CECS 327 Assignment 8 Group 13

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Contents of this presentation

- Showcase our system's end-to-end IoT functionality
- Metadata from dataniz and how it was used to enhance our system
- Challenges faced and how we solved them
- Feedback for our experience with dataniz

Goals

- Find the average moisture of the fridge in the past 3 hours.
- Find the average water usage per cycle for the dishwater.
- Find the device with the most energy consumption

DEMO!

Time to showcase our system yippee!!!

Metadata In our System

The metadata that we had implemented into our systems is a location for each of our devices.

This is so that we are able to differentiate between the devices and if we needed to, select devices based on their locations.

We also retrieve the devices name to make sure that the device we want to query is the correct one, such as fridge1 or fridge2

METADATA IN DATANIZ AND MONGODB

Device	Latitude	Longitude	Tags
Fridge	33	-118	location: kitchen
Dishwasher	33	-118	location: kitchen
fridge2	33	-118	location: garage


```
_id: ObjectId('674ea531250274380ba020ef')
assetUid : "7vm-vh3-2vf-d22"
parentAssetUid : null
▸ eventTypes : Array (empty)
latitude : 33
longitude : -118
▾ customAttributes : Object
    generationDate : "2024-12-03T06:28:30.678061Z"
    type : "DEVICE"
    name : "Fridge"
  ▸ children : Array (1)
  ▾ additionalMetadata : Object
      location : "kitchen"
__v : 0
```

```
_id: ObjectId('674ea551250274380ba020f5')
assetUid : "44y-361-h19-bzt"
parentAssetUid : null
▸ eventTypes : Array (empty)
latitude : 33
longitude : -118
▾ customAttributes : Object
    generationDate : "2024-12-03T06:29:10.998089Z"
    type : "DEVICE"
    name : "Dishwasher"
  ▸ children : Array (1)
  ▾ additionalMetadata : Object
      location : "kitchen"
__v : 0
```


```
{"$match": {"data.customAttributes.additionalMetadata.location": "kitchen",
            "data.customAttributes.name": {"$regex": "Fridge"},
```

Challenges Faced

Reformatting Sensors

We had to redo a lot of the sensors to ensure that the data we retrieve are imperial units.

Creating a environment

There's only one environment with Dataniz we had to delete our previous devices to create a new environment.

Ensuring both VMs matched

Since both VMs were essentially blank PCs, we had to ensure both machines had the correct of python and python libraries.

Working with MongoDB

We were unfamiliar with MongoDB and had to relearn a lot of its features and queries.

Suggestions for Dataniz

- Allow us to create more than 1 virtual environments, as if we wanted to create a whole different environment, we had to delete our previous devices to simulate another environment
- Have set default values for units of measurements for the sensors. We were unsure what the average or normal amount of voltage/moisture should be for a specific sensor.
- There were moments where deleted devices still provided MetaData and needed to be cleared from mongoDB.

THANK YOU!