**CSC2306 Project report:**

We used NetBeans to make the UML since we had some issues doing so in starUML. We decided to make a SmartCity class which we've considered as our main class, we've included a list of smart buildings and another list of smart streets (SmartStreet). SmartCity has a 1 to many relationship with the SmartBuilding class as well as SmartStreet and a 1 to many relationship with Resident. SmartBuilding on the other hand has a 1 to 1 relationship with the BuildingControlRoom class and Smartstreet, as well as the EnergySource and BuildingType ENUMs, and a 1 to many relationship with the Floor class. We gave BuildingControlRoom a networkgateway string variable. Since each smart street has a control room and sensor nodes, we gave it a 1 to 1 and a 1 to many relationship respectively. We decided to make two types of sensor nodes, an ApartmentSensorNode and a StreetSensorNode and gave each one of them their corresponding nodes as attributes. Since street sensor nodes are also able to view data relative to buildings, we gave the StreetSensorNode class a 1 to many relationship with the SmartBuilding class. Each floor has 1 to many apartments and each apartment has 1 to many smart appliances, apartment sensor nodes and residents. We also decided to make the appliances' switch feature a boolean value.

Concerning the users, we created three different classes: an Abstract user class that contains attributes that are common between the general admin and the resident as well as the fact that it has a 1 to 1 relationship with the Profile class, which has details that show in any user's profile, the third one is an Account class which contains private details like the username and password that every user has. We made a Report class that has a resident attribute and a description. The Resident class contains its unique attributes in addition to a smart street, smart building and apartment variables. The GeneralAdmin class contains a smart city variable since a single admin manages the entire city, his own Account attribute and another dif\_account Account variable since he can manage other residents' accounts using the delete, create and update method, we also gave him his other unique methods.