<div align="center">

(Assignment 2)
Requirements Engineering

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Initiative:

- SLS wants to create a software system that is compatible with hardware and medical equipment to create a safer and healthier life for seniors living on their own.

Epic(s):

1. SLS wants to provide home monitoring and danger detection for seniors by installing a control panel, location tracking and sensors. This allows seamless access for caregivers to ensure their wellbeing and saves time/money for the caregivers. Implementing these features can ensure the safety for the senior living alone.

       1. Accessible control panel
           i. The senior can dismiss alerts and alarms, lock and unlock the doors, call for emergency, etc.

      a. Installation of sensors

         i. Feature: Sensor in the house to detect smoke and break-in.

2. SLS provides a mobile app allowing family and caregivers to access various SLS features such as: making SOS calls to family and 911, location tracking, interacting with physicians etc. It is useful during emergencies, keeping track of their medication use and accessible communication between family, doctors, and caregivers.

      a. Mobile app

        i. Features: making SOS calls, remote door locking and unlocking, requesting the location, prescribing medication + making appointments (normally or for emergency), communications, sending and receiving alarms, alerts, warnings, and other notifications, location tracking, customising the systems, system setup including medication alerts, troubleshooting, and resetting systems, etc.

Part 2: [30 marks]

Pick an epic and create a use case diagram for that epic.

https://lucid.app/lucidchart/29a1ced1-6571-4cf4-a3be-3e9037ed7c6b/edit?viewport_loc=-362%2C628%2C2025%2C842%2C.Q4MUjXso07N&invitationId=inv_474cd6ec-f057-4340-b460-7f0564f3b38e

Part 3: [45 marks]

Pick **three of the use cases** included in your use case diagram and *use the attached template to create a use case description for each of them*: use a sequence diagram for one of them, use an activity diagram for another one, and use a text description for the third one.

USE CASE 1: Location Tracking

SEQUENCE DIAGRAM: sequence diagram should be for accessing and receiving the senior's location
https://lucid.app/lucidchart/36bbc3ee-1af6-45b9-9dd1-96146182491a/edit?viewport_loc=156%2C231%2C1910%2C939%2C0_0&invitationId=inv_71ced3a0-4346-451a-a7b4-264b2ccdace5

Use Case Description

Name of Use Case:	Location Tracking		
Created By:	Nanaki	**Last Updated By:**	Carline
Date Created:	3/1/23	**Last Revision Date:**	3/3/23
Description:	SLS App provides access to live location tracking of the senior for users.		
Actors:	SLS Admin, Family/Caregiver Users		
Preconditions:	1. The senior is outside (the camera at the front door recorded the senior left home and the door is locked) 2. Senior bring his/her device with them		

Postconditions:	1. The request must be validated 2. User should have a device to play the live location 3. User should be online
Main Flow:	1. User sign in the app 2. User sends the access request to validate 3. Location Access validate the user info (id and password) 4. Location Access confirm the validate and accept the request 5. Live Location been send to user's device 6. User receives location 7. User's device display the senior's location
Alternative Flows:	In step 4 of the normal flow, if the validate is not success 1. Location Access re-ask for user info 2. User's account will be block once the user info been enter wrong five time 3. Family member's email will get a warning
Exceptions:	In step 2 of the normal flow, if the senior made an emergency call 1. Location Access validate the user info without getting request 2. Use Case resumes on step 4 of normal flow
Non-Functional Requirements:	-Senior (or senior's family member if the senior is not able to judge for themselves) 's permission.

USE CASE 2: Take Medication Alert

ACTIVITY DIAGRAM: activity diagram should be for prescribing medication and receiving medication alerts,
https://lucid.app/lucidchart/aaca07d8-6af7-4fec-a824-07b5402a48ea/edit?view_items=DwW4I2DslUAN&invitationId=inv_d962bf26-aec9-4f78-b26e-b5f38bf1cfec

Use Case Description

Name of Use Case:	Take Medication Alert		
Created By:	Nanaki	**Last Updated By:**	Carline
Date Created:	3/1/23	**Last Revision Date:**	3/3/23
Description:	SLS App alerts the user to take their medication and if required provides a method to order and/or refill their medication.		
Actors:	Senior, Family/Caregiver Users		
Preconditions:	1. Physicians set all the medication need to be take 2. Family/Caregiver Users set the clock for those medication		
Postconditions:	1. The medication is not run out 2. Senior is able to take medication at the time 3. Caregivers or family members can successfully confirm the alert		

Main Flow:	1. The alert will ring when it's time for taking medication 2. Senior took their medication/ caregivers help senior took their medication 3. Caregivers click the "confirm" to stop the alert 4. Medication Alert do a medicine administered 5. Medication Alert wait till the next taking medication time
Alternative Flows:	In step 2 of the normal flow, if the senior didn't take medication. 1. Medication Alert check the medication storage 2. Adequate storage but senior didn't take medication 3. Notify family member or caregivers

Exceptions:	In step 2 of the normal flow, if the senior didn't take medication.
	
	1. Medication Alert check the medication storage
	2. Insufficient storage
	3. Medication Alert check the prescription valid
	4. Medication Alert send the request to Pharmacy
	5. Medication Alert confirmed the pick up
	6. Use Case resumes on step 4 of normal flow
	7. In step 3 of the exceptions, if the prescription is not valid
	    1. Medication Alert request refill
	    2. Physician evaluate new prescription
	    3. Use Case resumes on step 4 of exceptions

Non-Functional Requirements:	The following requirements must be met before execution of the use case 1. The expired date need to be checked every week

USE CASE 3: Making an Emergency Call

TEXT DESCRIPTION: SLS provides emergency services. One key emergency service provided is the ability to make emergency calls using the SLS App or Control Panel. Through the app users such as the senior, family or caregiver can use the app to make an emergency call. The control panel within the home can be used by the same users to make an emergency call. An emergency call may be made due to: a security alert due to break in or fire, a medical emergency alert if a senior or anyone in the home needs medical help etc.

Use Case Description

Name of Use Case:	Making an Emergency Call		
Created By:	Nanaki	Last Updated By:	Carline
Date Created:	3/1/23	Last Revision Date:	3/3/23
Description:	SLS app making Speed-dial for emergency call		
Actors:	Senior, Family/Caregiver Users		
Preconditions:	1. Important phone numbers been registered (i.e. family members) 2. SLS app is connected to local emergency responders 3. SLS app is connected to control Panel		
Postconditions:	1. Speed-dial must be available at all the time 2. Once emergency call been called, all the relevant (family members and caregivers) will receive an alert		

Main Flow:	1. User open the app or control panel 2. User select to make a call of security issue or medical emergency 3. All the relevant actors will get an alert about this emergency call 4. Emergency Call Services will call the local emergency responders 5. User specifies/describes what happened

Alternative Flows:	In step 4 of the normal flow, if the responder didn't respond the phone call
	
	    1. Emergency Call Service will go to the second contact
	    2. If the second contact did not pickup the phone, transfer to 911
	    3. Once anyone pick up the phone call, use Case resumes on step 5 of the normal flow

Exceptions:	2. In step 1 of the normal flow, if break in alert or fire alert ring for a long time but no one stop the alert or call 911
	
	    1. Emergency Call System send alert to all the relevant user's device
	    2. Control Panel jump to Emergency Call page
	    3. use Case resumes on step 1 of the normal flow

Non-Functional Requirements:	The following requirements must be met before execution of the use case 1. Emergency call cannot be rejected except under special circumstances

Part 4: [40 marks]

Written as issues on Github as well

1. *Senior*

   User Story:

   As a senior,

   I can be alerted of when I should take medication

   so that I can responsibly keep track of my intake

   Acceptance Criteria:

   Scenario: Senior receives alert to take medication

   Given: The senior has been prescribed by their physician to take medication

   And: The prescribed medication schedule is set on the app

   When: The clock strikes a scheduled time

   Then: The senior receives an alert notification on their phone

2. *Caregiver*

   User Story:

   As a caregiver,

   I am able to make emergency calls

   so that I can be prepared for any crisis

   Acceptance Criteria:

   Scenario: Caregiver makes an emergency call

   Given: There is an urgent matter where emergency responders need to be present

   When: The caregiver makes a call using the app or control panel

   Then: The caregiver will specify if it is a security issue or a medical emergency

   And: An SOS alert will be sent out to the family members' and physician's phones

   And: The app will host a call between the caregiver and the emergency responders

3. *Family Member*

User Story:

As a family member,

I can monitor my loved one through tracking their location

so that I can be constantly assured of their safety and wellbeing

Acceptance Criteria:

Scenario: Family member tracks senior's location

Given: The family member has approved access

And: The family member has given the right ID and password

And: The senior's location is turned on

When: The family member checks the location on the app

Then: The app will give the location of the senior's phone

And: The family member will be able to see location on a map

4. *Physician*

User Story:

As a physician,

I can make appointments with my patient,

so that we can better communicate their health status

Acceptance Criteria:

Scenario: Physician scheduling an appointment

Given: The senior, caregiver, or family member requests for an appointment

And: There is available space on the physician's schedule

When: The senior, caregiver, or family member makes appointment request

And: They have specified whether or not the meeting is on the phone or in person

And: They have specified whether or not it is urgent

Then: The physician will schedule the most suitable time on the app's calendar

And: The senior, caregiver, or family member will be notified the time and date of the appointment

And: The appointment will now be integrated to the physician's calendar

Part 5: [30 marks]

Use **EARS syntax** to write <u>one system requirements</u> of each of the *6 categories*

1. **Ubiquitous System Requirement:** To use the SLS App there shall be a minimum of one senior user and one family/caregiver user.

2. **State-Driven System Requirement:** While the location tracking feature is accessed, the system shall use GPS to track the senior's location.

3. **Event-Driven System Requirement:** When the door lock/unlocking feature is used, the SLS App shall allow users to remotely lock and unlock doors in the seniors home.

4. **Optional-Feature system requirement:** Where the SLS wearable is used, the wearable shall alert other users and contact 911 in the case of a serious emergency (i.e. heart attack, stroke).

5. **Unwanted-Behaviour System Requirement:** If the sensors in the seniors home detect smoke, then the SLS system shall send an alert to family/caregiver and call 911.

6. **Complex System Requirement:** While the senior is reminded to take medication, when they do not, the SLS system shall check if more medication is needed and order it at a designated pharmacy.

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