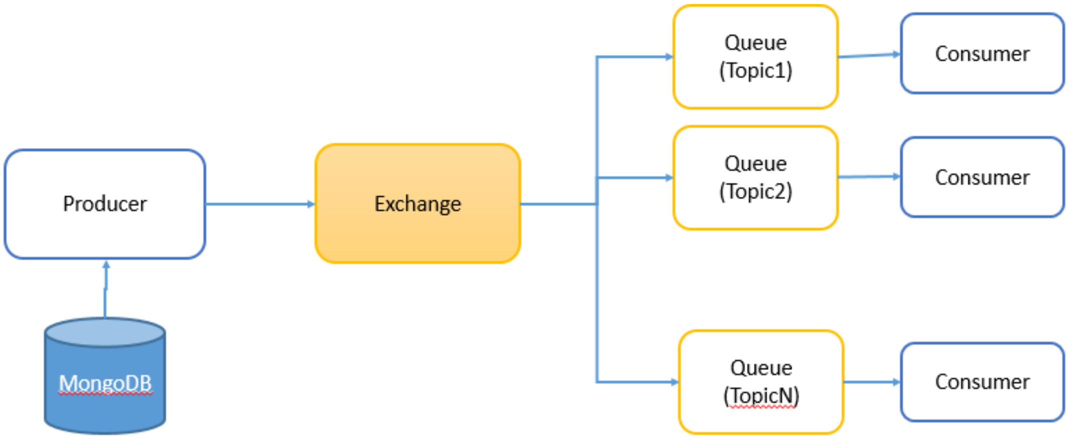
COEN 6731 Winter 2023 Assignment Three

This assignment has the purpose of practising pub/sub message oriented programming. We utilize the data collection created from Assignment Two. In Assignment Two, we use the public data source on Kaggle. https://www.kaggle.com/datasets/kfoster150/avg-cost-of-undergrad-college-by-state/versions/10?resource=download Assignment Two has produced the following data collections.

Collection	Parameters	Topic (* cannot change)
EduCostStatQueryOne	Query the cost given specific year, state, type, length, expense	**Cost-[Year]-[State]-[Type]-[Length]**
EduCostStatQueryTwo	Query the top 5 most expensive states (with overall expense) given a year, type, length	**Top5-Expensive-[Year]-[Type]-[Length]**
EduCostStatQueryThree	Query the top 5 most economic states (with overall expense) given a year, type, length	**Top5-Economic-[Year]-[Type]-[Length]**
EduCostStatQueryFour	Query the top 5 states of the highest growth rate of overall expense given a range of past years, one year, three years and five years (using the latest year as the base) , type and length	**Top5-HighestGrow-[Years]**
EduCostStatQueryFive	Aggregate region's average overall expense for a given year, type and length	**AverageExpense-[Year]-[Type]-[Length]**

In this assignment, the design is adopting a message oriented architecture with exchange of messages for topics following the architecture below.



1. The producer retrieves the datasets from each collection from the MongoDB cloud service for each topics listed in the table above. The parameters to customize each topic is set in a configuration file. (20 points)
2. The producer publishes the data to the exchange topics with a routing key that matches to the topic for each queue. (20 points)

3. The consumer receives the data from the queue based on the topic a consumer subscribed. (20 points)

Task 1: Install rabbitmq server on the local computer (5 points) or on the oracle cloud (10 points).

Task 2: Program the producer and consumer using rabbitmq exchange topic libraries. The producer and consumer can be running on the same node but cannot using multi-threading within the same application.

Submission Specification

- A report in PDF that documents the solutions of Task 2 with screenshots.
- The project code with the pom.xml file.
- Make one archive file of the project code and the report with .zip or .gz or .tar. NO .rar is accepted for grading.
- The deadline of submission is April 18th 9:00am