7 State Diagrams

Learning outcomes

The material and exercises in this chapter will enable you to:

- Explain the role and purpose of state diagrams in object-oriented systems development
- Use a state diagram to identify how a class behaves in response to events
- Draw a simple state diagram.

Key words that you will find in the glossary:

- action
- activity
- event
- guard
- state
- superstate
- transition

Introduction

So far, we have looked at how to model the organization and structure of data in the system using a class diagram, and at how to model a series of interactions between objects using sequence and collaboration diagrams. In this chapter we examine the system from a different point of view: how a class is affected by the different use cases in the system and how the objects of the class behave in response to events that affect them. The model that illustrates all possible behaviours of a class of objects is called a state diagram. In the chapter we look at the different components of a state diagram, how these are combined, and how the diagrams are used in the development of a system.

State diagrams are an important technique in object-oriented modelling, but they are not widely used in small information systems, such as Wheels. For this reason, most of the examples and exercises in this chapter do not come from the Wheels case study.