

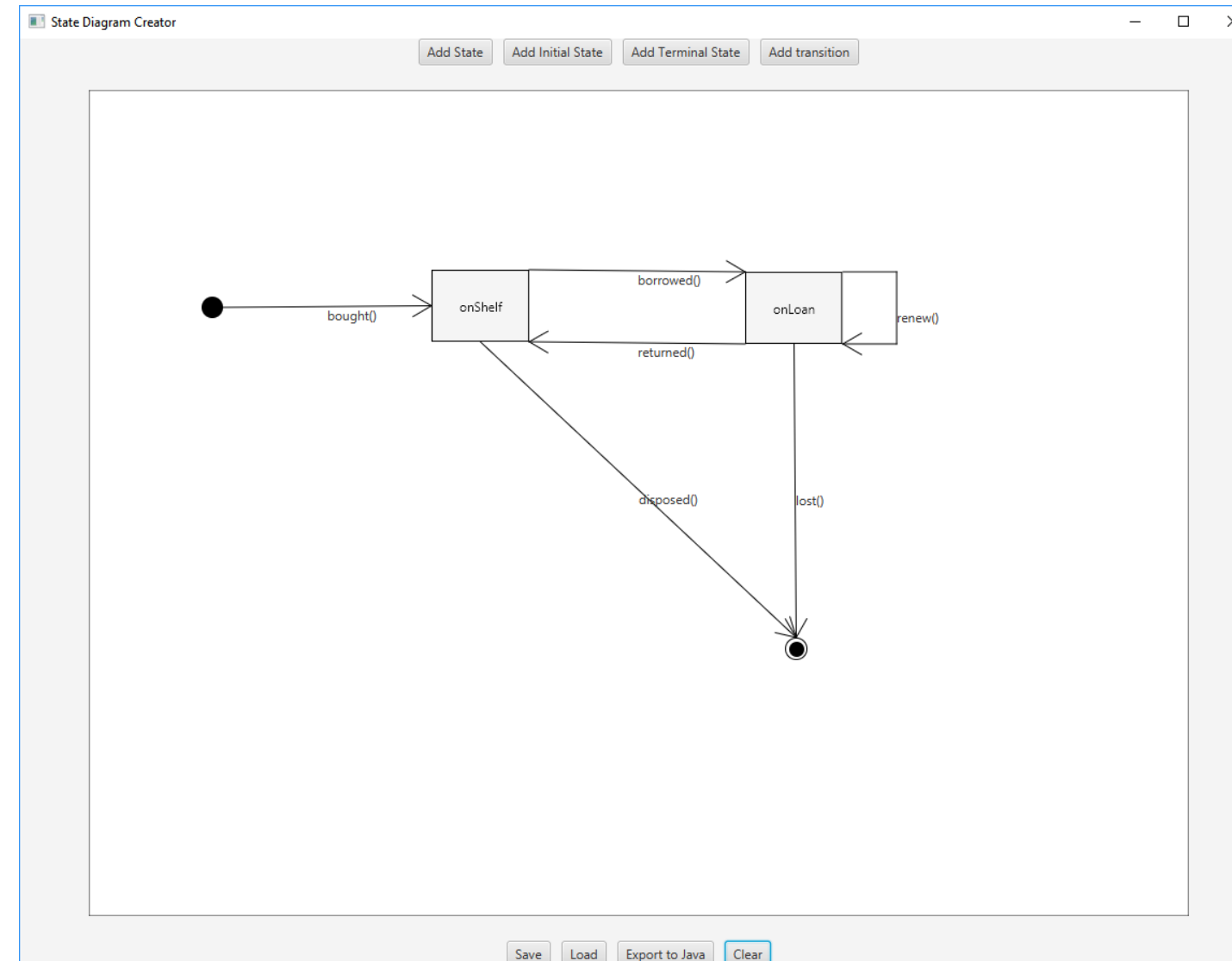
# State Diagram Tool for Teaching

Calum Peters

MSc in Software Engineering

## Background

- At Stirling, the Undergraduate Computer Science course requires completion of a module on Software Engineering.
- In this module, students are required to create UML State Diagrams.
- Existing tools are intended for development environments and have many features beyond the scope of the course.
- Additionally, the current program used by the university can easily and accidentally create something other than a State Diagram—this tool is to provide a simpler interface that enforces creating the correct diagram.



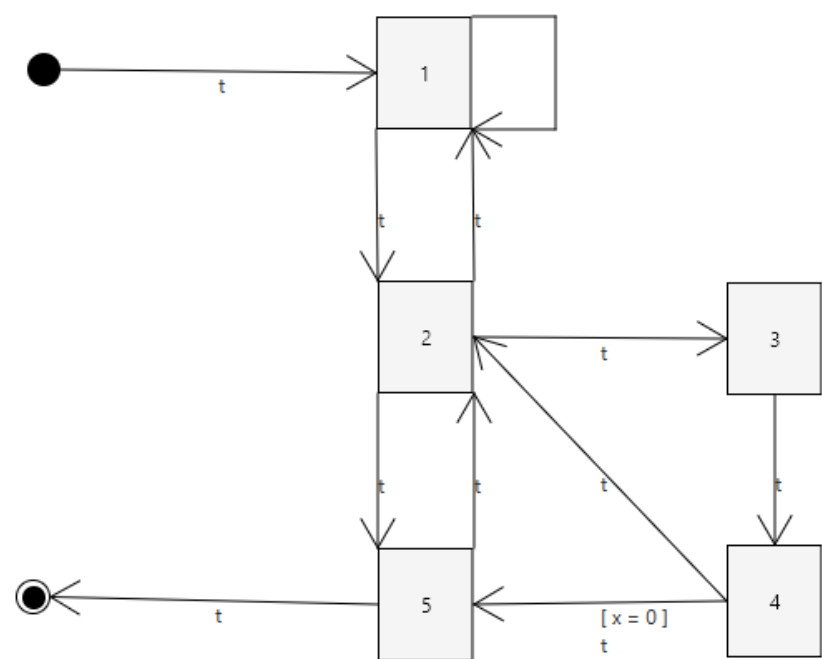
Example Tool Interface and Diagram

## Features

- WYSIWYG diagram editor
- Saving and loading to a user editable JSON file
- Export the class diagram to a Java Class skeleton.

Example Generated Class

```
1 public class Book {
2     private double fine;
3     boolean onShelf;
4     boolean onLoan;
5
6     public Book() {
7         bought();
8     }
9
10    private void bought() {
11        //creation method
12    }
13
14    private void borrowed() {
15        if(onShelf) {
16            onShelf = false;
17            onLoan = true;
18            //state change method
19        }
20    }
21
22    private void returned() {
23        if(onLoan) {
24            onLoan = false;
25            onShelf = true;
26            //state change method
27        }
28    }
29
30    private void renew() {
31        if(onLoan) {
32            if(fine < 5) {
33                //method goes here
34            }
35        }
36    }
37
38    private void disposed() {
39        if(onShelf) {
40            //terminal method
41        }
42    }
43
44    private void lost() {
45        if(onLoan) {
46            //terminal method
47        }
48    }
49 }
```



Example of a More Complex Diagram

## Technologies Used

