

R PROGRAMMING ASSIGNMENT II- SQL

SUBMITTED BY

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2MAECO

From table: `bigquery-public-data.london_bicycles.cycle_hire`

Q.1. How many bikes are up for hiring in London?

Answer. There are 83434851 bikes in London.

The screenshot shows the Google Cloud BigQuery interface. On the left, the 'Explorer' panel lists various datasets, including 'london_bicycles'. The main panel displays a SQL query in an 'Untitled' editor:

```
1 SELECT
2 COUNT(bike_id) as no_of_bikes
3 FROM `bigquery-public-data.london_bicycles.cycle_hire`
```

Below the query editor, the 'Query results' section shows a table with one row and one column:

Row	no_of_bikes
1	83434851

The interface also includes a 'Job history' section at the bottom and a 'SUMMARY' panel on the left.

Q.2. How many distinct bike_ids had trip durations greater than 1200 seconds (or 20 minutes)?

Answer. There are 31860 bikes which had trip durations greater than 1200 seconds.

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Explorer + ADD < >

Viewing resources. SHOW STARRED ONLY

- labeled_patents
- libraries_io
- listenbrainz
- london_bicycles
 - cycle_hire
 - cycle_stations
- london_crime
- london_fire_brigade
- marec

SUMMARY

Try new code-management features of BigQuery Studio in Preview: version history, sharing with IAM and creating Python notebooks with Colab. [ENABLE NOW](#) [DISMISS](#)

Untitled RUN SAVE DOWNLOAD SHARE SCHEDULE MORE Query completed

```

1 SELECT
2   COUNT(DISTINCT bike_id) as no_of_bikes
3 FROM
4   `bigquery-public-data.london_bicycles.cycle_hire`
5 WHERE
6   duration >= 1200

```

Query results SAVE RESULTS EXPLORE DATA

JOB INFORMATION RESULTS CHART PREVIEW JSON EXECUTION DETAILS EXECUTION GRAPH

Row	no_of_bikes
1	31860

Job history REFRESH

Q.3. Name all the cycle stations in London.

Answer. There are 605706 cycle stations in London namely:-

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SUMMARY

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Untitled RUN SAVE DOWNLOAD SHARE SCHEDULE MORE Query completed

```

1 SELECT DISTINCT end_station_name, start_station_name
2 FROM `bigquery-public-data.london_bicycles.cycle_hire`
3 WHERE rental_id > 57876195
4 ORDER BY end_station_name ASC;

```

Query results SAVE RESULTS EXPLORE DATA

JOB INFORMATION RESULTS CHART PREVIEW JSON EXECUTION DETAILS EXECUTION GRAPH

Row	end_station_name	start_station_name
1	null	Nufford Place, Marylebone
2	null	Greyhound Road, Hammersmith
3	null	Chapel Place, Marylebone
4	null	Panton Street, West End
5	null	Holland Park, Kensington
6	null	Montpelier Street, Knightsbridge
7	null	Baldwin Street, St. Luke's
8	null	Stratford Station, Stratford
9	null	LSBU (Borough Road), Elephan...
10	null	Union Street, The Borough
11	null	Normand Park, West Kensington

Results per page: 200 1 - 200 of 605706 REFRESH

Job history

Q.4. How many times has each bike been rented out?

Answer.

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Q Type to search

Viewing resources. SHOW STARRED ONLY

- labeled_patents
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SUMMARY

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Q Untitled RUN SAVE DOWNLOAD SHARE SCHEDULE MORE Query completed.

```
1 SELECT bike_id, COUNT(*) AS rental_count
2 FROM `bigquery-public-data.london_bicycles.cycle_hire`
3 WHERE bike_id > 8277
4 GROUP BY bike_id;
5
```

Query results

JOB INFORMATION RESULTS CHART PREVIEW JSON EXECUTION DETAILS EXECUTION GRAPH

Row	bike_id	rental_count
1	8280	5932
2	13219	6490
3	13458	3838
4	12445	6614
5	8661	6057
6	14309	5354
7	14037	6262
8	10024	6182
9	11898	3322

Results per page: 50 1 - 50 of 24454 < > |

Job history REFRESH

Q.5. List all the cycle stations in Mayfair.

Answer.

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Explorer + ADD <

Q Type to search

Viewing resources. SHOW STARRED ONLY

- labeled_patents
- libraries_io
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- london_bicycles
 - cycle_hire
 - cycle_stations
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- london_fire_brigade
- marec

SUMMARY

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Q Untitled RUN SAVE DOWNLOAD SHARE SCHEDULE MORE Query completed.

```
1 SELECT CONCAT(end_station_name, '-', start_station_name) AS station_names
2 FROM `bigquery-public-data.london_bicycles.cycle_hire`
3 WHERE end_station_name LIKE '%Paddington' and start_station_name LIKE '%Paddington'
```

Query results

JOB INFORMATION RESULTS CHART PREVIEW JSON EXECUTION DETAILS EXECUTION GRAPH

Row	station_names
1	Paddington Green Police Station, Paddington, Eastbourne Mews, Paddington
2	Winsland Street, Paddington, S...
3	Frampton Street, Paddington, S...
4	St Mary's Hospital, Paddington...
5	St Mary's Hospital, Paddington...
6	Eastbourne Mews, Paddington...
7	Frampton Street, Paddington, S...
8	Eastbourne Mews, Paddington...
9	St Mary's Hospital, Paddington...
10	Eastbourne Mews, Paddington...

Results per page: 50 1 - 50 of 58597 < > |

Job history REFRESH

From table: `bigquery-public-data.london_bicycles.cycle_stations`

Q.6. How many cycle stations are there which were installed in 2013?

Answer. 139 stations were installed in 2013

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Explorer + ADD

Viewing resources. SHOW STARRED ONLY

- ↳ isorepo_patents ☆
- ↳ libraries_io ☆
- ↳ listenbrainz ☆
- ↳ london_bicycles ☆
 - ↳ cycle_hire ☆
 - ↳ cycle_stations ☆
- ↳ london_crime ☆
- ↳ london_firebrigade ☆
- ↳ marec ☆
- ↳ medicare ☆

SUMMARY

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Untitled 3 RUN SAVE DOWNLOAD SHARE SCHEDULE MORE Query completed.

```

1 SELECT COUNT(name) AS number_of_stations
2 FROM `bigquery-public-data.london_bicycles.cycle_stations`
3 WHERE FORMAT_DATE("%Y-%m", install_date) LIKE "2013-%"

```

Query results

JOB INFORMATION RESULTS CHART PREVIEW JSON EXECUTION DETAILS EXECUTION GRAPH

Row	number_of_stations
1	139

Job history REFRESH

Q.7. List all the stations where the number of bikes parked are less than 10.

Answer. There are 280 stations in London which have less than 10 bikes.

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Explorer + ADD

Viewing resources. SHOW STARRED ONLY

- ↳ isorepo_patents ☆
- ↳ libraries_io ☆
- ↳ listenbrainz ☆
- ↳ london_bicycles ☆
 - ↳ cycle_hire ☆
 - ↳ cycle_stations ☆
- ↳ london_crime ☆
- ↳ london_firebrigade ☆
- ↳ marec ☆
- ↳ medicare ☆

SUMMARY

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Untitled 3 RUN SAVE DOWNLOAD SHARE SCHEDULE MORE Query completed.

```

1 SELECT name
2 FROM `bigquery-public-data.london_bicycles.cycle_stations`
3 WHERE bikes_count<10

```

Query results

JOB INFORMATION RESULTS CHART PREVIEW JSON EXECUTION DETAILS EXECUTION GRAPH

Row	name
1	Whitehall Place, Strand
2	Queen's Gate (North), Kensington
3	Natural History Museum, South...
4	Wright's Lane, Kensington
5	St. James's Square, St. James's
6	Embankment (Savoy), Strand
7	Cheapside, Bank
8	Webber Street, Southwark
9	Colombo Street, Southwark
10	Concert Hall Approach 1, South...
11	Royal Avenue 1, Chelsea
12	Albion Street, Barking

Results per page: 50 1 - 50 of 280

Job history REFRESH

Q.8. List the top 10 recently made stations and their installation date.

Answer.

The screenshot shows the Google Cloud BigQuery Studio interface. The Explorer on the left lists resources like `isoreco_patents`, `libraries_lo`, `listenbrainz`, `london_bicycles` (expanded), `cycle_hire`, `cycle_stations`, `london_crime`, `london_fire_brigade`, `marec`, and `medicare`. The main editor shows a query in 'Untitled 3' with the following SQL:

```
1 SELECT name, install_date
2 FROM `bigquery-public-data.london_bicycles.cycle_stations`
3 GROUP BY name, install_date
4 ORDER BY install_date DESC
5 LIMIT 10;
```

The 'Query results' section displays a table with 10 rows of station data:

Row	name	install_date
1	The Blue, Bermondsey	2022-10-17
2	Burgess Park Albany Road, Wal...	2022-08-06
3	London Street, Paddington	2022-04-19
4	Blythe Road, Olympia	2022-01-27
5	Canada Water Station, Rotherh...	2020-12-18
6	Bermondsey Station, Bermond...	2020-12-18
7	Temple Gardens, Temple	2020-09-23
8	George Row, Bermondsey	2020-09-10
9	Bonner Gate, Victoria Park	2019-07-24
10	Westminster Pier, Westminster	2019-07-24

Below the results is a 'Job history' section with a 'REFRESH' button.

From tables: `bigquery-public-data.austin_bikeshare.bikeshare_stations` and `bigquery-public-data.austin_bikeshare.bikeshare_trips`

Q.9. Find the most popular starting stations for bike trips.

Answer.

The screenshot shows the Google Cloud BigQuery Studio interface. The Explorer on the left lists resources like `austin_bikeshare` (expanded), `bikeshare_stations`, `bikeshare_trips`, `austin_crime`, `crime`, and `austin_incidents` (expanded). The main editor shows a query in 'Untitled 5' with the following SQL:

```
1 SELECT s.name, COUNT(*) AS trip_count
2 FROM `bigquery-public-data.austin_bikeshare.bikeshare_stations` AS s
3 INNER JOIN `bigquery-public-data.austin_bikeshare.bikeshare_trips` AS t
4 ON s.station_id = t.start_station_id
5 GROUP BY s.name
6 ORDER BY trip_count DESC
7 LIMIT 10;
```

The 'Query results' section displays a table with 10 rows of station data:

Row	name	trip_count
1	21st & Speedway @PCL	163240
2	4th/Sabine	75261
3	Nueces & 26th	61984
4	Riverside @ S. Lamar	60746
5	Guadalupe & 21st	59519
6	Rainey St @ Cummings	58315
7	UT West Mall @ Guadalupe	55418
8	Dean Keeton & Whitis	53901
9	Zilker Park	47711
10	City Hall / Lavaca & 2nd	47221

Below the results is a 'Job history' section with a 'REFRESH' button.

Q.10. Find the busiest hours for each station

Answer.

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Search

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UPGRADE

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Explorer

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Type to search

Viewing resources.

SHOW STARRED ONLY

america_neuro_rank...

austin_311

311_service_requ...

austin_bikeshare

bikeshare_stations

bikeshare_trips

austin_crime

crime

austin_incidents

incidents_2008

SUMMARY

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ENABLE NOW

DISMISS

Untitled 5

RUN

SAVE

DOWNLOAD

SHARE

SCHEDULE

MORE

```
1 SELECT s.name, EXTRACT(HOUR FROM t.start_time) AS start_hour, COUNT(*) AS trip_count
2 FROM `bigquery-public-data.austin_bikeshare.bikeshare_stations` AS s
3 INNER JOIN `bigquery-public-data.austin_bikeshare.bikeshare_trips` AS t
4 ON s.station_id = t.start_station_id
5 GROUP BY s.name, t.start_time, EXTRACT(HOUR FROM t.start_time)
6 ORDER BY s.name, start_hour;
```

Query results

SAVE RESULTS

EXPLORE DATA

JOB INFORMATION

RESULTS

CHART

PREVIEW

JSON

EXECUTION DETAILS

EXECUTION GRAPH

Row	name	start_hour	trip_count
1	10th & Red River	0	1
2	10th & Red River	0	1
3	10th & Red River	0	1
4	10th & Red River	0	1
5	10th & Red River	0	1
6	10th & Red River	0	1
7	10th & Red River	0	1
8	10th & Red River	0	1
9	10th & Red River	0	1

Results per page: 50 1 - 50 of 2033596

Job history

REFRESH