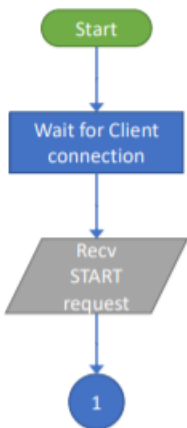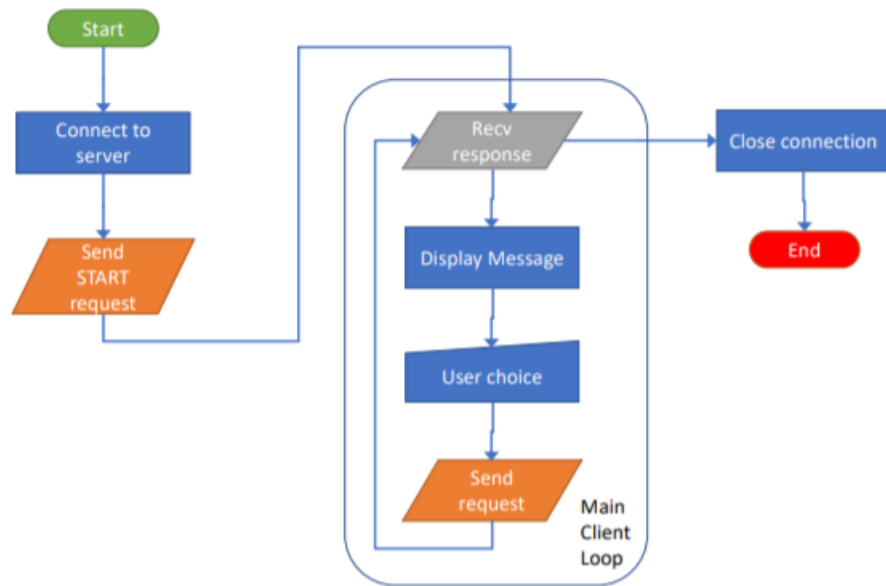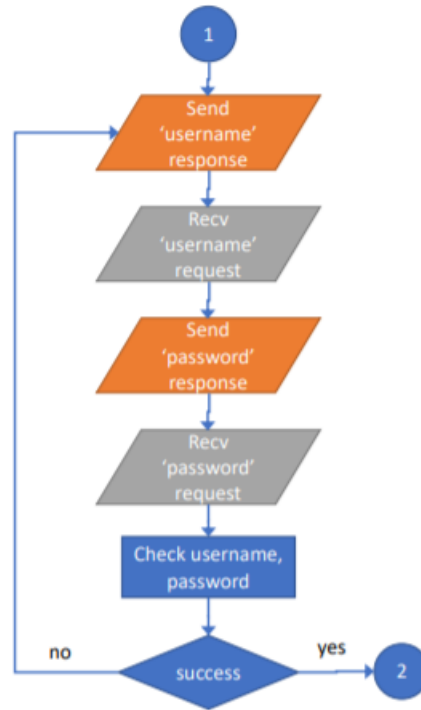Ananya Bhargava

ECE470

Dr. John

HW1

Project Description
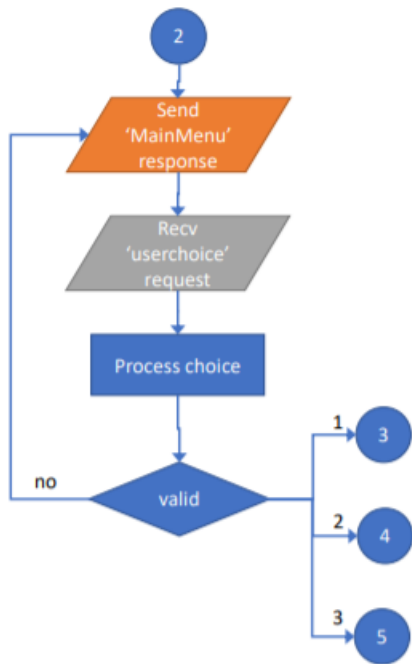
Smart Home Remote Access System – Home System that uses a Client/Server protocol to smart home devices and certain home appliances

Main Client Loop

```
Start
  │
  ▼
Connect to
server
  │
  ▼
Send
START
request
```

```
Recv
response ──────────► Close connection
  │                        │
  ▼                        ▼
Display Message          End
  │
  ▼
User choice
  │
  ▼
Send
request
```

Main Client Loop

Server Startup

```
Start
  │
  ▼
Wait for Client
connection
  │
  ▼
Recv
START
request
  │
  ▼
  1
```

Server Login Loop

```
  1
  │
  ▼
Send
'username'
response
  │
  ▼
Recv
'username'
request
  │
  ▼
Send
'password'
response
  │
  ▼
Recv
'password'
request
  │
  ▼
Check username,
password
  │
  ▼
no ◄── success ──► yes ──► 2
```
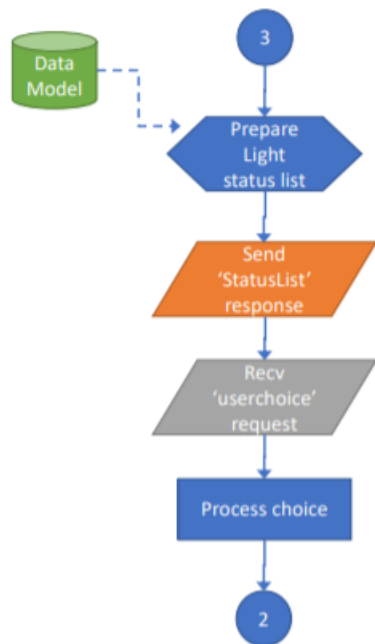
Server Startup

Server Login Loop

Server Main Menu Loop

2

Send 'MainMenu' response

Recv 'userchoice' request

Process choice

valid
- no
- 1 → **3**
- 2 → **4**
- 3 → **5**

Server Logout

5

Close connection

Start

Server Show Light Status

3

Data Model

Prepare Light status list

Send 'StatusList' response

Recv 'userchoice' request

Process choice

2
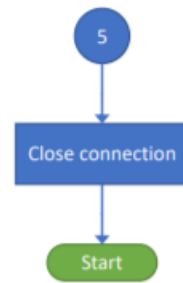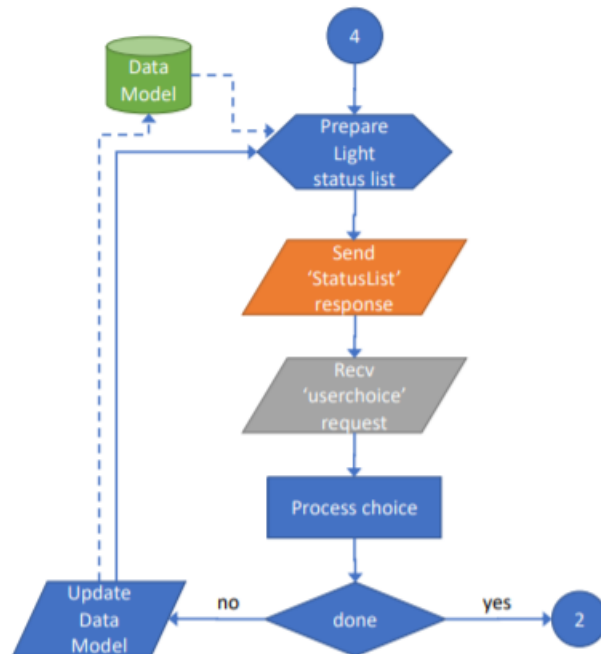
Server Change Light State Loop

4

Data Model

Prepare Light status list

Send 'StatusList' response

Recv 'userchoice' request

Process choice

done
- no → Update Data Model
- yes → **2**

SmartHome

-address: string
-login: string
-password: string

+ constructor
+ destructor
+ getters / setters

Alarm

Lock

Thermostat

Security Cams

Automated Blinds

Room → **lights**

may want to group into a security group

2- may be better if grouped by room

Login to use

Main Menu:
1. display lights
2. lock doors
3. check security footage
4. close / open blinds

Light Status

Lock swtich

Thermostat setting

Security Cams

Automated Blinds angle

Light Adjust

Break down the menus more

Application Protocol

0..n

1

Smart Home Client Application

Smart Home Server Application

Alarm

Lock

Thermostat

Security Cams

Automated Blinds

Room
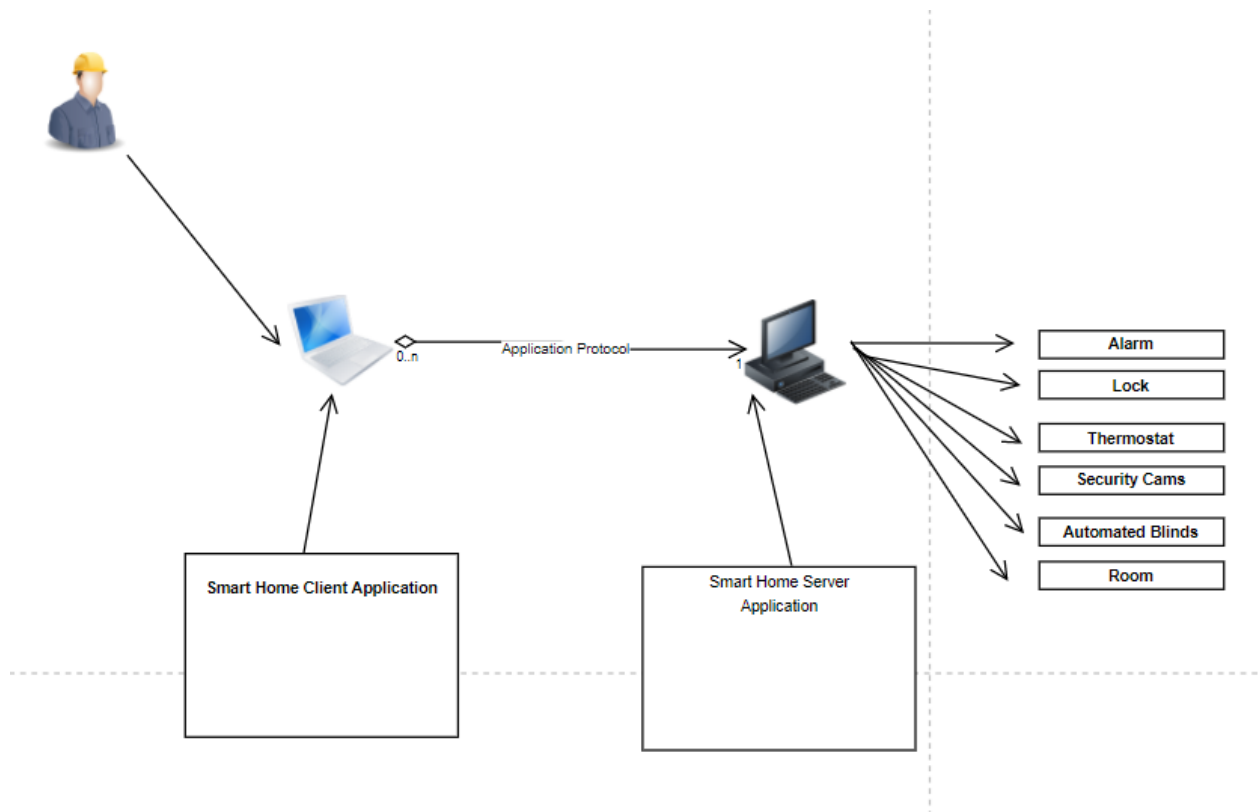
- message + protocol
- Sample Session w/messages