IN2013, Week 4 – State Machines

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Scenario

Question 1 (state machine). Consider the BAPPERS case study and the design class diagram shown in Appendix 1.

Create a behavioral state machine, which shows the lifecycle of an instance of the class Job.

Broadly the instances of Job go through two stages: “Being Created” and “Being Processed”. “Being Created” represents the transformations of the Job state due to adding/removing tasks, i.e. before the Job is stored and placed for processing by the staff at the lab.

“Being Processed”, on the other hand, represents the transformation of the Job state as a result of tasks being processed (start and end) – from the start of the first task in the list of tasks to completing the last task, at which time the job itself becomes completed.

Consider also the case of changing the Job priority from “normal” when the job is created to “urgent”, if this becomes necessary.

Most of the state changes are caused by different call events, i.e. invocations of the methods defined for the class Job. Therefore, before you attempt to develop an answer, analyse carefully the methods defined for the class job in Appendix 1: these are going to be the events that trigger transitions between the states of the state machine.

Question 2: Refine your answer by introducing a composite state “Operational” which represents all states included in the “Being Processed” stage of the Job lifecycle.

Appendix 1. Design class diagram for BAPERS