

HW4

Collins Hess

cmh0098

903712430

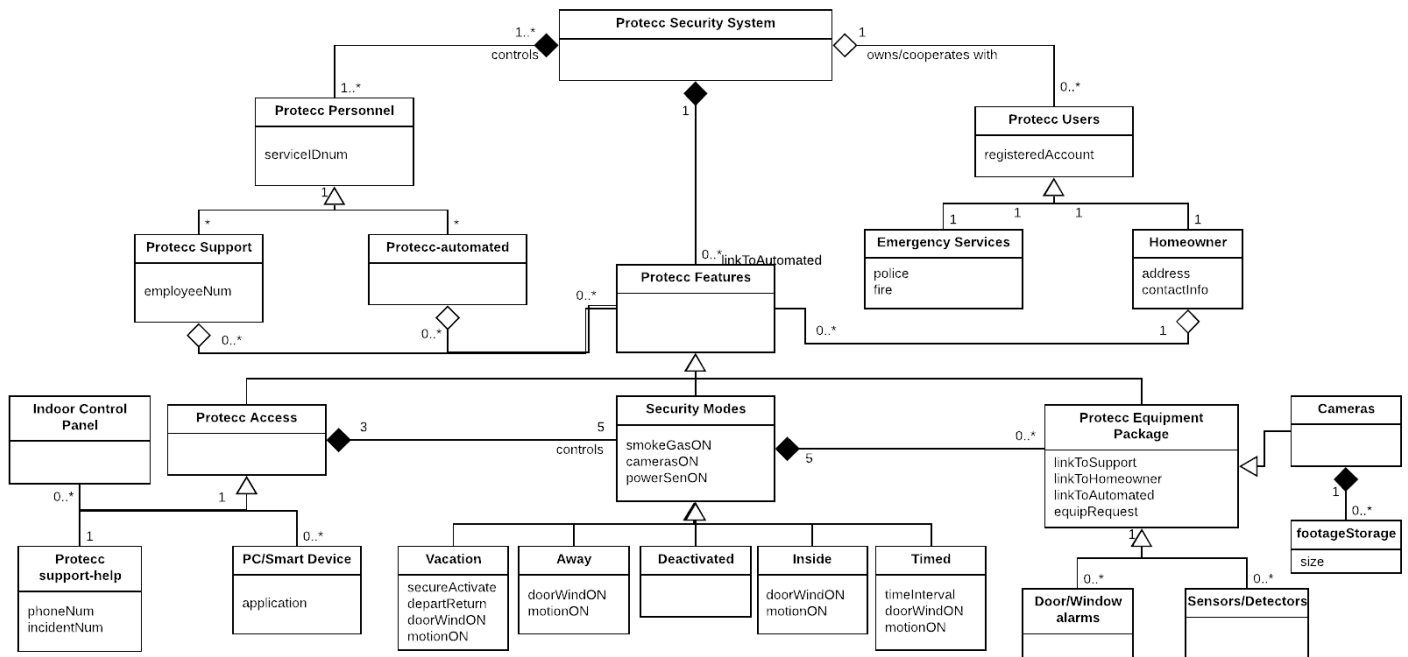
1. The *Protecc* Security System is designed to have software that offers protection against home invaders, fires, gas leaks, and power-meter attackers. It is an application utilized by home owners, *Protecc* support, and *Protecc*-automated. It allows home owners to monitor their exterior and interior property directly through a PC or remotely via tablets or smart phones. It offers interior/exterior cameras, door/window alarms, motion detectors, smoke detectors, gas (carbon monoxide) detectors, and a power-meter sensor. The cameras, smoke detectors, gas detectors, and power-meter sensors **always remain on**. A power-meter sensor ensures that no tampering or stealing of power occurs.

*Protecc* offers home owners five different **security** modes in which the security system can operate: vacation, away, inside, timed, and deactivated. In all these modes, other than deactivated, the door/window alarms and motion detectors will be armed in union with the other devices that always remain on. In order to set the security system in vacation mode, *Protecc* requires the homeowner to either call *Protecc* support, or login securely to their online account (through PC or smartphone/tablet) and change the mode setting within their profile, which entails being asked to provide answers to security questions and his/her social security number. To fully activate vacation mode, the dates of departure and return are required. If the vacation mode remains active 12 hours past the supposed return date, the homeowner will be contacted and asked whether he/she would like it to remain activated; if he/she do not answer, vacation mode will remain activated for the next 12 hours. This process will repeat until the homeowner answers the phone call or until he/she returns from their vacation.

Away mode can be activated in two ways: through smartphone/tablet application or from inside the house before he/she leaves. For example, if the homeowner goes to the store and needs to activate away mode, he/she can walk out of the house, lock-up, and activate away mode on their smartphone/tablet application. Or, he/she can activate away mode from within the house before they leave, and the security system won't be armed until he/she physically walks out of the house. Inside mode can only be activated from within the home on the *Protecc* Security control panel. This is used for when the homeowner is asleep or spending time inside. Timed mode is a mode in which the security system can be set to activated for a certain time interval. This is especially useful when the homeowner has to be away for a while but knows when someone will be coming into the house, or perhaps internet access is not available wherever the homeowner travels to. Finally, deactivated mode is the mode in which door/window alarms and motion detectors are off.

If by chance there is a security breach, alarms will be sounded inside the house, *Protecc*-automated will send notifications to the homeowner and *Protecc* support, and *Protecc* support will contact the homeowner. If the homeowner cannot be reached, local emergency services will be contacted and sent to the house. If the homeowner claims it was a false alert, he/she will be required to answer security questions to ensure they are safe. Video footage is saved onto the *Protecc*-cloud database and can be accessed by homeowners, *Protecc* support, or law enforcement (with appropriate warrants). Live feed can be accessed by the homeowner, *Protecc* support, and *Protecc*-automated. *Protecc*-automated is not allowed access into the saved footage database to ensure protection from hackers.

## Collins Hess



### Three OCL constraints:

## How much camera storage can a homeowner own?

*aHomeowner.ProteccFeatures.ProteccEquipmentPackage.Cameras.footageStorage.size → size()*

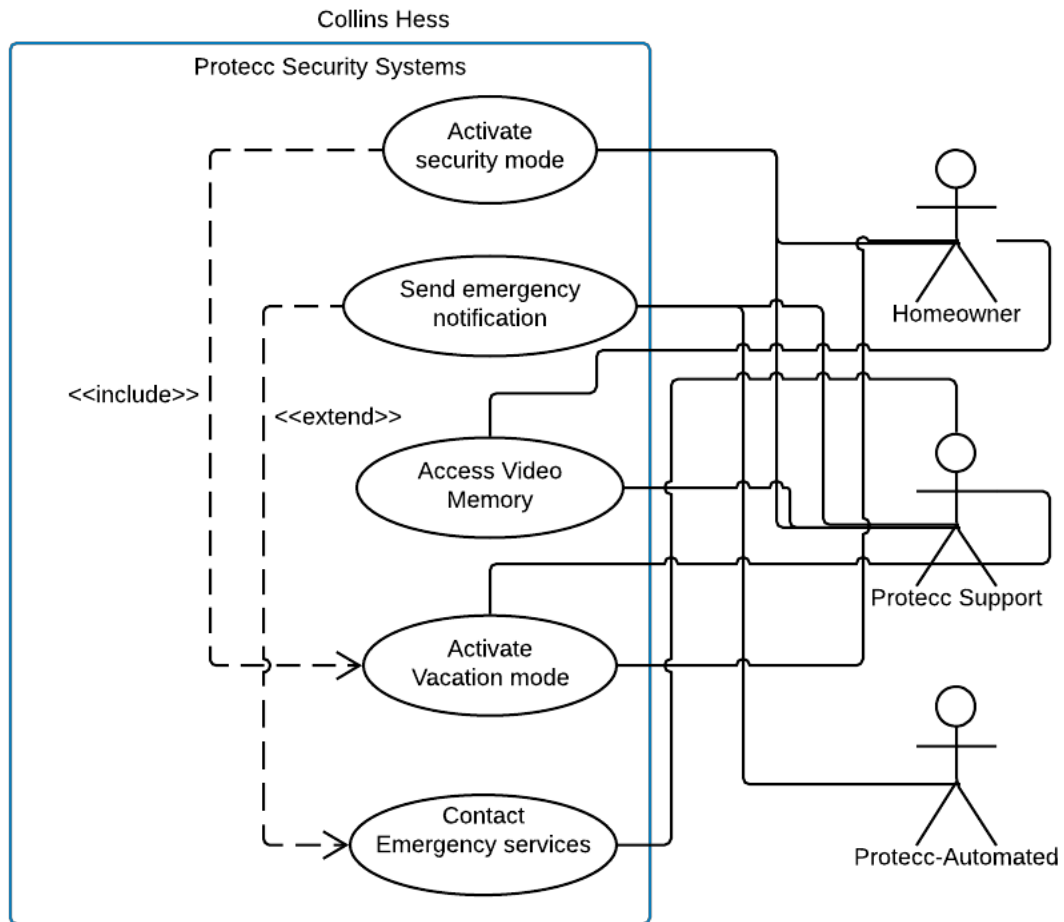
What was the total time interval that the “Timed” security mode was on?

```
aProteccFeatures.SecurityModes.Timed → select(aStartDate <= timeInterval and timeInterval
<= anEndDate).amount → sum()
```

How long was a homeowner using the Vacation mode?

```
aHomeowner.ProteccFeatures.SecurityModes.Vacation → select(aStartDate <= departReturn
and departReturn <= anEndDate).amount → sum()
```

2.



### 3. Use Case: Activate Vacation Mode

<u>Actor Intentions</u>	<u>System Responsibility</u>
<ol style="list-style-type: none"> <li>1. Homeowner must activate Vacation mode before he/she leaves.</li> <li>2. Homeowner logs into online profile</li> <li>3. Homeowner goes to profile</li> <li>4. Homeowner selects the "Vacation" mode option</li> <li>6. Homeowner answers security questions</li> <li>9. Homeowner provides Social Security Number</li> <li>12. User inputs departure and return dates so that "Vacation" mode knows when to be armed and disarmed</li> </ol>	<ol style="list-style-type: none"> <li>5. Security questions prompt user</li> <li>7. Checks inputted answers against correct answers</li> <li>8. Prompts user for Social Security Number</li> <li>10. Checks input against correct SSN</li> <li>11. Prompts user for departure and return dates</li> <li>13. Checks if dates are valid.</li> <li>14. "Vacation" mode is activated and set to armed.</li> </ol>

#### **Alternative Courses**

- Step 2: User could have called Protecc support instead of going online.
- Step 7: User inputs wrong answers to security questions. Prompts user again. Only three attempts allowed.
- Step 10: SSN could be incorrect. Prompts user again. Only three attempts allowed.
- Step 13: If the interval size between the departure and return date exceeds a month, user must call support in order to arm Vacation mode for a period of that length.

4. **Scenario 1:** Homeowner activates Vacation mode by calling Protecc Support. Support verifies the homeowner and his/her account by asking security questions and requiring a social security number.

**Scenario 2:** Homeowner activates Vacation mode by going online to the Protecc website/application and activates Vacation mode from there.

