CIS 4930/6930 Principles of Cyber-Physical Systems
Homework #6: due 11 : 55pm, Mar 27th

Problem Description

Go through the slides on the jobshop example. Use UPPAAL to build the timed automata (TA) model for this example, and finish the following tasks.

P1 For verification problem 1 as described in the slides, develop an appropriate property in TCTL. Use UPPAAL to decide if it is true or false. If false, show a diagnostic trace and explain why. The model for the right belt is not needed for this problem. Note that it is *not* necessary to model the right belt for P1.

P2 Use the model of the left belt for P1, and finish the verification problem 2 as described in the slides similar to P1. If UPPAAL indicates that the property is false, show a diagnostic trace and explain why. Note that the right belt needs to be modeled for P2.

P3 (**required for CIS 6930, optional for CIS 4930**) Finish the verification problem 3 and 4, and find out the minimal and maximal execution time for the ten jobs as described in the new model for the left belt.

What to Submit

A zipped folder in the `.zip` format including following files:

- A TA model stored in a file `p1.xml` and all properties stored in a file `p1.q` for P1,

- A TA model stored in a file `p2.xml` and all properties stored in a file `p2.q` for P2,

- (required for CIS 6930) A TA model stored in a file `p3.xml` and all properties stored in a file `p3.q` for P3,

- A file containing the necessary explanations for the above tasks in the PDF/Word format.

Requirements

- Your file name must be in the format **hw6-{your last name}.zip** to help me recognize the owner of the file.

- This assignment is individual.

- All writings must be clear and readable. Figures for timed automata need to be drawn with some graphics editing SW. Otherwise, substantial loss of points may be incurred.