6SENG006W Concurrent Programming

FSP Process Analysis & Design Form

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1. FSP Process Attributes

Attribute	Value
Name	DRINKS
Description	Represents a simple drinks vending machine offering tea & coffee.
Alphabet	blue, coffee, red, tea
Number of States	3
Deadlocks (yes/no)	No
Deadlock Trace(s) (if applicable)	N/A

2. FSP Process Code

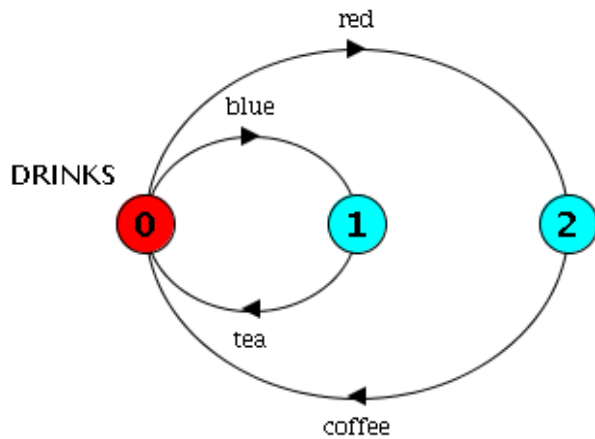| **FSP Process:** |
| --- |
| // Drinks Vend Machine

DRINKS = (red -> coffee -> DRINKS
           \| blue -> tea ->   DRINKS) . |

3. Actions Description

A description of what each of the FSP process' actions represents, i.e. is modelling. In addition, indicate if the action is intended to be synchronised (shared) with another process or asynchronous (not shared). (Add rows as necessary.)

Actions	Represents	Synchronous or Asynchronous
red	Vending machine's red button pressed by a customer to select a coffee.	**Synchronous**
coffee	Vending machine delivers a coffee.	**Synchronous**
blue	Vending machine's red button pressed by a customer to select a tea.	**Synchronous**
tea	Vending machine delivers a tea.	**Synchronous**

4. FSM/LTS Diagrams of FSP Process

Note that if there are too many states, more than 64, then the LTSA tool will not be able to draw the diagram. In this case draw small diagrams of the most important parts of the complete diagram.

5. LTS States

A description of what each of the FSP process' states represents, i.e. is modelling. If there are a large number of states then you can group similar states together &/or only include the most important ones. For example, identify any states related to mutual exclusion (ME) & the associated critical section (CS), e.g. waiting to enter the CS state, in the CS state(s), left the CS state. (Add rows as necessary.)

State	Represents
0	Vending machine waiting for a customer to press one of its 2 buttons, red or blue.
1	The machine's red button has been pressed by a customer to select a coffee, the machine is ready to deliver the coffee.
2	The machine's blue button has been pressed by a customer to select a tea, the machine is ready to deliver the tea.

6. Trace Tree for FSP Process

The trace tree for the process. Use the conventions given in the lecture notes and add explanatory notes if necessary.