EECS 638

Programming Project

Due: midnight between April 11 and April 12, 20017

Expert System for Resource Allocation

In this project you are to develop a program in CLIPS in which knowledge is coded by rules. Your program should be able to implement the system of resource allocation presented as a Petri net in the following figure.

The system of resource allocation is equipped with a *clock*. You should assume that every single transition has a special incoming arc, not presented in the figure, and connected to the clock. The clock generates a pulse every 60 seconds. Thus every transition may be fired only at moments when a clock pulse is generated.

Transitions t1, t2, and t3 are prioritized. The highest priority is associated with transition t1, then with t2, the lowest priority with t3.

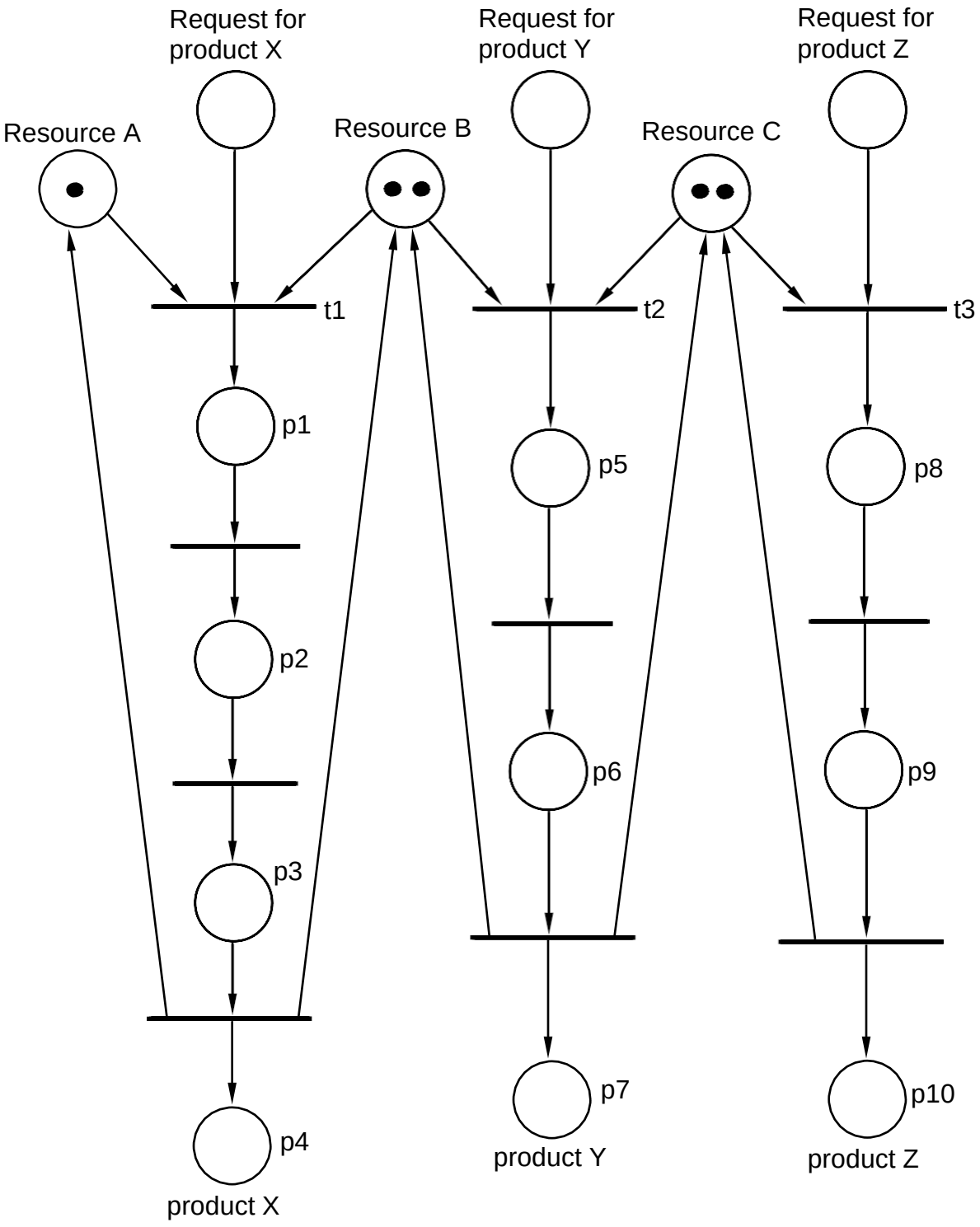
The input data file will have three binary digits (each digit has value either 0 or 1) per line. Digits will be separated by one or more spaces. The first digit corresponds to a request for product X (0 means no request, 1 means request), the second digit corresponds to product Y, and the third digit corresponds to product Z. Values in every line are synchronized with a clock pulse, i.e., it is assumed that the line represents a "snapshot" taken every 60 seconds. *The last line of this file will contain* –1 –1 –1.

The output file (created by your program) should have ten *integers* per line, separated by commas. *Integers* correspond to the number of marks in places; i-th *integer* corresponds to the place pi, where i = 1, 2, ..., 10.

Also, your program should generate automatic comments. It should be explained, after every line of your output, on the basis of all past relevant "snapshots", why your program generated such an output.

You may assume that the input data file does not contain errors.

Include all comments, including instructions about compiling in a single file called read_me.txt. Do not forget to include your name and KUID#. When you are ready to submit project, send ALL necessary source files and the read_me.txt file to <annguyen@ittc.ku.edu>. Do not send object files, executable files, and test data files. Late projects will be accepted with 10% penalty per day up to five days.


Request for product X
Request for product Y
Request for product Z
Resource A
Resource B
Resource C
t1
t2
t3
p1
p2
p3
p4
p5
p6
p7
p8
p9
p10
product X
product Y
product Z