# *Python Class 8*

Loops, If, and Classes

# *Loop Practice*

- Write a loop that adds all the numbers from 1 to 100.

# *Scope (*有効範囲*), Again*

- Any variables you create inside a loop can only be used inside a loop.

- If you want to use a variable outside a loop, you need to create the variable outside the loop.

# *Gauss*



- According to a story, he did something bad in class.

- His teacher made him add all the numbers from 1 to 100.
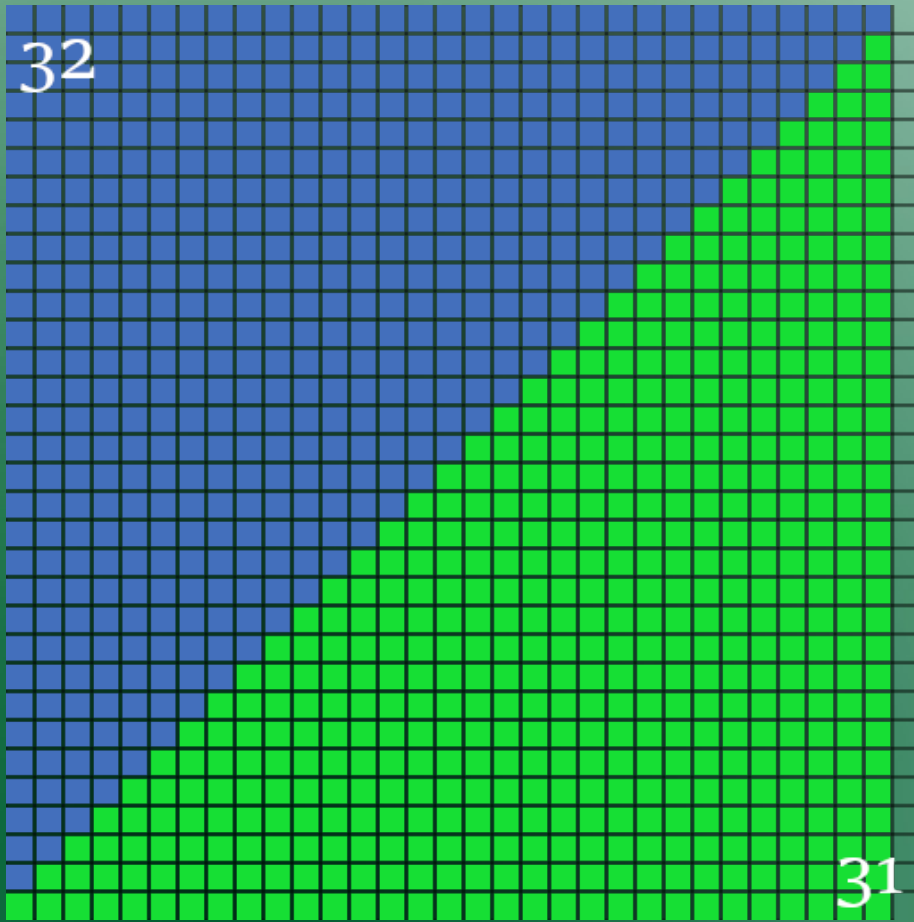
- Gauss did this in a few seconds!

# *How?*

# *Way 1*

| 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | ……. | 1 |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | ……. | 31 |
| 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 | ……. | 32 |

- Line up the numbers forwards and backwards.
- Add the columns. This sum is always the same.
- Multiply the sum by the number of rows, divide by 2.

# *Way 2*



- Imagine the numbers from 1 to 31 as squares.

- Copy this and reverse it.

- Now, you have a rectangle with 2x the number of squares.

- To find the area of a rectangle, multiply the height by the width.

- Divide this by two.

# *Loop exercises, continued*

- Create a function with a loop that adds the first ten numbers.

- Create a function with a loop that adds the first x numbers.

# *Loop Guided Practice*

- Write code that adds all the items in a list.
- my_list = [56,37,82,2340,5]

# *Loop Guided Practice 2*

- Write code that multiplies all the items in a list.
- my_list = [56,37,82,2340,5]

# *Loop and If Exercise 1*

- Write a program that finds the biggest number in a list.

- my_list = [56,37,82,2340,5]

# *Loop and If Exercise 2*

- Write a program that finds the smallest number in a list.

- my_list = [56,37,82,2340,5]

# Class Practice

- Make a manga-ka class.

- What variables are needed?

- What functions are needed?

# *Class Practice 2*

- Make a recipe class.

- What variables do we need?

- What functions do we need?

# *To-Do List Project*

- How should a to-do list app work?

- What classes will we need to make?

- What variables will the classes need?

- What functions will the classes need?

# *How it should work*

Load to-do list from file

Give user three options
1. Add to-do item
2. Remove to-do item
3. Mark to-do item as complete

1. the item should be added to the to-do list

2. the item should be removed from the list

3. the item should be marked as complete

the list should be saved