

HW 2 PART 2b

Loading the data into Bigquery and creating the data models.

The screenshot displays the Google Cloud Platform BigQuery interface. The top navigation bar includes the Google Cloud Platform logo, the project name 'My First Project', and a search bar. The left sidebar shows the BigQuery workspace with options for SQL workspace, Data transfers, Scheduled queries, Reservations, and BI Engine. The main area is divided into three sections: Explorer, Editor, and Dataset info. The Explorer section shows a search bar and a list of pinned projects, including 'adept-portal-305205' and 'demo'. The Editor section shows the SQL query editor with the following code:

```
1 CREATE OR REPLACE MODEL
2 `demo.cta_ridership_model` OPTIONS(MODEL_TYPE='ARIMA',
3   TIME_SERIES_TIMESTAMP_COL='service_date',
4   TIME_SERIES_DATA_COL='total_rides',
5   HOLIDAY_REGION='us') AS
6 SELECT
7   service_date, total_rides
8 FROM
9   `demo.cta_ridership`
```

The Dataset info section shows the details for the 'adept-portal-305205:demo' dataset, including the Dataset ID, Created date, Default table expiration, Last modified date, and Data location.

Query results

Job information **Results** Execution details

i This statement will create a new model named adept-portal-305205:demo.cta_ridership_model. Depending on the type of mode

*UNSAVE...
ADEPT-P...
DEMO

RUN
SAVE
SCHEDULE
MORE

```

1 SELECT
2   *
3 FROM
4   ML.EVALUATE(MODEL `demo.cta_ridership_model`)

```

Query results
SAVE RESULTS
EXPLORE DATA

Query complete (0.5 sec elapsed, 0 B processed)

Job information **Results** JSON Execution details

Row	non_seasonal_p	non_seasonal_d	non_seasonal_q	has_drift	log_likelihood	AIC	variance	seasonal_periods
1	1	1	4	true	-84343.91298029698	168701.82596059397	2.1214766324672794E9	WEEKLY
								YEARLY
2	1	1	4	false	-84345.76278035615	168703.5255607123	2.1226282591786644E9	WEEKLY
								YEARLY
3	4	1	1	true	-84346.86918283005	168707.7383656601	2.1232853081307085E9	WEEKLY
								YEARLY
4	1	1	3	true	-84347.97278479983	168707.94556959966	2.1239599007139666E9	WEEKLY
								YEARLY
5	4	1	1	false	-84348.83291975319	168709.66583950637	2.124511101972134E9	WEEKLY
								YEARLY
6	1	1	3	false	-84349.84391557962	168709.68783115924	2.1251338051213825E9	WEEKLY
								YEARLY
7	3	1	2	true	-84349.4659266901	168712.9318533802	2.1248756628327606E9	WEEKLY
								YEARLY

Looking at what the data looks like.

Exploring the data in Big Query

UNSAVE... X

ADEPT-P... X

DEMO X

RUN

SAVE

SCHEDULE

MORE

This query will

```
1 SELECT
2 *
3 FROM
4 ML.FORECAST(MODEL `demo.cta_ridership_model`,
5             STRUCT(7 AS horizon))
```

Query results

SAVE RESULTS

EXPLORE DATA

Query complete (0.3 sec elapsed, 23.4 KB processed)

Job information

Results

JSON

Execution details

Row	forecast_timestamp	forecast_value	standard_error	confidence_level	prediction_interval_lower_bound	prediction_interval_upper_bound	confidence_interval_lower_bound	confidence_interval_upper_bound
1	2020-01-01 00:00:00 UTC	662436.4424369269	46059.49014554253	0.95	572322.980240453	752549.9046334007	572322.980240453	752549.9046334007
2	2020-01-02 00:00:00 UTC	1029641.4669424891	46276.328347693256	0.95	939103.76989082	1120179.1639941582	939103.76989082	1120179.1639941582
3	2020-01-03 00:00:00 UTC	1201660.2034356925	47233.43871922012	0.95	1109249.9600529654	1294070.4468184195	1109249.9600529654	1294070.4468184195
4	2020-01-04 00:00:00 UTC	651095.9776391207	48157.99332862347	0.95	556876.8819095747	745315.0733686666	556876.8819095747	745315.0733686666
5	2020-01-05 00:00:00 UTC	467394.91846646497	48621.50963880497	0.95	372268.97250121285	562520.8644317171	372268.97250121285	562520.8644317171
6	2020-01-06 00:00:00 UTC	1158999.319539823	48869.23710364581	0.95	1063388.705171438	1254609.9339082083	1063388.705171438	1254609.9339082083
7	2020-01-07 00:00:00 UTC	1127789.5651062205	49011.66149084522	0.95	1031900.3033930386	1223678.8268194026	1031900.3033930386	1223678.8268194026

Jobs

NEW TRAINING JOB

REFRESH

CANCEL

Filter Filter by prefix...

<input type="checkbox"/>	Job ID	Type	HyperTune	HyperTune parameters	Target metric	Create time	Elapsed time	Logs	Labels
<input type="checkbox"/>	caip_training_1614240714	Custom code training	No			Feb 25, 2021, 12:11:56 AM	6 min 2 sec	View Logs	
<input type="checkbox"/>	caip_training_1614240226	Custom code training	No			Feb 25, 2021, 12:04:02 AM	10 min 24 sec	View Logs	

Training the model and deploying the model.

Region

us-central1

Filter by prefix...

<input type="checkbox"/>	Name	Default version	Description	Endpoint	Labels
<input type="checkbox"/>	cta_ridership	version_1614241403		ml.googleapis.com	

Once the model was deployed this is the result we got when we made some predictions.

```
pred_val
```

```
|: [{ 'dense': [0.6274181008338928,  
              0.600734293460846,  
              0.5882196426391602,  
              -1.0154619216918945,  
              -1.8550198078155518,  
              0.44054874777793884,  
              0.6922966241836548]}]
```

```
|: # Print prediction and compare to actual value
```