

# Problem 2

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## Write up

The strategy when doing blackbox testing is to analysis different path the methods possibly go through.

The basic idea here I do is to constructing and cross testing objects with mixed criterias.

## Edge

There are several differnt kind of edges:

- reflective/normal
- label with different lengths

When writing the test cases, I have

- Mixed comparison between reflective and normal edge
- Compare edge with different label length only
- Compare edge with different node and label

## Graph

For graph, I have also concluded several different conditions:

- Add same edge
- Add same edge with different label
- Add different edge with same label
- Add reflective edge

I have checked if the rep keep true after these condition in the test case by constructing its desired result directly and compared them with the method output

## GraphWrapper

Since Graph has nearly identical test case with Graph, The strategy I use is the same, except:

- I have constructed the answer/last state of the graph and use it to compare the result of Graph Wrapper

## Additional test

I have added some test case over the `hashCode`, which is required when using Set.