

Pengantar SQL untuk BigQuery dan Cloud SQL

BigQuery adalah data warehouse berskala petabyte terkelola sepenuhnya yang berjalan di Google Cloud. Analis data dan data scientist dapat dengan cepat mengkueri dan memfilter set data besar, menggabungkan hasil, dan melakukan operasi kompleks tanpa harus khawatir tentang penyiapan dan pengelolaan server. BigQuery hadir dalam bentuk alat command line (sudah terinstal dalam Cloud Shell) atau konsol web. Keduanya siap digunakan untuk mengelola dan mengkueri data yang disimpan dalam project Google Cloud.

Dengan menarik beberapa data publik ke project sehingga bisa berlatih menjalankan perintah SQL di BigQuery.

Klik ADD DATA > Explore Public Datasets

Search "london", kemudian pilih kotak **London Bicycle Hires**,

Project baru bernama **bigquery-public-data**

Luaskan project **bigquery-public-data** > cari data sets **london_bicycles**, lalu pilih tabel **cycle_hire**

The screenshot shows the Google Cloud Platform BigQuery console interface. The top navigation bar includes the Google Cloud Platform logo, a search bar, and a dropdown menu for 'My First Project'. Below the navigation bar, there's a sidebar with 'Explorers' and 'ADD DATA' button. The main area displays the 'cycle_hire' table from the 'bigquery-public-data' project. The table has 12 columns: 'rental_id', 'duration', 'bike_id', 'end_date', 'end_station_id', 'end_station_name', 'start_date', and 'start_station_name'. The preview shows the first 6 rows of data. The bottom of the screen shows a Windows taskbar with various application icons and a system tray displaying the date and time.

Row	rental_id	duration	bike_id	end_date	end_station_id	end_station_name	start_date	start_station_name
1	47469109	3180	7054	2015-09-03 12:45:00 UTC	111	Park Lane, Hyde Park	2015-09-03 11:52:00 UTC	
2	46915469	7380	3792	2015-08-16 11:59:00 UTC	407	Speakers' Corner 1, Hyde Park	2015-08-16 09:56:00 UTC	
3	65899423	2040	3038	2017-06-09 18:30:00 UTC	165	Orsett Terrace, Bayswater	2017-06-09 17:56:00 UTC	
4	64280726	2280	10868	2017-04-22 10:14:00 UTC	553	Regent's Row, Haggerston	2017-04-22 09:36:00 UTC	
5	59235489	2340	7183	2016-10-09 04:31:00 UTC	100	Albert Embankment, Vauxhall	2016-10-09 03:52:00 UTC	
6	55248935	2160	7619	2016-06-26 07:26:00 UTC	465	Pitfield Street North, Hoxton	2016-06-26 06:50:00 UTC	

Tabel **cycle_hire** memiliki 24369201 baris dan memiliki 12 kolom sebagai berikut :

1. Row
2. rental_id

3. duration
4. bike_id
5. end_station_id
6. end_station_name
7. start_date
8. start_station_id
9. start_station_name
10. end_station_logical_terminal
11. start_station_logical_terminal
12. end_station_priority_id

Row	rental_id	duration	bike_id	end_date	end_station_id	end_station_name	start_date	start_station_id
1	47469109	3180	7054	2015-09-03 12:45:00 UTC	111	Park Lane , Hyde Park	2015-09-03 11:52:00 UTC	
2	46915469	7380	3792	2015-08-16 11:59:00 UTC	407	Speakers' Corner 1, Hyde Park	2015-08-16 09:56:00 UTC	
3	65899423	2040	3038	2017-06-09 18:30:00 UTC	165	Orsett Terrace, Bayswater	2017-06-09 17:56:00 UTC	
4	64280726	2280	10868	2017-04-22 10:14:00 UTC	553	Regent's Row , Haggerston	2017-04-22 09:36:00 UTC	
5	59235489	2340	7183	2016-10-09 04:31:00 UTC	100	Albert Embankment, Vauxhall	2016-10-09 03:52:00 UTC	
6	55248935	2160	7619	2016-06-26 07:26:00 UTC	465	Pitfield Street North,Hoxton	2016-06-26 06:50:00 UTC	
7	43015438	5400	2779	2015-04-27 22:50:00 UTC	772	Binfield Road, Stockwell	2015-04-27 21:20:00 UTC	

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date	start_station_id	start_station_name	end_station_logical_terminal	start_station_logical_terminal	end_station_priority_id
09-03 11:52:00 UTC	300	Serpentine Car Park, Hyde Park	null	null	null
08-16 09:56:00 UTC	407	Speakers' Corner 1, Hyde Park	null	null	null
06-09 17:56:00 UTC	579	Queen Street 2, Bank	null	null	null
04-22 09:36:00 UTC	519	Teviot Street, Poplar	null	null	null
10-09 03:52:00 UTC	612	Wandsworth Rd, Isley Court, Wandsworth Road	null	null	null
06-26 06:50:00 UTC	459	Gunmakers Lane, Old Ford	null	null	null
04-27 21:20:00 UTC	157	Wright's Lane, Kensington	null	null	null

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1. SELECT, FROM, dan WHERE

SELECT kolom end_station_name

```
SELECT end_station_name FROM `bigquery-public-data.london_bicycles.cycle_hire`;
```

Row	end_station_name
1	Doddington Grove, Kennington
2	East Road, Hoxton
3	Parkway, Camden Town
4	Grant Road East, Clapham Junction

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SELECT * menampilkan semua nilai kolom dari tabel. Durasi diukur dalam detik, itulah sebabnya Anda menggunakan nilai 1200 (60 * 20).

```
SELECT * FROM `bigquery-public-data.london_bicycles.cycle_hire` WHERE duration>=1200;
```

Row	rental_id	duration	bike_id	end_date	end_station_id	end_station_name	start_date	start_station_id
1	47469109	3180	7054	2015-09-03 12:45:00 UTC	111	Park Lane, Hyde Park	2015-09-03 11:52:00 UTC	
2	46915469	7380	3792	2015-08-16 11:59:00 UTC	407	Speakers' Corner 1, Hyde Park	2015-08-16 09:56:00 UTC	
3	65899423	2040	3038	2017-06-09 18:30:00 UTC	165	Orsett Terrace, Bayswater	2017-06-09 17:56:00 UTC	

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2. GROUP BY

```
SELECT start_station_name FROM `bigquery-public-data.london_bicycles.cycle_hire` GROUP BY start_station_name;
```

Row	start_station_name
1	Serpentine Car Park, Hyde Park
2	Speakers' Corner 1, Hyde Park
3	Queen Street 2, Bank
4	Teviot Street, Poplar
5	Wandsworth Rd. Islev Court, Wandsworth Road

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3. COUNT

```
SELECT start_station_name, COUNT(*) FROM `bigquery-public-data.london_bicycles.cycle_hire` GROUP BY start_station_name;
```

Row	start_station_name	f0_
1	Serpentine Car Park, Hyde Park	74903
2	Speakers' Corner 1, Hyde Park	85835
3	Queen Street 2, Bank	51658
4	Teviot Street, Poplar	3885
5	Wandsworth Rd, Isley Court, Wandsworth Road	21610

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4. AS

Membuat *alias* dari tabel atau kolom

```
SELECT start_station_name, COUNT(*) AS num_starts FROM `bigquery-public-data.london_bicycles.cycle_hire` GROUP BY start_station_name;
```

Row	start_station_name	num_starts
1	Serpentine Car Park, Hyde Park	74903
2	Speakers' Corner 1, Hyde Park	85835
3	Queen Street 2, Bank	51658
4	Teviot Street, Poplar	3885
5	Wandsworth Rd, Isley Court, Wandsworth Road	21610

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5. ORDER BY

mengurutkan data yang dihasilkan dari kueri dalam urutan naik atau turun berdasarkan kriteria atau nilai kolom yang ditentukan.

- Menampilkan tabel berisi jumlah perjalanan bikeshare yang dimulai di setiap stasiun awal, yang disusun secara alfabetis berdasarkan stasiun awal.

```
SELECT start_station_name, COUNT(*) AS num FROM `bigquery-public-data.london_bicycles.cycle_hire` GROUP BY start_station_name ORDER BY start_station_name;
```

Row	start_station_name	num
1	Abbey Orchard Street, Westminster	39749
2	Abbotsbury Road, Holland Park	9834
3	Aberdeen Place, St. John's Wood	19391
4	Aberfeldy Street, Brixton	2337

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- Menampilkan tabel berisi jumlah perjalanan bikeshare yang dimulai di setiap stasiun awal, yang disusun secara numerik dari terendah ke tertinggi.

```
SELECT start_station_name, COUNT(*) AS num FROM `bigquery-public-data.london_bicycles.cycle_hire` GROUP BY start_station_name ORDER BY num;
```

Row	start_station_name	num
1	PENTON STREET COMMS TEST TERMINAL _ CONTACT MATT McNULTY	1
2	LSP1	1
3	LSP2	4
4	Blackfriars road, Southwark	5
5	Mariner Road	11

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- Menampilkan tabel berisi jumlah perjalanan bikeshare yang dimulai di setiap stasiun awal, yang disusun secara numerik dari tertinggi ke terendah.

```
SELECT start_station_name, COUNT(*) AS num FROM `bigquery-public-data.london_bicycles.cycle_hire` GROUP BY start_station_name ORDER BY num DESC;
```

Row	start_station_name	num
1	Belgrove Street , King's Cross	234458
2	Hyde Park Corner, Hyde Park	215629
3	Waterloo Station 3, Waterloo	201630
4	Black Lion Gate, Kensington Gardens	161952

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- Menampilkan tabel berisi jumlah tabel perjalanan bikeshare yang berakhir di setiap stasiun akhir, yang disusun secara numerik dari jumlah perjalanan tertinggi ke terendah

```
SELECT end_station_name, COUNT(*) AS num FROM `bigquery-public-data.london_bicycles.cycle_hire` GROUP BY end_station_name ORDER BY num DESC;
```

Row	end_station_name	num	
1	Belgrove Street , King's Cross	231802	
2	Hyde Park Corner, Hyde Park	215038	
3	Waterloo Station 3, Waterloo	193200	
4	Albert Gate, Hyde Park	157943	
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