**Assigment1**

**Cst8244-real time programming**

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DES - Inputs

|  |  |  |
| --- | --- | --- |
| input | Value | Data |
| *INPUT\_LEFT\_SCAN* | ls | person\_id |
| *INPUT\_RIGHT\_SCAN* | rs | person\_id |
| *INPUT\_WEIGHT\_SCALE* | ws | weight |
| *INPUT\_LEFT\_OPEN* | lo |  |
| *INPUT\_RIGHT\_OPEN* | ro |  |
| *INPUT\_LEFT\_CLOSED* | lc |  |
| *INPUT\_RIGHT\_CLOSED* | rc |  |
| *INPUT\_GUARD\_LEFT\_UNLOCK* | glu |  |
| *INPUT\_GUARD\_LEFT\_LOCK* | gll |  |
| *INPUT\_GUARD\_RIGHT\_UNLOCK* | gru |  |
| *INPUT\_GUARD\_RIGHT\_LOCK* | grl |  |
| *INPUT\_EXIT* | exit |  |

DES – Outputs

|  |  |  |
| --- | --- | --- |
| Outputs | Message | Data |
| *OUTPUT\_ID\_SCAN* | Person scanned ID.ID: | person\_id |
| *OUTPUT\_WEIGHED* | Person has been weighed. Weight: | weight |
| *OUTPUT\_LEFT\_OPENED* | Person opened Left Door |  |
| *OUTPUT\_RIGHT\_OPENED* | Person opened Right Door |  |
| *OUTPUT\_LEFT\_CLOSED* | Left door closed (automatically) |  |
| *OUTPUT\_RIGHT\_CLOSED* | Right door closed (automatically) |  |
| *OUPUT\_LEFT\_LOCKED* | Left door Locked by Guard |  |
| *OUPUT\_RIGHT\_LOCKED* | Right door Locked by Guard |  |
| *OUPUT\_LEFT\_UNLOCKED* | Left door Unlocked by Guard |  |
| *OUPUT\_RIGHT\_UNLOCKED* | Right door Unlocked by Guard |  |
| *OUTPUT\_EXIT* | Exit |  |

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

Left Scan Scenario:

|  |  |  |
| --- | --- | --- |
| Old State | Condition | New State |
| STATE\_START | person.state is STATE\_LEFT\_SCAN | STATE\_LEFT\_SCAN |
| STATE\_LEFT\_SCAN | perso.state STATE\_GUARD\_LEFT\_UNLOCK | STATE\_GUARD\_LEFT\_UNLOCK |
| STATE\_GUARD\_LEFT\_UNLOCK | person.state is STATE\_LEFT\_OPEN | STATE\_LEFT\_OPEN |
| STATE\_LEFT\_OPEN | person.state is STATE\_WEIGHT\_SCALE | STATE\_WEIGHT\_SCALE |
| STATE\_WEIGHT\_SCALE | person.state is STATE\_LEFT\_CLOSED | STATE\_LEFT\_CLOSED |
| STATE\_LEFT\_CLOSED | person.state is STATE\_GUARD\_LEFT\_LOCK | STATE\_GUARD\_LEFT\_LOCK |
| STATE\_GUARD\_LEFT\_LOCK | person.state is STATE\_GUARD\_RIGHT\_UNLOCK | STATE\_GUARD\_RIGHT\_UNLOCK |
| STATE\_GUARD\_RIGHT\_UNLOCK | person.state is STATE\_RIGHT\_OPEN | STATE\_RIGHT\_OPEN |
| STATE\_RIGHT\_OPEN | person.state is STATE\_RIGHT\_CLOSED | STATE\_RIGHT\_CLOSED |
| STATE\_RIGHT\_CLOSED | person.state is STATE\_GUARD\_RIGHT\_LOCK | STATE\_GUARD\_RIGHT\_LOCK |
| STATE\_EXIT | EXIT entered |  |

Right Scan Scenario:

|  |  |  |
| --- | --- | --- |
| Old State | Condition | New State |
| STATE\_START | person.state is STATE\_RIGHT\_SCAN | STATE\_RIGHT\_SCAN |
| STATE\_RIGHT\_SCAN | person.state is STATE\_GUARD\_RIGHT\_UNLOCK | STATE\_GUARD\_RIGHT\_UNLOCK |
| STATE\_GUARD\_RIGHT\_UNLOCK | person.state is STATE\_RIGHT\_OPEN | STATE\_RIGHT\_OPEN |
| STATE\_RIGHT\_OPEN | person.state is STATE\_WEIGHT\_SCALE | STATE\_WEIGHT\_SCALE |
| STATE\_WEIGHT\_SCALE | person.state is STATE\_RIGHT\_CLOSED | STATE\_RIGHT\_CLOSED |
| STATE\_RIGHT\_CLOSED | person.state is STATE\_GUARD\_RIGHT\_LOCK | STATE\_GUARD\_RIGHT\_LOCK |
| STATE\_GUARD\_RIGHT\_LOCK | person.state is STATE\_GUARD\_LEFT\_UNLOCK | STATE\_GUARD\_LEFT\_UNLOCK |
| STATE\_GUARD\_LEFT\_UNLOCK | person.state is STATE\_LEFT\_OPEN | STATE\_LEFT\_OPEN |
| STATE\_LEFT\_OPEN | person.state is STATE\_LEFT\_CLOSED | STATE\_LEFT\_CLOSED |
| STATE\_LEFT\_CLOSED | person.state is STATE\_GUARD\_LEFT\_LOCK | STATE\_GUARD\_LEFT\_LOCK |
| STATE\_EXIT | EXIT entered |  |

DES - STATES

|  |  |
| --- | --- |
| State | value |
| *STATE\_LEFT\_SCAN* | *0* |
| *STATE\_RIGHT\_SCAN* | *1* |
| *STATE\_WEIGHT\_SCALE* | *2* |
| *STATE\_LEFT\_OPEN* | *3* |
| *STATE\_RIGHT\_OPEN* | *4* |
| *STATE\_LEFT\_CLOSED* | *5* |
| *STATE\_RIGHT\_CLOSED* | *6* |
| *STATE\_GUARD\_LEFT\_UNLOCK* | *7* |
| *STATE\_GUARD\_LEFT\_LOCK* | *8* |
| *STATE\_GUARD\_RIGHT\_UNLOCK* | *9* |
| *STATE\_GUARD\_RIGHT\_LOCK* | *10* |
| *STATE\_START* | *11* |
| *STATE\_EXIT* | *12* |

State Machine Diagram:

