TDT4136 Assignment 4 - Stian R. Hanssen and Vebjørn Isaksen
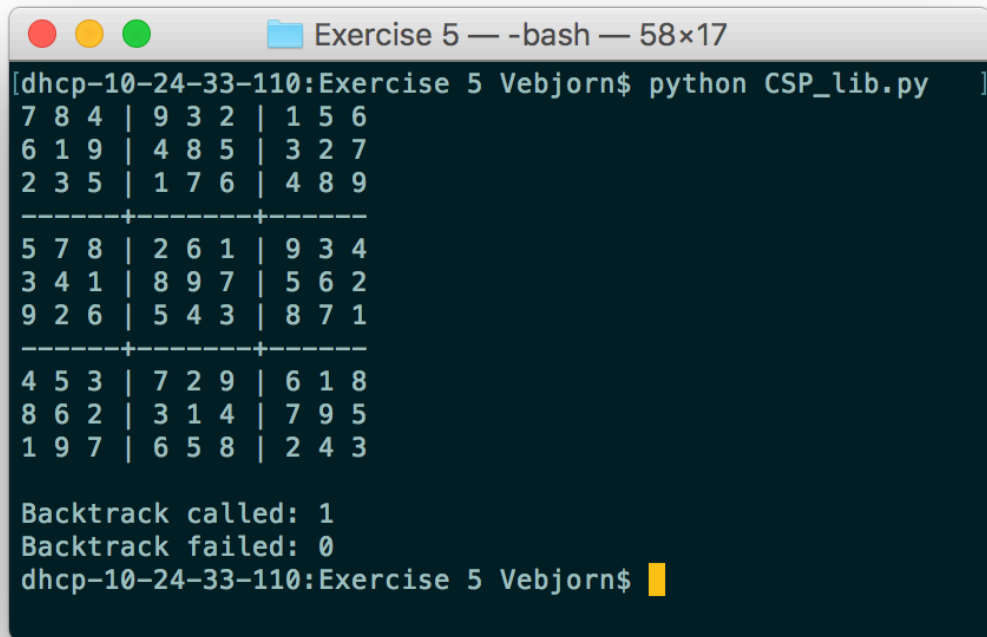
Easy

```
[dhcp-10-24-33-110:Exercise 5 Vebjorn$ python CSP_lib.py    ]
7 8 4 | 9 3 2 | 1 5 6
6 1 9 | 4 8 5 | 3 2 7
2 3 5 | 1 7 6 | 4 8 9
------+-------+------
5 7 8 | 2 6 1 | 9 3 4
3 4 1 | 8 9 7 | 5 6 2
9 2 6 | 5 4 3 | 8 7 1
------+-------+------
4 5 3 | 7 2 9 | 6 1 8
8 6 2 | 3 1 4 | 7 9 5
1 9 7 | 6 5 8 | 2 4 3

Backtrack called: 1
Backtrack failed: 0
dhcp-10-24-33-110:Exercise 5 Vebjorn$
```

It just needed one backtrack call, and did not fail.

Medium

```
[dhcp-10-24-33-110:Exercise 5 Vebjorn$ python CSP_lib.py    ]
8 7 5 | 9 3 6 | 1 4 2
1 6 9 | 7 2 4 | 3 8 5
2 4 3 | 8 5 1 | 6 7 9
------+-------+------
4 5 2 | 6 9 7 | 8 3 1
9 8 6 | 4 1 3 | 2 5 7
7 3 1 | 5 8 2 | 9 6 4
------+-------+------
5 1 7 | 3 6 9 | 4 2 8
6 2 8 | 1 4 5 | 7 9 3
3 9 4 | 2 7 8 | 5 1 6

Backtrack called: 2
Backtrack failed: 0
dhcp-10-24-33-110:Exercise 5 Vebjorn$ ▌
```

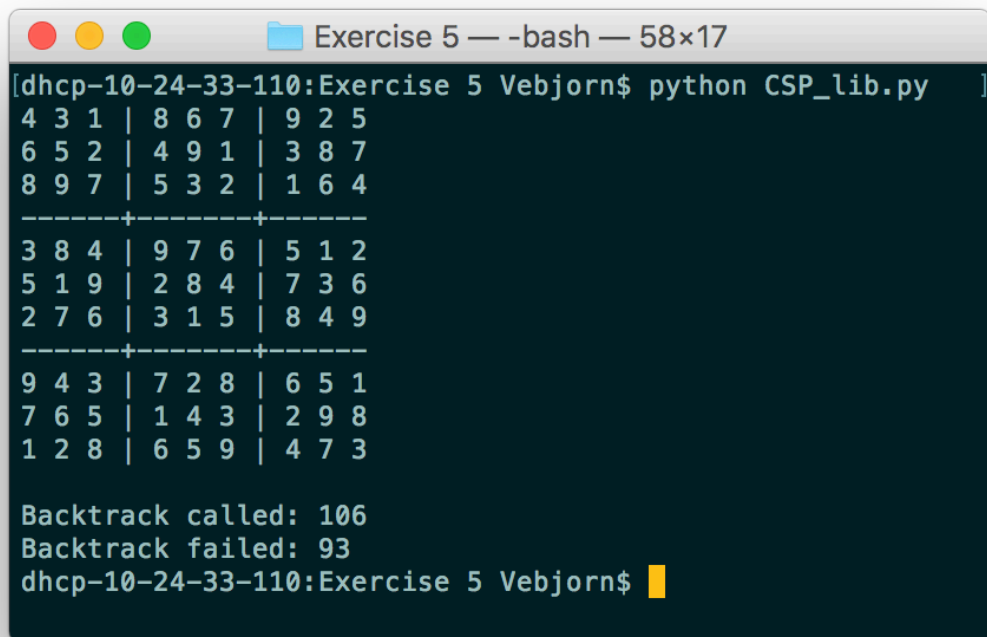Here it needed 2 backtrack calls to place some values before solving the rest.

Hard

```
[dhcp-10-24-33-110:Exercise 5 Vebjorn$ python CSP_lib.py    ]
1 5 2 | 3 4 6 | 8 9 7
4 3 7 | 1 8 9 | 6 5 2
6 8 9 | 5 7 2 | 3 1 4
------+-------+------
8 2 1 | 6 3 7 | 9 4 5
5 4 3 | 8 9 1 | 7 2 6
9 7 6 | 4 2 5 | 1 8 3
------+-------+------
7 9 8 | 2 5 3 | 4 6 1
3 6 5 | 9 1 4 | 2 7 8
2 1 4 | 7 6 8 | 5 3 9

Backtrack called: 10
Backtrack failed: 5
dhcp-10-24-33-110:Exercise 5 Vebjorn$ ▌
```

The 5 failed backtrack is because those assignments could not be solved.

Very hard

```
[dhcp-10-24-33-110:Exercise 5 Vebjorn$ python CSP_lib.py    ]
4 3 1 | 8 6 7 | 9 2 5
6 5 2 | 4 9 1 | 3 8 7
8 9 7 | 5 3 2 | 1 6 4
------+-------+-------
3 8 4 | 9 7 6 | 5 1 2
5 1 9 | 2 8 4 | 7 3 6
2 7 6 | 3 1 5 | 8 4 9
------+-------+-------
9 4 3 | 7 2 8 | 6 5 1
7 6 5 | 1 4 3 | 2 9 8
1 2 8 | 6 5 9 | 4 7 3

Backtrack called: 106
Backtrack failed: 93
dhcp-10-24-33-110:Exercise 5 Vebjorn$ 
```

Same as above.