**CSE 586 DISTRIBUTED SYSTEMS PROJECT 1 - PHASE 2**

**Authors: -** Tanush Tripathi (50411177) and Rishi Joshi (50365611) (Team No 27)

**Date of Submission: -** 23rd October 2021

**Introduction**

Phase 2 of Project 1 deals with implementing the Publisher – Subscriber system. A publish-subscribe system is a system where publishers publish structured events to an event service and subscribers’ express interest in particular events through subscriptions which can be arbitrary patterns over the structured events.

**Architectural Diagram**

The architectural diagram of our system is as follows: -

Diagram, schematic

Description automatically generated

**Technologies Used**

We have used the following technologies for this phase: -

* Python
* MongoDB
* Websockets
* Docker
* IMDb API

**Implementation**

We have taken the following steps as our implementation approach: -

1. Use the IMDb API for accessing the IMDb Movies Database
2. Write a python implementation for the publisher that uses the IMDb API to get the data
3. Use the MongoDB which is a NoSQL database to store our data
4. Create collections for each topic. We have created topics for movie genres like Action, Drama, Crime and Comedy.
5. Create a collection that stores the subscriber information about the topic they are subscribed to.
6. Implement a websocket mediator using python. Similarly implement a subscriber using websocket
7. The subscriber connects to the mediator and sends the topic of his choice.
8. The subscriber receives the required updates
9. Docker is used for creating containers

**How to Deploy**

The following steps are used to deploy the application

Deploying Publisher:-

1. Through Command Prompt, go to the Project Folder “27\_50411177\_p12🡪 SourceCode 🡪Publisher 🡪Publisher1
2. Run the following command to build the publisher 1 docker container

docker build .

1. Run the following command to create a docker image

docker-compose up

1. Repeat the Steps 2 and 3 for publisher 1 and 2.
2. The data from the web api is then inserted into the mongodb database after all images for publishers are created.

Deploying Subscriber and Mediator:-

1. Open two Command Prompt Side by Side
2. In the First Command Prompt terminal, go to the Project Folder “27\_50411177\_p12” 🡪 SourceCode 🡪Mediator
3. In the Second Command Prompt terminal, go to the Project Folder “27\_50411177\_p12” 🡪 SourceCode 🡪Subscriber
4. In the First Command Prompt Terminal, run the below command: -

python mediator.py

1. In the Second Command Prompt Terminal, run the below command: -

python subscriber.py

1. Enter the Choice (Action, Comedy, Crime, Drama) (topics) when prompted on the second terminal.
2. On pressing enter one can see the latest notifications regarding the details of the movies and their respective ratings corresponding to the topic subscribed by the user.