Project Milestone

Data Storage Implementation: KV + relational

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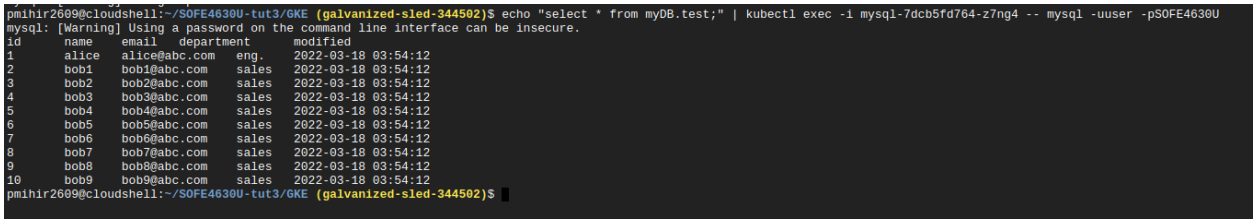
Procedure:

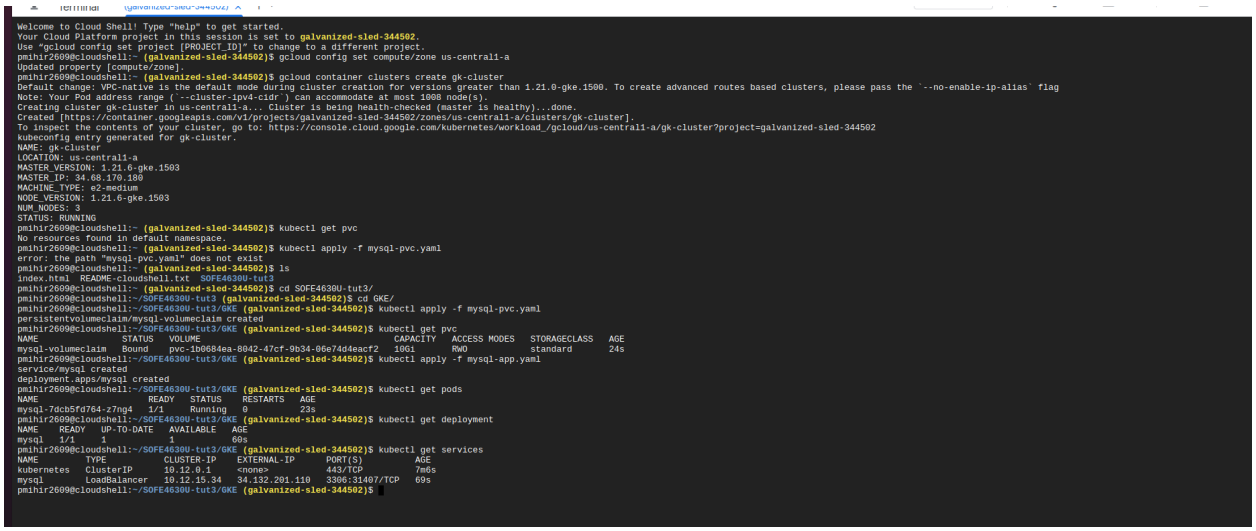
1. **Watch the first three videos for Kafka connectors (focus on the concepts, not the details)**
    - https://www.confluent.io/blog/kafka-connect-tutorial/ (Links to an external site.).

2. **Describe the following:**
    - Sink and Source connectors.
    - The applications/advantages of using Kafka Connectors with data storage.
    - How do Kafka connectors maintain availability?
    - List the popular Kafka converters for values and the properties/advantages of each.

3. **Search the internet to answer the following question:**
    - What's a Key-Value (KV) database?
    - What are KV databases' advantages and disadvantages?
    - List some popular KV databases.

4. **Follow the following videos to deploy and use Redis and MySQL databases using GKE.**





```
pmihir2609@cloudshell:~/SOFE4630U-tut3/GKE (galvanized-sled-344502)$ kubectl delete -f mysql.app.yaml
error: the path "mysql.app.yaml" does not exist
pmihir2609@cloudshell:~/SOFE4630U-tut3/GKE (galvanized-sled-344502)$ kubectl delete -f mysql-app.yaml
service "mysql" deleted
deployment.apps "mysql" deleted
pmihir2609@cloudshell:~/SOFE4630U-tut3/GKE (galvanized-sled-344502)$ kubectl apply -f mysql-app.yaml
service/mysql created
deployment.apps/mysql created
pmihir2609@cloudshell:~/SOFE4630U-tut3/GKE (galvanized-sled-344502)$ kubectl get services
NAME         TYPE           CLUSTER-IP    EXTERNAL-IP   PORT(S)          AGE
kubernetes   ClusterIP      10.12.0.1     <none>        443/TCP          52m
mysql        LoadBalancer   10.12.0.202   <pending>     3306:32255/TCP   16s
pmihir2609@cloudshell:~/SOFE4630U-tut3/GKE (galvanized-sled-344502)$ kubectl get services
NAME         TYPE           CLUSTER-IP    EXTERNAL-IP   PORT(S)          AGE
kubernetes   ClusterIP      10.12.0.1     <none>        443/TCP          52m
mysql        LoadBalancer   10.12.0.202   <pending>     3306:32255/TCP   29s
pmihir2609@cloudshell:~/SOFE4630U-tut3/GKE (galvanized-sled-344502)$ kubectl get services
NAME         TYPE           CLUSTER-IP    EXTERNAL-IP      PORT(S)          AGE
kubernetes   ClusterIP      10.12.0.1     <none>           443/TCP          52m
mysql        LoadBalancer   10.12.0.202   35.193.165.175   3306:32255/TCP   55s
pmihir2609@cloudshell:~/SOFE4630U-tut3/GKE (galvanized-sled-344502)$ mysql -uuser -pSOFE4630U -h35.193.165.175 <<<" select * form  myDB.test;"
mysql: [Warning] Using a password on the command line interface can be insecure.
ERROR 1064 (42000) at line 1: You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version for the right syntax to use near 'form  myDB.test' at line 1
pmihir2609@cloudshell:~/SOFE4630U-tut3/GKE (galvanized-sled-344502)$ mysql -uuser -pSOFE4630U -h35.193.165.175 <<<"select * from  myDB.test;"
mysql: [Warning] Using a password on the command line interface can be insecure.
id      name    email    department      modified
1       alice   alice@abc.com   eng.    2022-03-18 04:04:31
2       bob1    bob1@abc.com    sales   2022-03-18 04:04:31
3       bob2    bob2@abc.com    sales   2022-03-18 04:04:31
4       bob3    bob3@abc.com    sales   2022-03-18 04:04:31
5       bob4    bob4@abc.com    sales   2022-03-18 04:04:31
6       bob5    bob5@abc.com    sales   2022-03-18 04:04:31
7       bob6    bob6@abc.com    sales   2022-03-18 04:04:31
8       bob7    bob7@abc.com    sales   2022-03-18 04:04:31
9       bob8    bob8@abc.com    sales   2022-03-18 04:04:31
10      bob9    bob9@abc.com    sales   2022-03-18 04:04:31
pmihir2609@cloudshell:~/SOFE4630U-tut3/GKE (galvanized-sled-344502)$ kubectl delete -f mysql-app.yaml
service "mysql" deleted
deployment.apps "mysql" deleted
pmihir2609@cloudshell:~/SOFE4630U-tut3/GKE (galvanized-sled-344502)$
```

5. **Follow the following video to set up sink and source Kafka connectors to the deployed MySQL database**

```
mihirkumar@mihirkumar-Precision-3520:~/Documents/cloudComputing/Milestone3/SOFE4630U-tut3/connectors/mysql$ python3 cons_mysql.py
partition:0
key:
value:
{'id': 1, 'name': 'alice', 'email': 'alice@abc.com', 'department': 'eng.', 'modified': 1647584045000}

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partition:0
key:
value:
{'id': 2, 'name': 'bob1', 'email': 'bob1@abc.com', 'department': 'sales', 'modified': 1647584045000}

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partition:0
key:
value:
{'id': 3, 'name': 'bob2', 'email': 'bob2@abc.com', 'department': 'sales', 'modified': 1647584045000}

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partition:0
key:
value:
{'id': 4, 'name': 'bob3', 'email': 'bob3@abc.com', 'department': 'sales', 'modified': 1647584045000}

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partition:0
key:
value:
{'id': 5, 'name': 'bob4', 'email': 'bob4@abc.com', 'department': 'sales', 'modified': 1647584045000}

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partition:0
key:
value:
{'id': 6, 'name': 'bob5', 'email': 'bob5@abc.com', 'department': 'sales', 'modified': 1647584045000}

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partition:0
key:
value:
{'id': 7, 'name': 'bob6', 'email': 'bob6@abc.com', 'department': 'sales', 'modified': 1647584045000}

--------

partition:0
key:
value:
```

```
value:
{'id': 3, 'name': 'bob2', 'email': 'bob2@abc.com', 'department': 'sales', 'modified': 1647590313000}

--------

partition:0
key:
value:
{'id': 4, 'name': 'bob3', 'email': 'bob3@abc.com', 'department': 'sales', 'modified': 1647590313000}

--------

partition:0
key:
value:
{'id': 5, 'name': 'bob4', 'email': 'bob4@abc.com', 'department': 'sales', 'modified': 1647590313000}

--------

partition:0
key:
value:
{'id': 6, 'name': 'bob5', 'email': 'bob5@abc.com', 'department': 'sales', 'modified': 1647590313000}

--------

partition:0
key:
value:
{'id': 7, 'name': 'bob6', 'email': 'bob6@abc.com', 'department': 'sales', 'modified': 1647590313000}

--------

partition:0
key:
value:
{'id': 8, 'name': 'bob7', 'email': 'bob7@abc.com', 'department': 'sales', 'modified': 1647590313000}

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partition:0
key:
value:
{'id': 9, 'name': 'bob8', 'email': 'bob8@abc.com', 'department': 'sales', 'modified': 1647590313000}

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partition:0
key:
value:
{'id': 10, 'name': 'bob9', 'email': 'bob9@abc.com', 'department': 'sales', 'modified': 1647590313000}

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```

6. **Follow the following video to set up a Kafka connector to the deployed Redis database.**

Connector name	Status	Category	ID	Plugin name	Tasks	Messages/sec	Bytes/sec	Messages behind	Messag
MySqlSinkConnector_0	Running	Sink	lcc-zmm93z	MySqlSink	1	0	--	0	0
MySqlSourceConnector_0	Running	Source	lcc-pggoqm	MySqlSource	1	0	0B/s	0	0