Authors: Mincky Feng, Frank Xu, Zhi Qiao, Dennis Liu, Xucheng Shi

Last modified: 10/04/2019

---------------------------------------------------------------------------------------------------------------------

Iteration 5 – L4E Group 8

---------------------------------------------------------------------------------------------------------------------

Team Member Contributions:

Final:

* Mincky Feng
* Dennis Liu ReadMe
* Zhi Qiao ReadMe
* Xucheng Shi
* Frank Xu GUI, Test for both system

Iteration 3:

* Mincky Feng Update Scheduler
* Dennis Liu Update elevator
* Zhi Qiao UML diagrams sketching
* Xucheng Shi Update Scheduler
* Frank Xu Update floor subsystem

Iteration 2:

* Mincky Feng Update Elevator subsystem and Scheduler, Test for both system
* Dennis Liu Update Elevator subsystem, UML Sequence and class diagram
* Zhi Qiao Floor subsystem and test development
* Xucheng Shi Update Elevator subsystem and Scheduler, Test for both system
* Frank Xu State machine diagrams sketching

Iteration 1:

* Mincky Feng UML class and sequence diagram skectching
* Dennis Liu Scheduler and floor subsystems development
* Zhi Qiao Elevator raw data acquirement, floor subsystem development
* Xucheng Shi UML class and sequence diagram skectching
* Frank Xu Project management, elevator and scheduler subsystems development

---------------------------------------------------------------------------------------------------------------------

The Project Containing:

* 3 subsystems/directories located in elevator/src/ca/carleton/winter2020/sysc3303a/group8/ (elevator, floor, scheduler)
* there are total of 12 .java source files.
* instructions for how to open and run files.

---------------------------------------------------------------------------------------------------------------------Setup (for eclipse):

* extract the L4EG8.zip file
* in Eclipse navigate to File > Open Projects from File System and click ‘Directory’
* find the ‘L4EG8/elevator/’ directory and click ‘Finish’
* the main files to run are ElevatorSubsystem.java, FloorSubsystem.java and Scheduler.java,

---------------------------------------------------------------------------------------------------------------------Running:

note: the Scheduler.java and ElevatorSubsystem.java need to be run before FloorSubsystem.java

* In Eclipse, run the Scheduler.java and ElevatorSubsystem.java files, and then the FloorSubsystem.java file
* you need to open 3 consoles to show the output of all 3 systems:
  + ElevatorSubsystem prints the floor where the elevator is located, lamp information and door opening and closing actions
  + FloorSubsystem shows which floor lamps have been lit and time-stamped outgoing requests have been sent to the Scheduler
  + Scheduler shows data transfer between all systems

---------------------------------------------------------------------------------------------------------------------Testing:

---------------------------------------------------------------------------------------------------------------------Elevator Timing Data:

(data obtained from Canal Building, record in specs.xlsx)

* approx. 7s move per floor
* approx. 4s for door opening and closing
* approx. 5s stay per floor
* assuming 50% of requests from the ground floor

---------------------------------------------------------------------------------------------------------------------Elevator Algorithm:

* there are 2 elevators with 8 floors
* each elevator will position itself at a different floor when idle in order to reduce wait time
* when the request for an elevator floor is requested, the close one will be the elevator assigned to pick the person up/ drop the person off
* the calculated suitability depends on the current state of the elevator, which was sectioned into 4 parts
  + the elevator car is moving towards a destination and the request is in the same direction
  + the elevator car is moving towards a destination and the request is in the opposite direction
  + the elevator car is already moving away from the requested destination
  + the elevator is idle

---------------------------------------------------------------------------------------------------------------------Timing Diagram:

---------------------------------------------------------------------------------------------------------------------Error State:

---------------------------------------------------------------------------------------------------------------------Measurements: