

Hand-in 4

Exercise 1:

Code is implemented as `new_find(int x)` in `disjoint_sets.cpp`

And is tested in `main.cpp`.

The time complexity can be calculated as:

$$O(n) + 2O(1) = O(n)$$

This is because the worst-case of the while loop is the length of the whole set, thus it being $O(n)$ where n is the length of the set.

Exercise 2:

The print function can be seen in the `disjoint_sets.cpp`. And can be tested by running the `mian.cpp`

Exercise 3:

The implementation of the maze class can be seen in the `disjoint_sets.cpp`. And tested by running the `main.cpp`.