# TEC-V

## MILESTONE 1

By: Michael Dowling & Zealand Brennan

# CLIENT

- DR. Wood
  - **Professor** | Ocean Engineering and Marine Sciences
  - **Program Chair for Ocean Engineering**

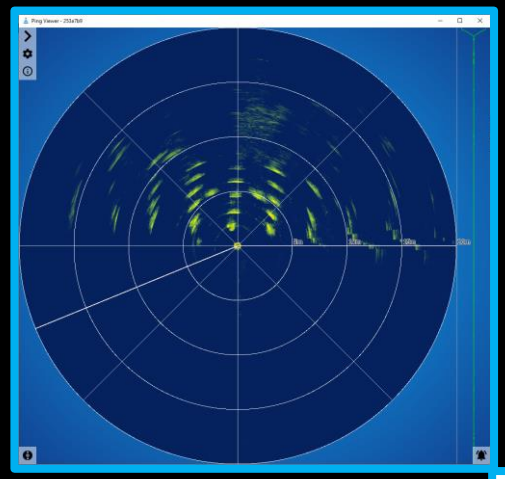
# MILESTONE 1 OVERVIEW

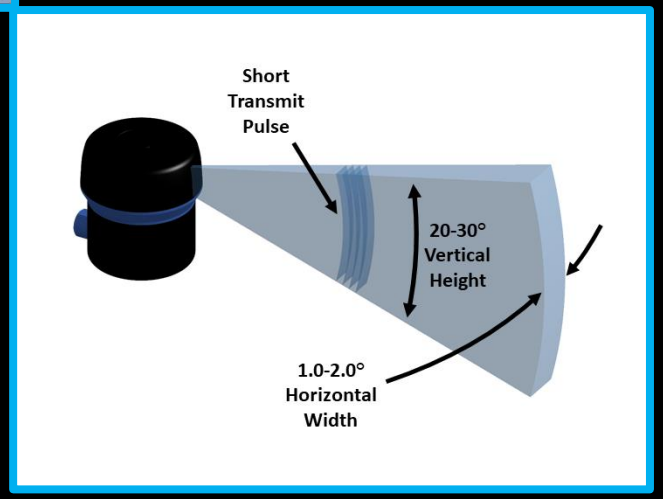
- Sonar Types
- Data Saving
- Scanning Sequence
- Cloud Plotting

# SONAR DEVICES

## Ping 360

- Reliable imaging
- 360% degree
- 20-30 degree Cone
- Detailed Imaging – False
- Data Transcription - Unknown

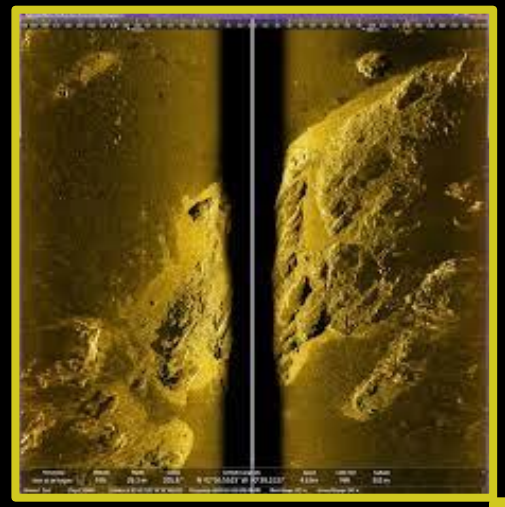




# SONAR DEVICES

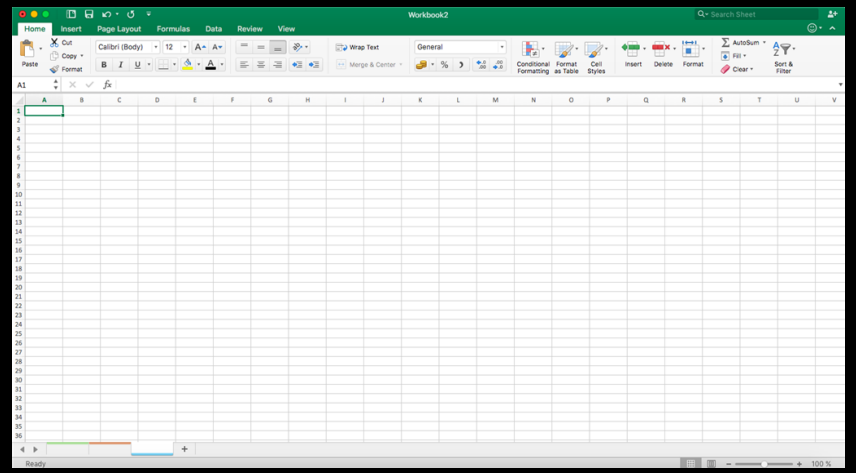
## Omniscan 450 SS

- Reliable imaging
- 5% degree (y movement)
- 70 degree Angle of scan
- Detailed Imaging – True
- Data Transcription - Possible



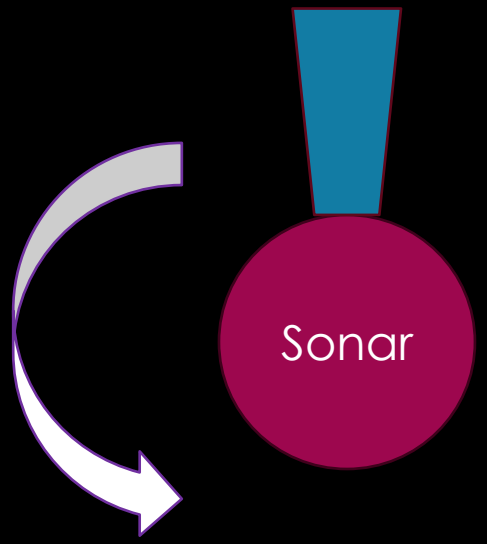
# DATA SAVING

- Sonar data saving options:
  - On-board
  - Topside Receiver
- Format:
  - Excel spreadsheet
- Information Saved:
  - X Y Z of contact point
  - Telemetry data (UAVs XYZ pitch)
  - Time and speed motors are active between points of scan

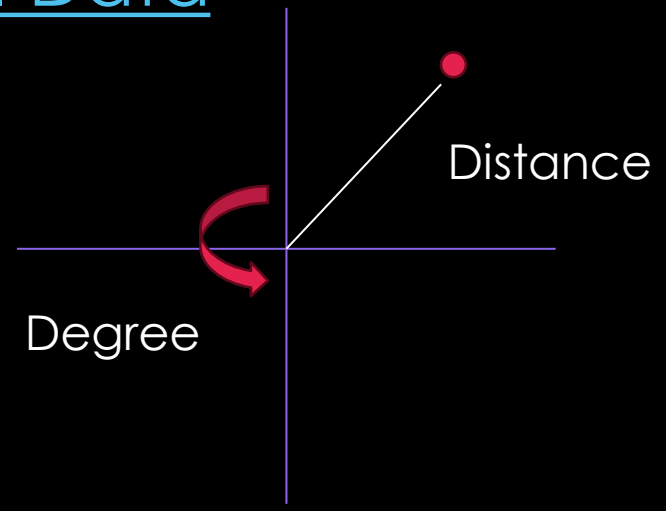


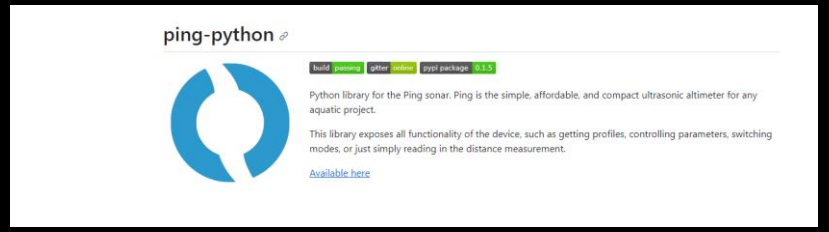
# TOPSIDE

- Topside Receiver challenges:
  - Transmission: Ethernet
  - Data read: distance and angle




Actual Data

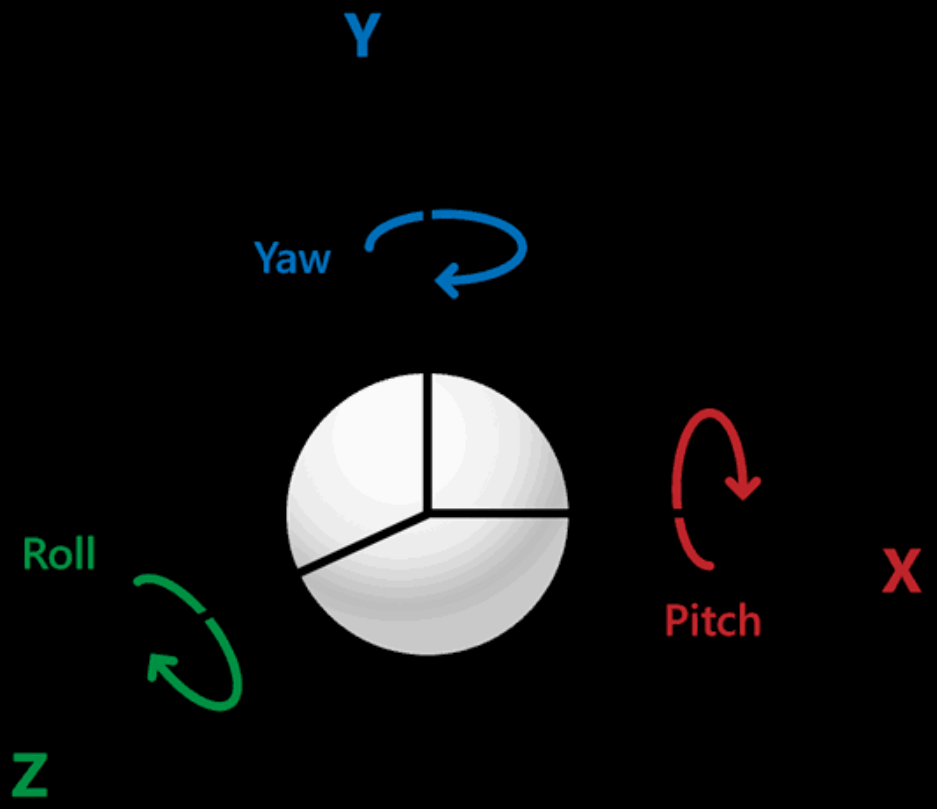


# SCANNING SEQUENCE

## Proposal

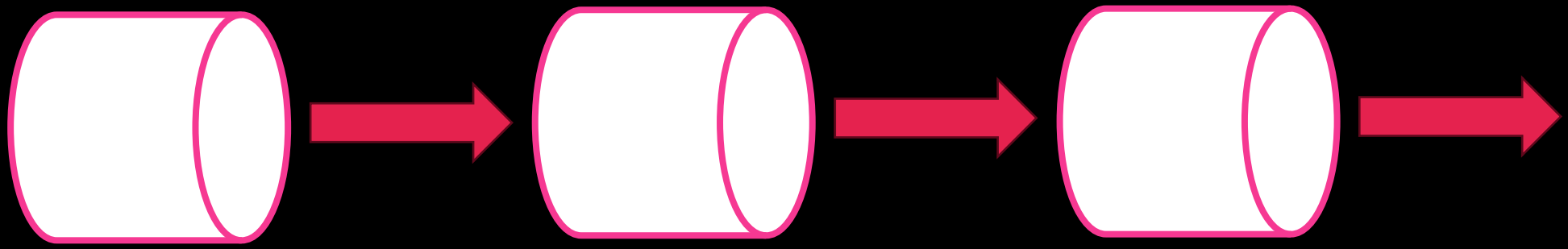
- Based on the sonar type selected:
  - Command/button through Adru Sub (operating system)
  - Rotate AUV in a specific pattern to scan that module of the cave.



# SCANNING SEQUENCE

## Collect Modules of Cave

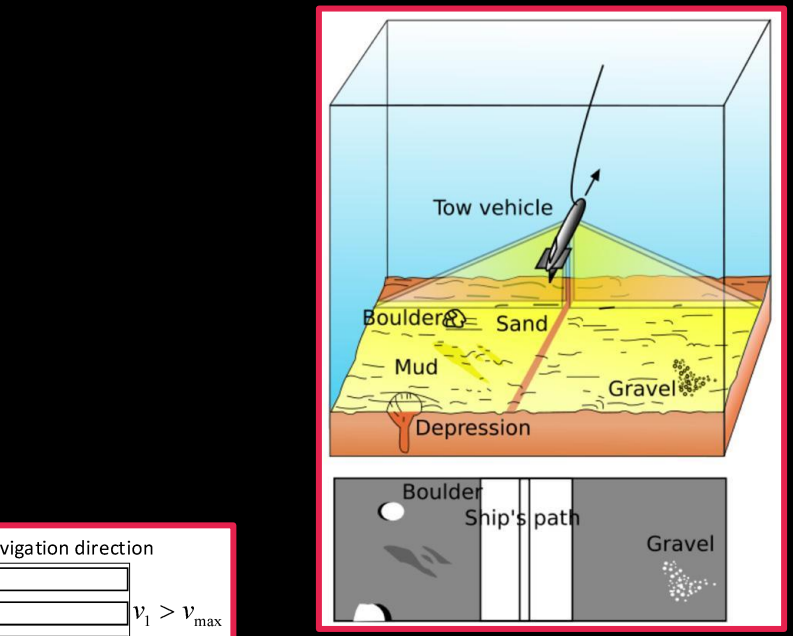
- After x Distance Scan and Collect data point

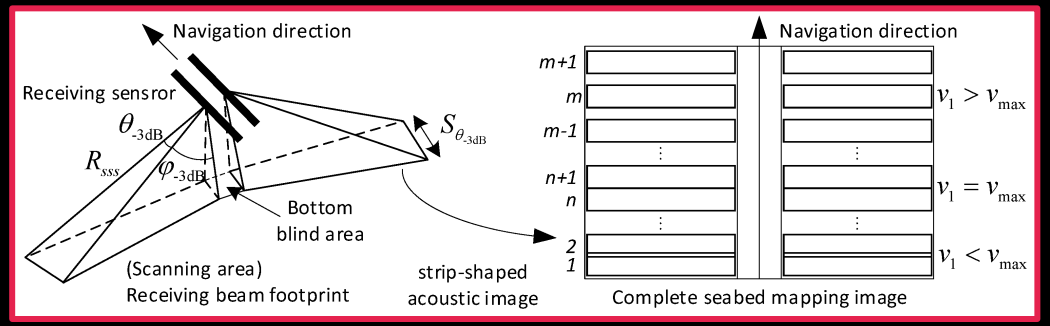


# CLOUD PLOTTING

## Data Returned

- Side Scan:
  - 3 Dimensional Plane

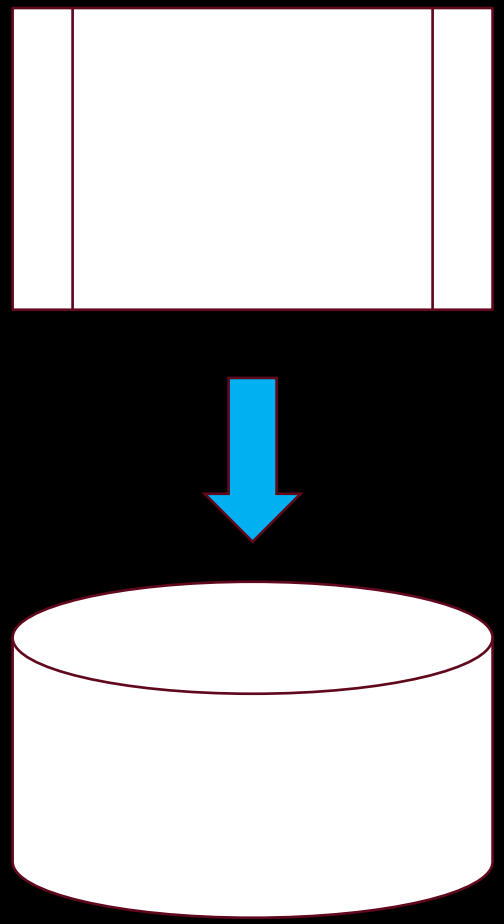


# CLOUD PLOTTING

## Data Returned

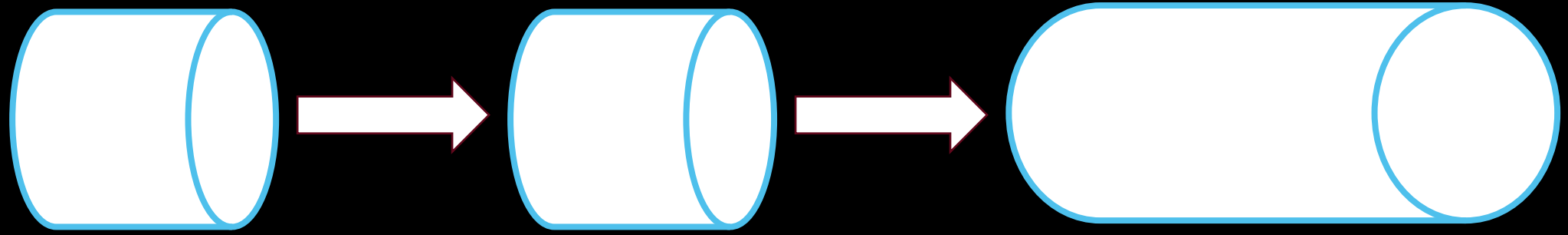
- Conform 3D plane to Cylinder



# CLOUD PLOTTING

## Module Combination

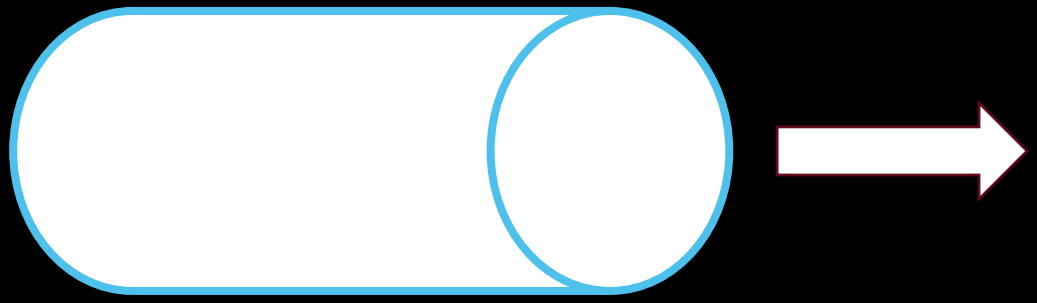
- Using Point Recognition to identify points of contact for connection

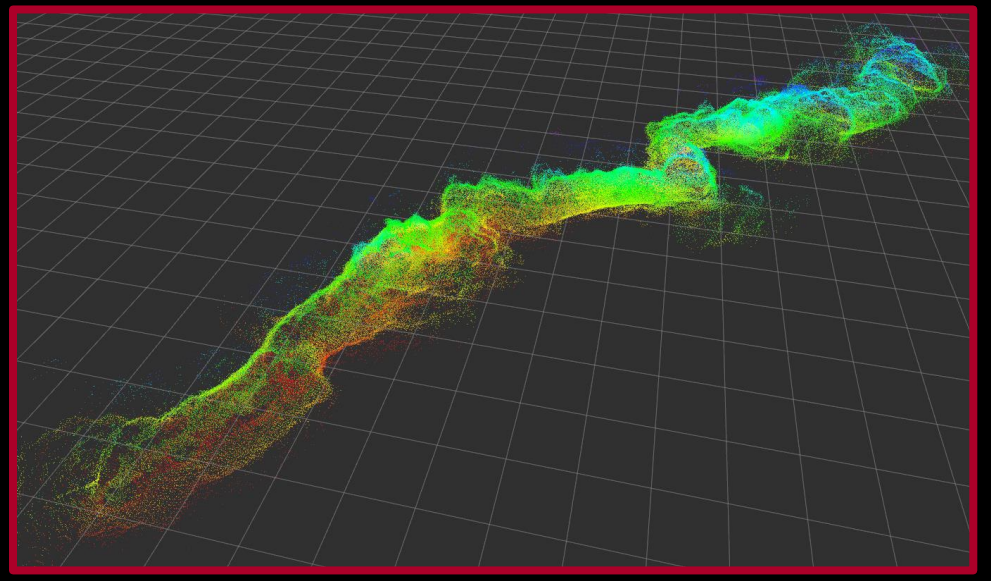


# CLOUD PLOTTING

## Goal

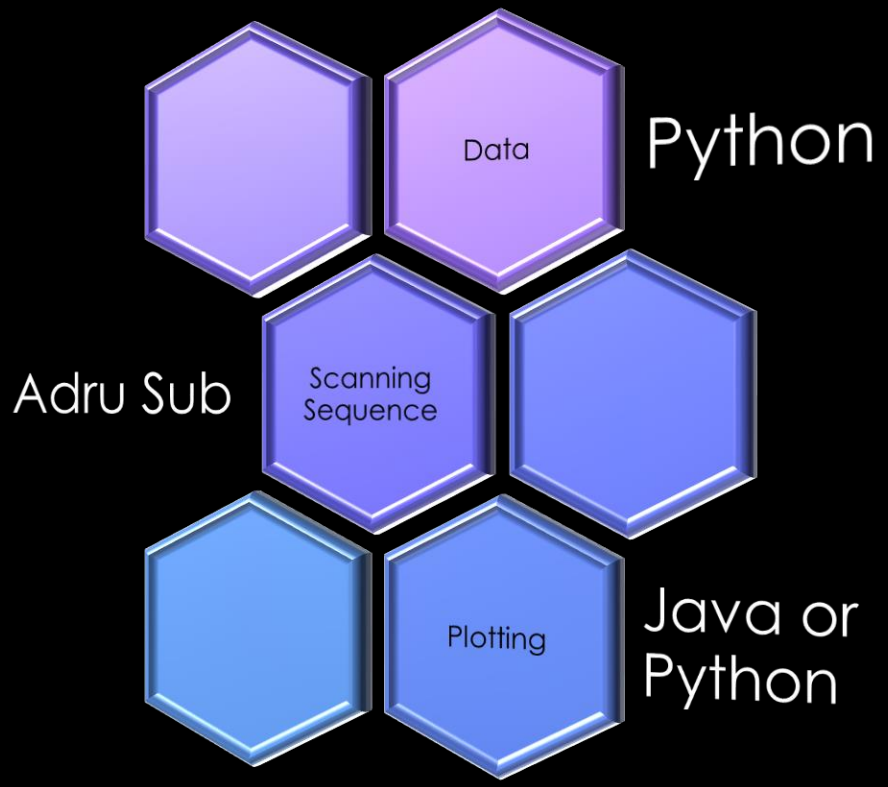
- User Interface to see and interact with the Cloud Plot





# TOOLS

- Data: Python
  - Git Hub package that allows for simple commands
- Sequencing: Ardu Sub
  - Allows for command packages to be sent to AUV's flight controller



# MILESTONE 2 : TASKS

1

- **SSD DATA:**
  - Create a program to save Required Data to Excel

2

- **Scanning Sequence:**
  - Using Ardu Sub create a sequence that maps close to 100% of a cave segment

3

- **Cloud Plotting**
  - **Objective:** Get each module to be properly wrapped
  - **Goal:** Work on combining sections

# WEBPAGE LINK

**TEC-V**

https://bluecodehydra.github.io/FIT_Project-TEC_V/data.html

# QUESTIONS?