Assignment 1 – CST8244- State Machine

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DES - STATES

|  |  |
| --- | --- |
| State | Mapping |
| ST\_START | 0 |
| ST\_LS | 1 |
| ST\_RS | 2 |
| ST\_WS | 3 |
| ST\_LO | 4 |
| ST\_RO | 5 |
| ST\_LC | 6 |
| ST\_RC | 7 |
| ST\_GRL | 8 |
| ST\_GRU | 9 |
| ST\_GLL | 10 |
| ST\_GLU | 11 |
| ST\_EXIT | 12 |

DES - Inputs

|  |  |  |  |
| --- | --- | --- | --- |
| input | Mapping | Value | Data |
| IN\_LS | 0 | ls | Person.id |
| IN\_RS | 1 | rs | Person.id |
| IN\_WS | 2 | ws | Person.weight |
| IN\_LO | 3 | lo | N/A |
| IN\_RO | 4 | ro | N/A |
| IN\_LC | 5 | lc | N/A |
| IN\_RC | 6 | rc | N/A |
| IN\_GRL | 7 | grl | N/A |
| IN\_GRU | 8 | gru | N/A |
| IN\_GLL | 9 | gll | N/A |
| IN\_GLU | 10 | glu | N/A |
| IN\_EXIT | 11 | exit | N/A |

DES – Outputs

|  |  |  |  |
| --- | --- | --- | --- |
| Outputs | Mapping | Message | Data |
| OUT\_START | 0 | Controller PID: | Getpid() |
| OUT\_LS\_RS | 2 | Person scanned ID. ID= | Person.id |
| OUT\_WS | 3 | Person weighed. Weight = | Person.weight |
| OUT\_LO | 4 | Left door Open |  |
| OUT\_RO | 5 | Right door Open |  |
| OUT\_LC | 6 | Left door closed |  |
| OUT\_RC | 7 | Right door closed |  |
| OUT\_GRL | 8 | Right door locked by Guard |  |
| OUT\_GRU | 9 | Right door unlocked by Guard |  |
| OUT\_GLL | 10 | Left door locked by Guard |  |
| OUT\_GLU | 11 | Left door unlocked by Guard |  |
| OUT\_EXIT | 12 | Exiting Door Entry System |  |

DES – Conditions – NOTE : View DES-Input table to see the value of input in conditions

|  |  |  |  |
| --- | --- | --- | --- |
| Current State | Condition | Next State | Description( Next State) |
| ST\_START | ./des\_input running | ST\_GRL | DEFAULT: Idle state |
| ST\_GRL(IDLE) | person.state = ST\_LS  && lrstate = DEFAULT | ST\_LS | Left Scan |
|  | person.state = ST\_RS | ST\_RS | Right Scan |
| ST\_LS | person.state = ST\_GLU | ST\_GLU | Guard Left Unlock |
| ST\_RS | person.state = ST\_GRU | ST\_GRU | Guard Right Unlock |
| ST\_GLU | Person.state = ST\_LO | ST\_LO | Left Open |
| ST\_GRU | Person.state = ST\_RO | ST\_RO | Right Open |
| ST\_LO | Person.state = ST\_WS | ST\_WS | Weigh Scale |
|  | Person.state = ST\_LC | ST\_LC | Left Close |
| ST\_RO | Person.state = ST\_WS | ST\_WS | Weigh Scale |
|  | Person.state = ST\_RC | ST\_RC | Right Close |
| ST\_WS | Person.state = ST\_RC | ST\_RC | Right close |
|  | Person.state = ST\_LC | ST\_LC | Left close |
| ST\_RC | Person.state = ST\_GRL | ST\_GRL | Guard Right lock |
| ST\_LC | Person.state = ST\_GLL | ST\_GLL | Guard Left Lock |
| ST\_GRL | Person.state = ST\_GLU && lrstate = RIGHT | ST\_GLU | Guard left unlock |
| IDLE ( Return to top of table GRL) | Person.state = RS && lrstate = DEFAULT | ST\_RS | Right Scan |
| IDLE ( return to top of table GRL) | Person.state = LS && lrstate = DEFAULT | ST\_LS | Left Scane |
| ST\_GLL | Person.state = ST\_GRU  && lrstate = LEFT | ST\_GRU | Guard right unlock |
| ST\_GLL(IDLE) | Person.state = RS && lrstate = DEFAULT | ST\_RS | Right Scan |
| ST\_GLL(IDLE) | Person.state = LS && lrstate = DEFAULT | ST\_LS | Left Scan |
| ST\_EXIT | Person.state = ST\_EXIT | ST\_EXIT | Exit ( Termination ) |

State Machine Diagram:

