

QUIZ 2

COMP9021 PRINCIPLES OF PROGRAMMING

```
$ python3
...
>>> from quiz_2 import *
>>> describe_rule(3)
The rule encoded by 3 is: {(0, 0): 0, (0, 1): 0, (1, 0): 1, (1, 1): 1}

After 0 followed by 0, we draw 0
After 0 followed by 1, we draw 0
After 1 followed by 0, we draw 1
After 1 followed by 1, we draw 1
>>> describe_rule(4)
The rule encoded by 4 is: {(0, 0): 0, (0, 1): 1, (1, 0): 0, (1, 1): 0}

After 0 followed by 0, we draw 0
After 0 followed by 1, we draw 1
After 1 followed by 0, we draw 0
After 1 followed by 1, we draw 0
>>> describe_rule(11)
The rule encoded by 11 is: {(0, 0): 1, (0, 1): 0, (1, 0): 1, (1, 1): 1}

After 0 followed by 0, we draw 1
After 0 followed by 1, we draw 0
After 1 followed by 0, we draw 1
After 1 followed by 1, we draw 1
>>> describe_rule(14)
The rule encoded by 14 is: {(0, 0): 1, (0, 1): 1, (1, 0): 1, (1, 1): 0}

After 0 followed by 0, we draw 1
After 0 followed by 1, we draw 1
After 1 followed by 0, we draw 1
After 1 followed by 1, we draw 0
>>> draw_line(3, 0, 0, 1)
0
>>> draw_line(3, 1, 0, 5)
10101
>>> draw_line(4, 1, 0, 9)
100000000
>>> draw_line(4, 0, 1, 13)
0110000000000
>>> draw_line(11, 1, 0, 16)
1010101010101010
>>> draw_line(11, 1, 1, 19)
111111111111111111
>>> draw_line(14, 0, 0, 21)
001101101101101101
```

```
>>> draw_line(14, 1, 0, 22)
1011011011011011011
>>> uniquely_produced_by_rule('1100110011')
12
>>> uniquely_produced_by_rule('01100000')
4
>>> uniquely_produced_by_rule('001101101')
14
>>> uniquely_produced_by_rule('11111111')
-1
>>> uniquely_produced_by_rule('00011')
-1
>>> uniquely_produced_by_rule('11001')
-1
>>> uniquely_produced_by_rule('0010001')
-1
>>> uniquely_produced_by_rule('0010001')
-1
```