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CECS 326

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Program Design Discussion

Villagers implementation:

East_village and West_village classes:

- Class implements the Runnable, each villager is represented as a thread.
- Constructor assigns a number to the village.
- Run method gives the village a random time from 100ms - 3000ms to sleep before being ready to go on road.
- After sleep time, call RoadController methods for the thread queue. Because threads store in an array id number and not its name, we decided to simultaneously store its name on another array for displaying purposes.

RoadController implementation:

- Implement a queue to organize which threads get to go first.
- Villager identities are stored in separate arrays to make accessing their information easier.
- *Enter_road* method assigns a given thread aka a villager a random action while traveling the road and makes them do it for around 3 seconds.
- Test method checks the road to see if it is occupied or not, this is done using mutex locks.

    - If it is not currently locked, it locks it and then lets the villager use the road using the enter_road method, afterwards it takes the villager out of the queue to represent them finishing.
    - If the road is occupied, the next villager will call the *await* method and wait for the villager to cross, then the *signal* method will be called and the road will be unlocked.
- Main initializes all the threads for the villagers.

Contribution:

Thomas Nguyen: East_village.java, West_village.java, and RoadController.java

Nathan Do: RoadController.java, demo video, report, and README file