Tutorial: activity diagrams

October 11, 2013

Purpose

Let you practise developing activity diagrams. Everyone should become able to develop activity diagrams using the features discussed in the videos and in class, and should have a go before the tutorial. If you have trouble, look at the notes online (only after you've had a go!) and/or ask your tutor.

Exercises

1. Initially without parallelism and without swimlanes: draw an activity diagram for the following situation. A user selects some items from an online shop. When the user clicks CheckOut, the system calculates a total price and the user pays, either by credit card or by PayPal. Staff at the shop assemble the order, check that payment has been received correctly, update the stock control system, and dispatch the order.

2. Modify your diagram to allow different activities to be carried out in parallel as far as possible.

3. Modify your diagram to use swimlanes to show who does what.

4. Develop an activity diagram for the process of booking a party, as described in the earlier tutorial. Focus on the business-level process, i.e. show the whole computer system in one swimlane and show the client and any other humans, companies or external systems involved each in their own swimlane. Pay particular attention to concurrency.

5. Visit `http://www.uml-diagrams.org/activity-diagrams-examples.html` where you will find brief descriptions of activities, mostly quite familiar from everyday life. Use a few of these for activity diagram practice:

   (a) read the brief description and see what is unambiguous and what would require clarification;

   (b) using the description together with your own knowledge of the world and imagination (noting what you use for each decision!), draw an activity diagram corresponding to the description;

   (c) click on the activity title to see an activity diagram;

   (d) compare your diagram with the one on the page – which differences are your errors, which different interpretations or choices about what to represent? Are there errors on the page?

   There are a few features that you will see in their diagrams that are good to be able to read but which I will not examine you on. There's no particular reason I shouldn't have included any of these in the course: it's just that my general approach is to try to make sure you can confidently use a small subset of UML sufficient for everyday use, rather than getting lost in too many bits of notation.

- the use of objects as intermediaries between activities (e.g. Draft Document in Document Management Process): informally this is pretty easy to understand, but the notation isn't good when you get down to details such as "is this a newly created object, or is it a modified version of one we saw earlier?"

- the use of signals, shown as flag shapes, to start activities (e.g. Check Shopping Cart in Online Shopping): sometimes useful, but it can be just as easy to draw a separate activity diagram for what happens after that signal occurs.

- the use of labelled entry/exit points, e.g. A, B, C in Online Shopping: a notational convenience especially in big diagrams.