**CS5600: Programming Assignment (50 points)**

In this assignment, you will learn and implement CRUD (Create, Read, Update, Delete). These are the basic APIs to perform at most functions on web applications. You will develop the backend web framework using any programming languages such as Python, Java, C#, …, etc. The backend application must connect to Neo4j-a graph DBMS developed by Neo4j, inc. (https://neo4j.com). To test the backend web framework, you must use API platforms such as Postman API Platform(<https://www.postman.com>).

The CSV file- Film\_ADB\_Neo4J.csv is provided in this assignment with the column names including:

**Film\_id**

**Title**

**Description**

**Rental\_duration (Days)**

**Rental\_rate ($)**

**Length (Mins.)**

**Replacement\_cost ($)**

**Rating**

**List\_Actors**

First, the instructor will guide you how to generate Neo4j Database on local and cloud using Neo4j Desktop and Neo4j Aura(https://console.neo4j.io). You will import this csv file to create graph database on Neo4j DBMS.

This is a database model for the assignment:

**Actor**

**Film**

[ :ACTED\_IN ]

**Nodes:**

Film [ film\_id, title, description, rental\_duration, rental\_rate, length, replacement\_cost, rating ]

Actor [ name ]

**Relationships:**

ACTED\_IN

This is an example of configuration in Python Flask:

The Neo4j Database Configuration:

url = “bolt://localhost:7687” for local database

usr = “neo4j” //default username

pwd = “Admin1234” //the password

…

Text

Description automatically generated

These are the example of API interfaces in Python file:

In xxxx.py file, you must perform the following main functions:

1. Insert the new film and show.

@app.route('/film', methods=['POST'])

1. Update the film and show information using title. (By update only title, description, and rating)

@app.route('/film/<string:fname>', methods=['PATCH'])

1. Delete the film and show information using title.

@app.route('/film/<string:fname>', methods=['DELETE'])

1. Retrieve all the films and shows in database.

@app.route('/film', methods=['GET'])

1. Display the film and show’s detail includes actor’ names.

@app.route('/film/<string:fname>', methods=['GET'])

**Submission:**

**Turn in your codes in folder name “PROG\_ASSIGN\_XXXXX\_YYYYYY” where XXXXX is course number (CRN) and YYYYYY is 700# student id and zip the folder before submitting your assignment.**

**Notes:**

**If you want to use other web frameworks such as Java, JavaScript, PHP, or Microsoft Visual Studio .NET, etc. You must contact me beforehand and let me know how to execute your web framework. You can use the internet cloud application platforms such as Heroku (**[**https://www.heroku.com**](https://www.heroku.com)**),..,etc. It is not a requirement for this assignment. However, in your assignment submission, you must provide me the links for execute the web application and access source codes.**