiguity (see `1.in`, `1.out`, `2.in`, `2.out`, `3.in`, `3.out` in `problem1` folder in `Quiz1_Dist.zip`).

Sample Input:

1
9
1
9

Sample Output:

		1	2	3	4	5	6	7	8	9
1	1	2	3	4	5	6	7	8	9	
2	2	4	6	8	10	12	14	16	18	
3	3	6	9	12	15	18	21	24	27	
4	4	8	12	16	20	24	28	32	36	
5	5	10	15	20	25	30	35	40	45	
6	6	12	18	24	30	36	42	48	54	
7	7	14	21	28	35	42	49	56	63	
8	8	16	24	32	40	48	56	64	72	
9	9	18	27	36	45	54	63	72	81	

2. (50 points) Name your file `FibonacciTriangle.ipynb`. Write a program that prompts the user to enter an integer for the height of a triangular pattern consisting of Fibonacci numbers and displays it as shown in the following sample runs. Fibonacci numbers have the following recursive definition:

$$F_0 = 0, F_1 = 1$$

$$F_n = F_{n-2} + F_{n-1}, \text{ for } n > 1$$

Input:

Each input contains only one line. Each line contains an integer.

Output:

The numbers in the triangular pattern should follow Fibonacci series. Each number should be separated with a space. **Note that there is a space at the end of each line.** For the first three samples we provide ground truth to prevent ambiguity (see 1.in, 1.out, 2.in, 2.out, 3.in, 3.out in problem2 folder in Quiz1_Dist.zip).

Sample Input:

7

Sample Output:

```

1
1 2
3 5 8
13 21 34 55
89 144 233 377 610
987 1597 2584 4181 6765 10946
17711 28657 46368 75025 121393 196418 317811

```