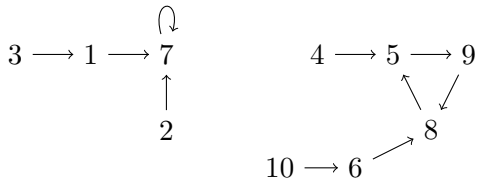
QUIZ 2

COMP9021 PRINCIPLES OF PROGRAMMING

Illustration for $\{1:7, 2:7, 3:1, 4:5, 5:9, 6:8, 7:7, 8:5, 9:8, 10:6\}$




```
$ python3
...
>>> from quiz_2 import *
>>> mapping = generate_mapping(0, 10)
>>> mapping
{1: 7, 2: 7, 3: 1, 4: 5, 5: 9, 6: 8, 7: 7, 8: 5, 9: 8, 10: 6}
>>> follow_the_arrows_from(mapping, 1)
It starts with a stalk of length 1
It reaches 7 on a loop of length 1
>>> follow_the_arrows_from(mapping, 3)
It starts with a stalk of length 2
It reaches 7 on a loop of length 1
>>> follow_the_arrows_from(mapping, 4)
It starts with a stalk of length 1
It reaches 5 on a loop of length 3
>>> follow_the_arrows_from(mapping, 5)
It is on a loop of length 3
>>> follow_the_arrows_from(mapping, 7)
It is on a loop of length 1
>>> follow_the_arrows_from(mapping, 10)
It starts with a stalk of length 2
It reaches 8 on a loop of length 3
>>> longest_strictly_decreasing_sequences_to(mapping, 1)
3 -> 1
>>> longest_strictly_decreasing_sequences_to(mapping, 2)
>>> longest_strictly_decreasing_sequences_to(mapping, 5)
9 -> 8 -> 5
```

Date: Trimester 2, 2022.

```
>>> mapping = generate_mapping(30, 12)
>>> mapping
{1: 9, 2: 5, 3: 10, 4: 1, 5: 10, 6: 11, 7: 4, 8: 5, 9: 1, 10: 7, 11: 7, 12: 11}
>>> follow_the_arrows_from(mapping, 2)
It starts with a stalk of length 5
It reaches 1 on a loop of length 2
>>> longest_strictly_decreasing_sequences_to(mapping, 1)
12 -> 11 -> 7 -> 4 -> 1
>>> longest_strictly_decreasing_sequences_to(mapping, 5)
8 -> 5
>>> longest_strictly_decreasing_sequences_to(mapping, 6)
>>> mapping = generate_mapping(61, 11)
>>> mapping
{1: 8, 2: 3, 3: 9, 4: 4, 5: 6, 6: 5, 7: 6, 8: 1, 9: 8, 10: 6, 11: 6}
>>> follow_the_arrows_from(mapping, 6)
It is on a loop of length 2
>>> follow_the_arrows_from(mapping, 4)
It is on a loop of length 1
>>> longest_strictly_decreasing_sequences_to(mapping, 5)
7 -> 6 -> 5
10 -> 6 -> 5
11 -> 6 -> 5
```