Monitor

+queue taskQueue

-mutex mtx

-condition_variable condv

-bool done

+Monitor()

+void scheduler(string filename)

+void elevator()

Task

+int floorNumber

+string direction

```
Main          Monitor         SchedulerThread      ElevatorThread

 |  Create Monitor object  |                  |                  |
 | ----------------------> |                  |                  |
 |                         |                  |                  |
 |    Start scheduler thread                  |                  |
 | -----------------------------------------> |                  |
 |                         |                  |                  |
 |    Start elevator thread                   |                  |
 | -------------------------------------------------------------> |
 |                         |                  |                  |
 |                         |   Read input file|                  |
 |                         | <--------------- |                  |
 |                         |                  |                  |
 |         loop [Until EOF]                   |                  |
 |                         |     Parse task   |                  |
 |                         | <--------------- |                  |
 |                         |                  |                  |
 |                         | Push task to queue                  |
 |                         | <--------------- |                  |
 |                         |                  |                  |
 |                         |  Notify elevator |                  |
 |                         | <--------------- |                  |
 |                         |                  |                  |
 |                         |       Wait for tasks                |
 |                         | <----------------------------------- |
 |                         |                  |                  |
 |         loop [Until done]                  |                  |
 |                         |   Pop task from queue               |
 |                         | ----------------------------------> |
 |                         |                  |    Process task  |
 |                         |                  |         ↻        |
 |                         |     Notify scheduler                |
 |                         | <----------------------------------- |
 |                         |                  |                  |
 |              Terminate                     |                  |
 | <------------------------------------------------------------- |
 |                         |                  |                  |
 |              Terminate  |                  |                  |
 | <----------------------------------------- |                  |
```