

# Lab 5

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The groups shared gitlab repository is available here:

<https://gitlab.ida.liu.se/dansj232/tddd04-c3-lab5-graphwalker/>

## Part 1:

1. *Introduce a change in the test code so that, when executing one of the edges twice, it will invalidate an assertion in the test program. GraphWalker may not detect this, so you may need to modify the annotation of the test class so that the generator and stop condition allow you to traverse each edge of the graph more than once. Does GraphWalker detect the error now?*

Yes, although not every time. Since different paths seems to be generated, a `InvocationTargetException` is thrown when an edge is visited twice.

2.
  - a. *What is the relationship between the model coverage, as in edge coverage, vertex coverage or path coverage when GraphWalker executes the tests that implement the model steps, and code coverage of the application code?*

Edge coverage is related to branch coverage, vertex coverage relates to statement coverage and path coverage is the same - all paths in the graph/in the code are tested.

- b. *Does 100% edge coverage imply 100% code coverage? Does it imply 100% branch coverage?*

100% edge coverage does not imply 100% code coverage, it does however imply 100% branch coverage since the edges in the graph represent the branches in the code.

## Part 2:

### Our changes to the Petclinic

For the PetClinic part, we chose to change two aspects:

1. When a user tries to add a new pet but the form contains some invalid information, they should be redirected back to the creation form. Instead, we changed so that the system redirects the user to the owner page. This change was introduced on line 85 in the file `PetController.java`.

2. The second change we introduced was that a pet now has to be born in year 3000. If not, an error will be returned. This change was performed by adding an else if statement to the class PetValidator that will invalidate all attempts to add a pet if its birth year is not 3000. The added code is shown below.

```
else if (pet.getBirthDate().getYear() != 3000 {  
    errors.rejectValue("birthDate", "invalid", "invalid");  
}
```

The full code showing our changes is available in our branch (felixmatilda) in commit [2d5044e06](#).

## Other groups changes

We chose to examine the code in the branch Daniel\_Johan (same repository as referred to previously). We found their two changes.

First change found was the redirecting of the return from the PetClinic method initFindForm. Originally the method would when successful return the list of owners, "owners/findOwners". Instead it now returns a list of veterinarians. This was solved by removing the node "v\_FindOwners" in the graphml along with its connected edges, so it would not be tested. We substituted it with a similar node, instead named "v\_Veterinarians".

The second change discovered was that when a user adds a new owner the system returns to the owner creation page regardless whether the creation process fails or not. To reflect this change the model was updated by removing the node "v\_OwnerInformation" and changing the "e\_CorrectData" from node "v\_NewOwner" so that it redirects back to itself even if the entered data is correct.

These two changes of the model now reflect the changes in the behaviour of the web application introduced by our peers.