LAB ASSIGNMENT 5

Graveyard Shift - Investigator

It's half past three in the morning and your insomnia is refusing to let up. The alarm clock on the nightstand mocks you with its crimson stare while the rain continues to batter the glass panes of the motel room with all its might. In a few hours you'll have to be up and about – good thing you went to bed still dressed in your field outfit. A shadow rapidly projects itself on the floor, as someone passes by your window. Four rapid taps followed by a trio of slower ones make you twitch and leap out of bed - that's Bower's coded knock. You open the door to find her fully dressed under the black dome of her umbrella, rainwater drowning out the rest of the world. With her thumb stuck out, she silently motions to something behind her shoulder. If not for the headlights cutting a path into the night, you wouldn't have noticed the inky van parked among the puddles of the motel courtyard. “Company!” she yells over the downpour.

Minutes later, you're warming up in the back of agent Peters' vehicle, surrounded by blinking lights and the buzzing of machinery. Warm coffee having been mercifully – albeit also needlessly – provided, you get the full scoop on the unexpected visit. After looking through the files and info obtained so far, Bower has grown almost certain that Whaler's End is the next place where the Tarot Deck Slayer will pop up. Peters was kind enough to show up at her request and provide the two of you with more advanced equipment (C++). Before HQ could send reinforcements, some preliminary steps had to be taken to make Bower's certainty adamant. Peters herself appears vaguely hesitant, her bespectacled face frozen in a mask of stoicism. The equipment in her van does seem more up to date than your crummy laptop. Part of you is glad that you're spending the night here instead of upstairs, locked in a staring competition with the ceiling.

Bower and Peters are now asking you to create a database of the surveillance tapes that have been produced by agents around the neighboring small towns. If they can be organized in a single master list and sent back to HQ, Tillyard can look through them and reach the same conclusion that Bower apparently has – that Whaler's End is where your killer is hiding out, waiting to make his next move. Peters coughs and then proceeds to adjust her glasses for the fifth time – so it's a nervous tick? You're all a bit fidgety as things are, but if Bower's on to something, you know that the rainy nights of Whaler's End are going to become even darker. The application that you'll be putting together will be accessible either by investigation administrators or field agents. When starting it up, it will give you the option of choosing one mode.

Investigation admin. mode: the program will contain a total database with all the bits and pieces of collected surveillance footage. Agents logging in with administrator privileges will be able to update the database – they'll be given leave to add new tapes of footage, delete existing tapes or update the information on a specific one. Each surveillance tape has a title, a type (indicating what town and area it was taken in), a date indicating when the tape was made (a few weeks of dates should cover the whole investigation, you think), a number indicating how many times it has been accessed since its creation and a preview of the footage contained therein. Each preview is memorized as a link towards Tillyard's personal computer back home. Those logging in as investigation administrators will have the option to see all the surveillance tapes in the database. Make sure agents can’t easyly corrupt the data by doing basic validation. Now that you have a more advanced equipment make sure to create your own DynamicVector, that does not leak memory, while also unit testing everything except the UI.

All commands must be in the form:

* mode X (e.g. mode A)
* add title, filmedAt, creationDate, accessCount, footagePreview (e.g. add F1423, restaurant exterior, 01-13-2019, 7, prev8.mp4)
* update title, newFilmedAt, newCreationDate, newAccessCount, newFootagePreview (e.g. update F1423, restaurant intrerior, 01-14-2019, 14, prev12.mp4)
* delete title (e.g. delete title)
* list
* exit