Unit/Sub-Unit: **Topic:** ORM, Relational Databases **Date:** **Week Number:** **Cohort:**	**Resources/Research**: IDE, Python, Flask, PostgreSQL, SQLAlchemy, Zoom ORM – Object Relational Mapper - Utilize SQLAlchemy Relational Database - Utilize PostgreSQL **Supplies:** Laptop/PC, quiet environment, webcam, mic
Objective: A student will be able to utilize an ORM to construct a model and utilize it to store data in a relational database **Information on Activity:** Team Based Learning Activity for 10 groups of 4-5 students each - Remote Learning **Prior Knowledge:** Python, Flask, PostgreSQL **Asynchronous Activity** (what students are doing individually or in small groups to learn) **Synchronous Activity** (what students are doing to learn together at the same time)	**Duration**: 60 minutes **Important Reminders (including deadlines):** **Additional Resources (for extension or reteaching):** Documentation, Videos, Handouts **Connection**: Students will be connected on Zoom to each other and to moderator/instructor (if applicable) **Where to go for help:** Mentor/Instructor names, specific websites **Differentiation/Modification:** Visual learning, auditory learning by talking with peers, Linguistic/Verbal Learning, Interpersonal learning, Intrapersonal learning **Teaching Aids:** Visual presentation (PowerPoint)

Synchronous Activity - Teambuilding (5 minutes)

Pose this question to each member in the group:

"If you were alone in a dark cabin, with only one match and a lamp, a fireplace, and a candle to choose from, which would you light first?"

Everyone shares their answers and explains what they chose and why.

Synchronous Activity - Recap (5 minutes) and Asynchronous Activity - Set Up (5 minutes)

Each student will take a minute or two to talk about what the last lesson was about and how it built on previous knowledge and information.

Each student will make sure they are set up with having these resources ready to use: laptop, IDE, Python, Flask, PostgreSQL, SQLAlchemy, Zoom

Asynchronous Activity - Utilize an SQLAlchemy to construct a model (20 – 25 minutes)

During this activity, students will do the work individually on their computers and be logged into Zoom. Students will stay engaged with each other by talking through what they are doing or have done and what step they are on. They also utilize Zoom audio and chat features to ask any questions to group members, offer advice, suggestions, and answer questions.

1) Utilize SQLAlchemy to construct a model, or the code representation of a database table.

Our first object is the representation of the movies table for our database.

2) Make a directory for the project, go into that directory, create a virtual environment, activate the virtual environment, install flask, import flask, and import SQLAlchemy.

   From app import models

3) Initialize objects by using db = SQLAlchemy(app)
   The database object is created from sqlalchemy and pass in app object (where to get the information from)

4) In the terminal, login to psql and create a database

5) Create a models.py file and from app import db

6) Create a class Movies. Inside the class, define a few key columns for the movie, such as index number, id, movie name, year, rating, and director's name.

7) Make another file such as db_create.py and from app import db and also have inside the file db.create_all()

   This will go through and find the models associated with the database and create the tables for us.

8) In the terminal, run the file, for example, python db_create.py

   Run in the terminal psql -u [username] [password]

   Run in the terminal show tables;

   Run in the terminal describe user;

   All the fields you have defined in the python object should be there
   You have now stored data in a relational database

Synchronous Activity - Closing, Assessment, Reflection (20 minutes)

Presentation: For 10 minutes, students will go through the steps they followed to other students and present their work. If time permits, students can answer the following questions in their groups or can answer them in a learning journal.

Students will ask a peer to assess their work and ask for feedback.

1) Students can use this time to ask questions and receive advice, suggestions, and help from other students.
2) Students can answer reflection questions:
   a. What was the most challenging part about this activity?
   b. What did you enjoy about the activity?
   c. How can you connect past learnings to what you have learned through this activity?

3) How can you continue to build on what you have created thus far?