

Problem-Based Learning

Python 3

Lecture: 05-for-example

Online Python

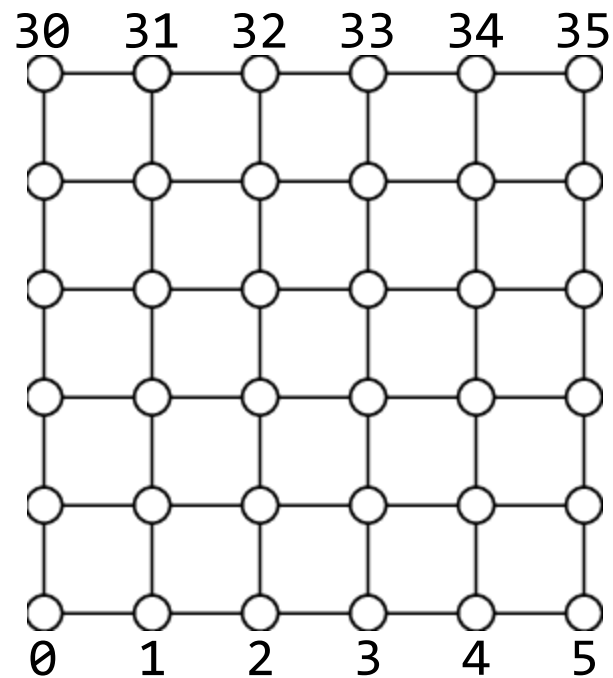
- <https://www.programiz.com/python-programming/online-compiler/>

Lecture Notes

- <https://web.phy.ntnu.edu.tw/~hongyi/?url=notes>



Problem



$0 \rightarrow (0, 0)$
 $1 \rightarrow (1, 0)$
 $2 \rightarrow (2, 0)$

$33 \rightarrow (3, 5)$
 $34 \rightarrow (4, 5)$
 $35 \rightarrow (5, 5)$

顯示結果

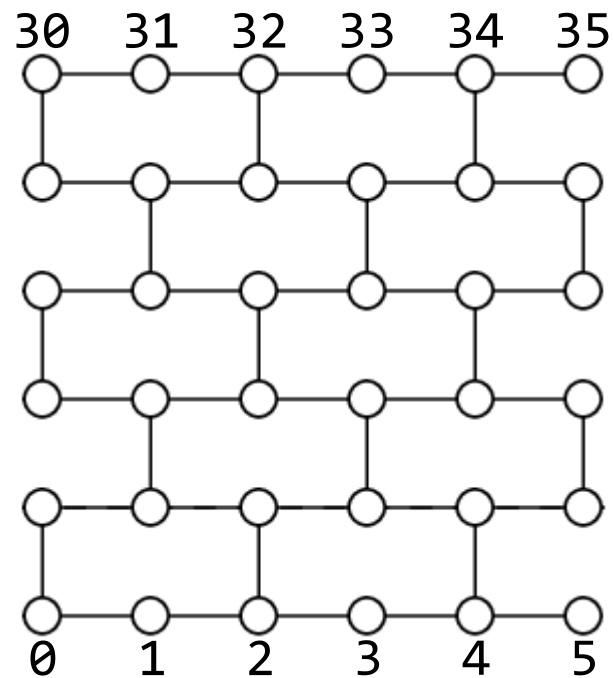
I	(x,y)	+x	-x	+y	-y
0	(0,0)	1	5	6	30
1	(1,0)	2	0	7	31
2	(2,0)	3	1	8	32
33	(3,5)	34	32	3	27
34	(4,5)	35	33	4	28
35	(5,5)	30	34	5	29

Solution (1)

建立Table和使用者輸入

- `import numpy as np`
- `i_x = np.zeros(36, dtype=int)`
- `i_y = np.zeros(36, dtype=int)`
- `i_px = np.zeros(36, dtype=int)`
- `i_py = np.zeros(36, dtype=int)`
- `for y in range(6):`
 - `for x in range(6):`
 - `i =`
 - `i_x[i] = x`
 - `i_y[i] = y`
 - `:`
- `while True:`
 - `C = input("Enter 0-35 or 'done' to finish? ")`
 - `if C.lower() == "done":`
 - `break`
 - `try:`
 - `i = int(C)`
 - `print(i, i_x[i], i_y[i], i_px[i], i_py[i])`
 - `except:`
 - `print("Not a number!")`

Problem



$0 \rightarrow (0, 0)$
 $1 \rightarrow (1, 0)$
 $2 \rightarrow (2, 0)$

$33 \rightarrow (3, 5)$
 $34 \rightarrow (4, 5)$
 $35 \rightarrow (5, 5)$

顯示結果

I	(x,y)	+x	-x	+y	-y
0	(0,0)	1	5	6	30
1	(1,0)	2	0	-1	-1
2	(2,0)	3	1	8	32
33	(3,5)	34	32	3	27
34	(4,5)	35	33	-1	-1
35	(5,5)	30	34	5	29

Solution (2)