

## Quiz 5

COMP9021 Principles of Programming

2016 session 1

### Sample outputs

```
$ python3 quiz_5.py
Enter three nonnegative integers: 0 10 0
Here is the grid that has been generated:
  0 0 0 0 0 0 0 0 0 0
  0 0 0 0 0 0 0 0 0 0
  0 0 0 0 0 0 0 0 0 0
  0 0 0 0 0 0 0 0 0 0
  0 0 0 0 0 0 0 0 0 0
  0 0 0 0 0 0 0 0 0 0
  0 0 0 0 0 0 0 0 0 0
  0 0 0 0 0 0 0 0 0 0
  0 0 0 0 0 0 0 0 0 0
  0 0 0 0 0 0 0 0 0 0
```

The longest paths made up of consecutive numbers starting from 0 go up to 0.  
There are 100 such paths.

```
$ python3 quiz_5.py
Enter three nonnegative integers: 0 6 34
Here is the grid that has been generated:
 24 26  2 16 32 31
 25 19 30 22 13 32
  8 18  8  6 16 34
  9 19  6  4 21 30
  6 22 27 20 13 30
 28 33 16  3  0  5
```

The longest paths made up of consecutive numbers starting from 0 go up to 0.  
There is one such path.

```
$ python3 quiz_5.py
Enter three nonnegative integers: 0 4 1
Here is the grid that has been generated:
  1 1 0 1
  1 1 1 1
  1 0 0 1
  0 0 1 0
```

The longest paths made up of consecutive numbers starting from 0 go up to 1.  
There are 12 such paths.

```
$ python3 quiz_5.py
Enter three nonnegative integers: 0 4 2
Here is the grid that has been generated:
  1 1 0 1
  2 1 1 1
  1 1 2 0
  2 0 1 0
```

The longest paths made up of consecutive numbers starting from 0 go up to 2.  
There are 4 such paths.

```
$ python3 quiz_5.py
Enter three nonnegative integers: 0 8 4
Here is the grid that has been generated:
  3 3 0 2 4 3 3 2
  3 2 4 1 4 1 2 1
  0 4 2 4 4 1 2 0
  0 2 3 4 0 2 3 2
  4 1 4 3 3 4 2 0
  4 0 0 3 0 4 3 2
  1 2 0 1 4 1 1 1
  4 3 0 0 2 4 3 0
```

The longest paths made up of consecutive numbers starting from 0 go up to 4.  
There are 3 such paths.

```
$ python3 quiz_5.py
Enter three nonnegative integers: 0 12 1
Here is the grid that has been generated:
```

```

1 1 0 1 1 1 1 1 1 0 0 1
0 0 1 0 1 0 0 1 1 0 1 1
1 0 1 1 1 0 0 0 1 0 1 1
0 1 0 0 0 0 0 1 0 0 1 1
0 1 1 0 1 0 1 1 0 1 1 0
1 0 0 0 0 1 1 0 0 0 0 0
0 1 1 0 0 1 1 1 1 1 0 1
0 1 1 0 0 0 1 0 0 1 0 1
1 0 0 0 0 0 0 0 0 0 0 1
0 1 0 0 0 0 0 0 1 0 0 0
1 0 1 0 0 0 1 1 1 0 0 1
0 0 1 0 1 1 1 0 0 0 0 0
```

The longest paths made up of consecutive numbers starting from 0 go up to 1.  
There are 122 such paths.

```
$ python3 quiz_5.py
Enter three nonnegative integers: 0 12 2
Here is the grid that has been generated:
```

```

1 1 0 1 2 1 1 1 1 1 2 0
2 0 1 0 0 2 1 2 2 2 0 1
0 2 0 2 1 1 2 0 1 1 1 2
2 0 2 1 1 2 1 0 2 0 0 2
1 2 2 2 0 2 1 1 0 2 1 2
0 0 2 0 0 0 2 1 0 0 1 2
1 0 1 2 1 2 0 2 1 2 0 2
2 2 1 1 0 2 1 1 2 0 1 0
0 0 0 2 2 1 1 0 0 2 0 0
0 0 2 2 2 1 2 2 1 2 0 0
2 2 1 2 1 1 1 2 2 2 1 0
1 2 0 1 2 2 1 0 0 0 2 1
```

The longest paths made up of consecutive numbers starting from 0 go up to 2.  
There are 53 such paths.

```
$ python3 quiz_5.py
Enter three nonnegative integers: 0 12 3
Here is the grid that has been generated:
```

```
3 3 0 2 3 3 2 3 2 1 1 2
1 0 2 1 2 0 0 2 3 0 2 3
2 1 3 3 2 0 0 0 3 0 3 2
1 2 0 1 1 1 1 3 0 0 2 3
0 2 2 0 2 1 2 3 0 3 2 1
2 1 1 1 0 2 3 0 0 1 1 0
0 3 2 1 1 3 2 3 3 2 0 2
0 3 2 1 1 0 2 0 1 2 1 2
3 0 0 1 1 0 0 0 0 1 0 3
0 2 0 0 0 1 1 0 3 1 0 0
3 0 2 0 1 0 2 2 3 1 0 3
0 0 3 1 2 2 3 1 1 0 1 1
```

The longest paths made up of consecutive numbers starting from 0 go up to 3.  
There are 12 such paths.

```
$ python3 quiz_5.py
Enter three nonnegative integers: 0 12 4
Here is the grid that has been generated:
```

```
3 3 0 2 4 3 3 2 3 2 4 1
4 1 2 1 0 4 2 4 4 1 2 0
0 2 3 4 0 2 3 2 4 1 4 3
3 4 2 0 4 0 0 3 0 4 3 2
1 2 0 1 4 1 1 1 4 3 0 0
2 4 3 0 2 4 2 0 4 2 4 1
4 4 4 2 3 0 4 3 2 4 1 2
1 1 1 0 4 2 3 0 0 1 1 0
0 4 3 4 2 4 1 1 4 3 4 2
3 3 2 0 2 4 0 3 4 2 1 1
0 2 0 1 2 1 2 3 0 0 1 1
0 4 4 4 0 0 0 1 4 4 0 3
```

The longest paths made up of consecutive numbers starting from 0 go up to 4.  
There is one such path.

```
$ python3 quiz_5.py
Enter three nonnegative integers: 0 12 5
Here is the grid that has been generated:
```

```
3 3 0 2 4 3 3 2 3 2 4 1
4 1 2 1 0 4 2 4 5 4 1 2
0 5 0 5 2 3 4 0 2 3 2 4
5 1 4 3 3 4 2 0 4 0 0 5
3 5 5 5 0 4 3 2 1 5 2 5
0 1 4 1 1 1 4 3 0 0 2 4
3 0 2 4 2 5 0 4 2 4 1 4
4 4 2 3 0 4 3 2 4 1 2 1
1 1 0 4 5 2 3 0 0 5 1 1
0 0 5 4 5 3 5 4 2 4 1 1
5 4 3 4 2 3 3 5 5 5 2 0
2 4 0 3 4 5 2 1 1 0 5 2
```

The longest paths made up of consecutive numbers starting from 0 go up to 4.  
There are 4 such paths.

```
$ python3 quiz_5.py
Enter three nonnegative integers: 0 12 6
Here is the grid that has been generated:
```

```
6 3 6 3 0 2 4 3 3 6 6 2
3 2 4 1 4 1 2 1 6 0 4 6
2 4 5 6 4 1 2 0 5 0 6 5
2 3 4 0 2 3 2 4 5 1 4 3
3 6 4 2 0 6 4 0 0 5 6 3
5 6 6 5 5 0 4 3 6 6 2 1
5 2 5 6 0 1 4 1 1 6 1 6
4 3 0 0 2 4 3 0 2 4 2 5
0 4 2 6 4 1 6 4 4 4 2 3
0 4 6 3 2 4 1 2 1 1 6 1
0 4 5 2 3 0 0 5 6 1 1 0
6 0 5 6 4 5 3 6 5 4 2 4
```

The longest paths made up of consecutive numbers starting from 0 go up to 2.  
There are 3 such paths.