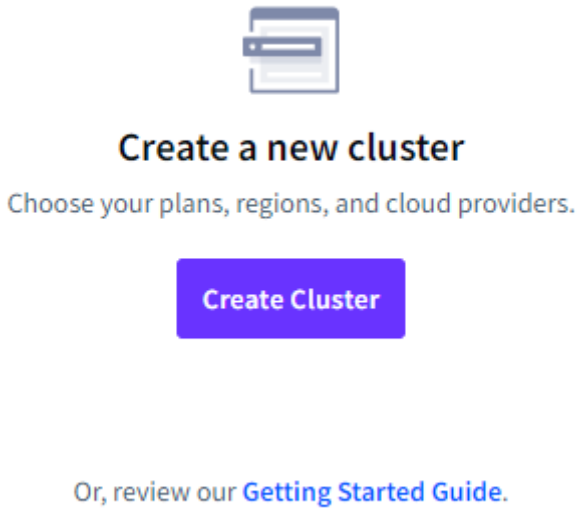
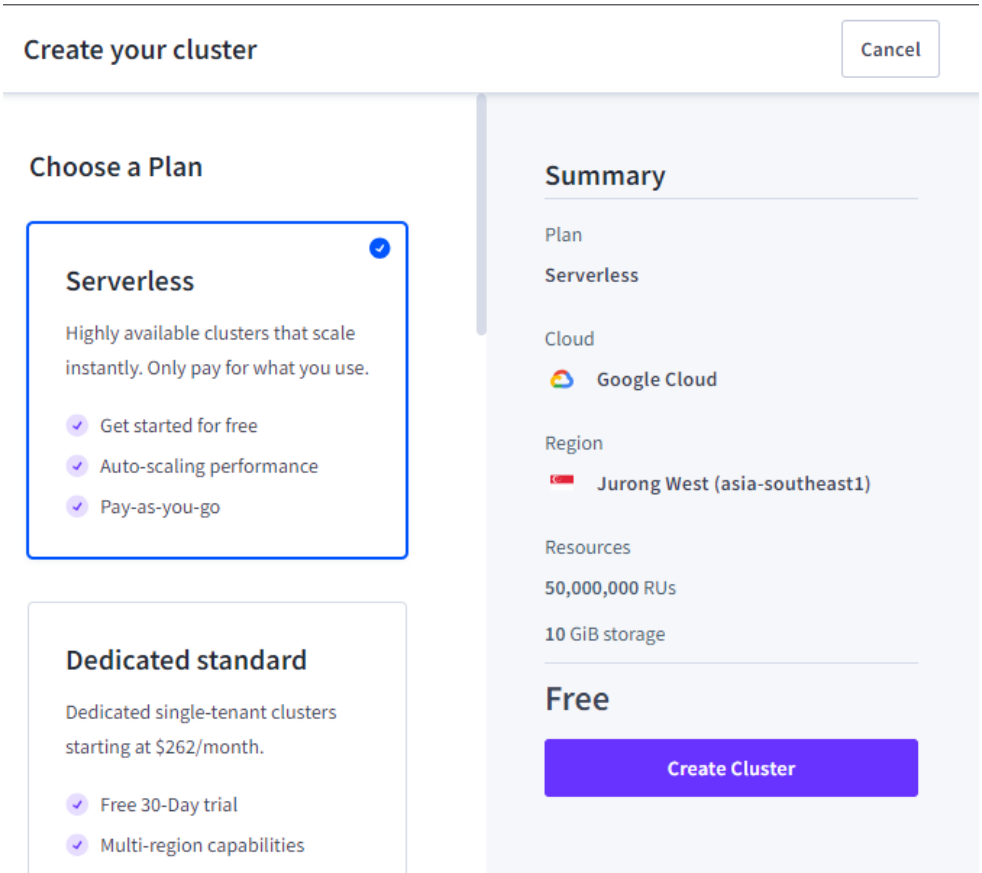
Build a Python App with CockroachDB and psycopg2

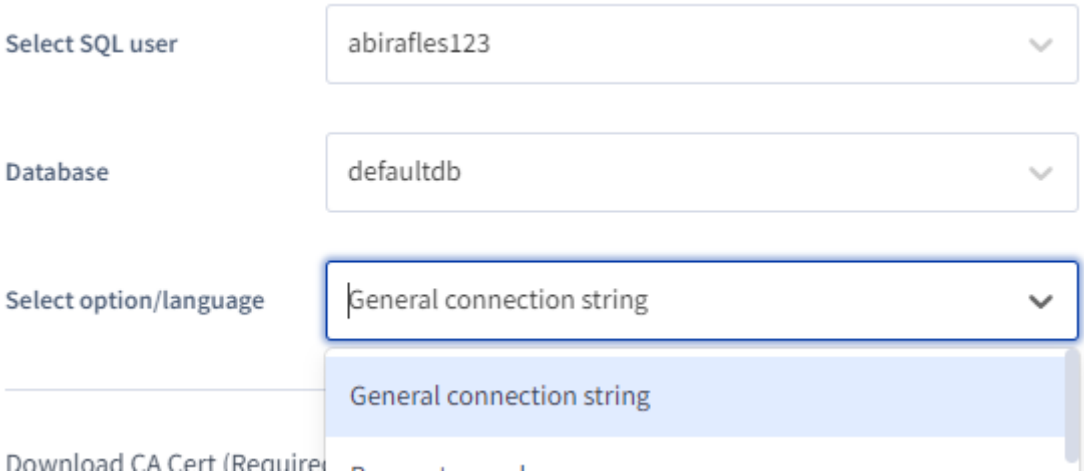
1. Step 1. Start CockroachDB
   Create a free cluster:
   - Log in to your CockroachDB Cloud account.
   - On the Clusters page, click Create Cluster.



   - On the Create your cluster page, select Serverless, and then Click Create cluster.



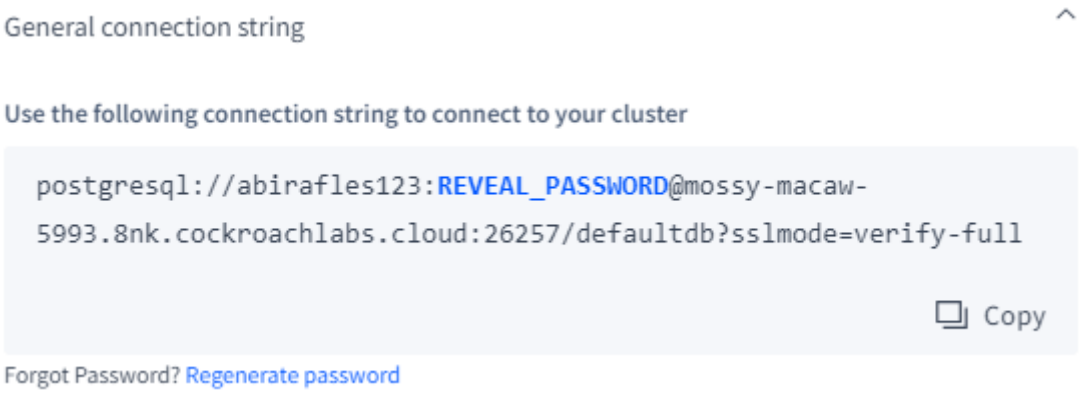
2. Get the root certificate:
   - Select General connection string from the Select option dropdown.



   - Open a new terminal on your local machine, and run the CA Cert download command provided in the Download CA Cert section. The client driver used in this tutorial requires this certificate to connect to CockroachDB Cloud.

```
PS C:\Users\Abi Rahman> Invoke-WebRequest -Uri https://cock
roachlabs.cloud/clusters/2dbcf74b-eccc-44be-8f74-b7904e0968
a3/cert -OutFile $env:appdata\postgresql\root.crt
PS C:\Users\Abi Rahman>
```

3. Get the connection string:
   Open the General connection string section, then copy the connection string provided and save it in a secure location.



4. Step 2. Get the sample code:
   Clone the sample code's GitHub repo: git clone https://github.com/cockroachlabs/hello-world-python-psycopg2

```
t.crt                  git clone https://github.com/cockroachlabs/hello-world-py
thon-psycopg2bi Rahman>
Cloning into 'hello-world-python-psycopg2'...
remote: Enumerating objects: 93, done.
remote: Counting objects: 100% (93/93), done.
remote: Compressing objects: 100% (62/62), done.
remote: Total 93 (delta 48), reused 68 (delta 30), pack-reused 0
Receiving objects: 100% (93/93), 20.41 KiB | 908.00 KiB/s, done.
Resolving deltas: 100% (48/48), done.
PS C:\Users\Abi Rahman>
```

5. Step 3. Install the psycopg2 driver
   To install psycopg2-binary, run the following command: pip install psycopg2-binary

```
PS C:\Users\Abi Rahman> pip install psycopg2-binary
Collecting psycopg2-binary
  Downloading psycopg2_binary-2.9.7-cp311-cp311-win_amd64.whl (1.2 MB)
     ---------------------------------------- 1.2/1.2 MB 4.3 MB/s eta 0:00:00
Installing collected packages: psycopg2-binary
Successfully installed psycopg2-binary-2.9.7

[notice] A new release of pip is available: 23.1.2 -> 23.2.1
[notice] To update, run: python.exe -m pip install --upgrade pip
PS C:\Users\Abi Rahman>
```

6. Step 4. Run the code
   - Set the DATABASE_URL environment variable to the connection string to your cluster: $env:DATABASE_URL = "postgresql://abirafles123:RJoFkN_Z2gPfRnmzJo3Udw@mossy-macaw-5993.8nk.cockroachlabs.cloud:26257/defaultdb?sslmode=verify-full"

```
PS C:\Users\Abi Rahman> $env:DATABASE_URL = "postgresql://abirafles123:RJoFkN_Z2g
PfRnmzJo3Udw@mossy-macaw-5993.8nk.cockroachlabs.cloud:26257/defaultdb?sslmode=ver
ify-full"
PS C:\Users\Abi Rahman>
```

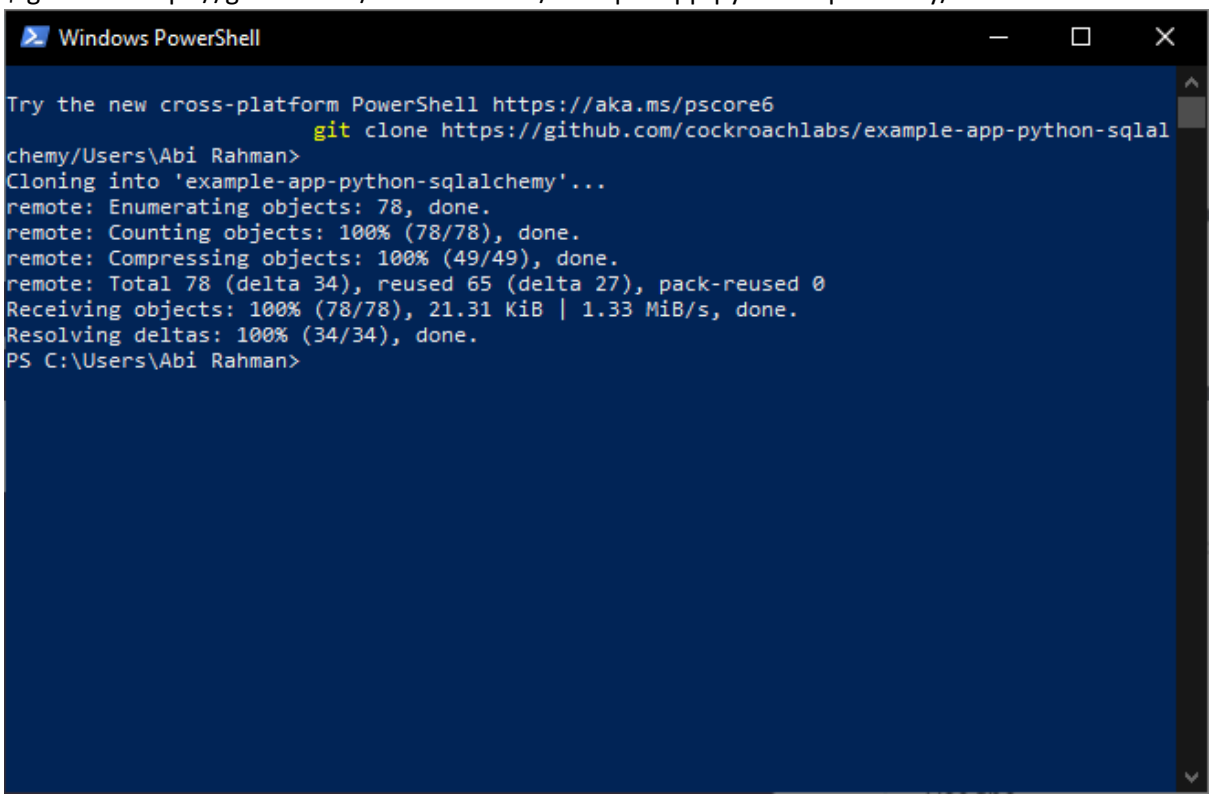
   The app uses the connection string saved to the DATABASE_URL environment variable to connect to your cluster and execute the code.

   - Run the code:

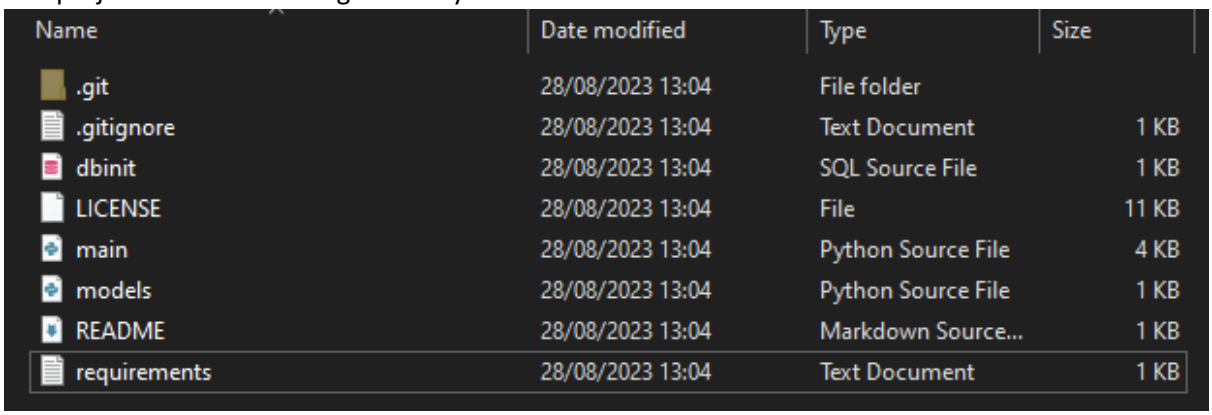
```
PS C:\Users\Abi Rahman> cd hello-world-python-psycopg2
PS C:\Users\Abi Rahman\hello-world-python-psycopg2> python example.py
Balances at Mon Aug 28 12:59:38 2023:
account id: 17540f17-386e-40b4-b2f5-936c6589237a  balance: $1000
account id: 246e0b89-af0d-44f2-bb30-0e1060a5701e  balance: $250
Balances at Mon Aug 28 12:59:38 2023:
account id: 17540f17-386e-40b4-b2f5-936c6589237a  balance: $900
account id: 246e0b89-af0d-44f2-bb30-0e1060a5701e  balance: $350
PS C:\Users\Abi Rahman\hello-world-python-psycopg2>
```

Build a Simple CRUD Python App with CockroachDB and SQLAlchemy

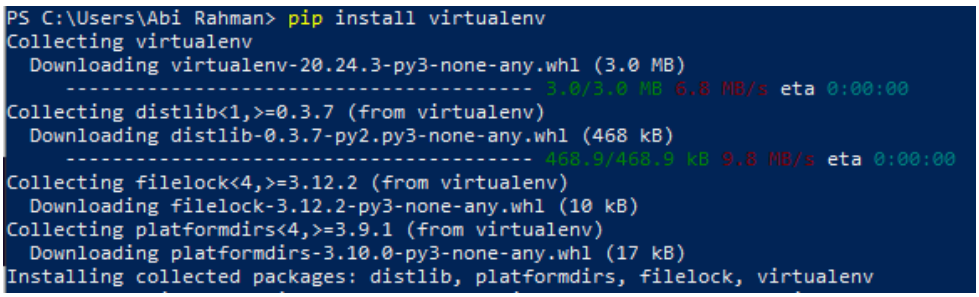
1. Get the code:
   $ git clone https://github.com/cockroachlabs/example-app-python-sqlalchemy/



   The project has the following directory structure:



2. Install the application requirements
   This tutorial uses virtualenv for dependency management.
   - Install virtualenv



- At the top level of the app's project directory, create and then activate a virtual environment:

  C:\Windows\system32>python -m venv env

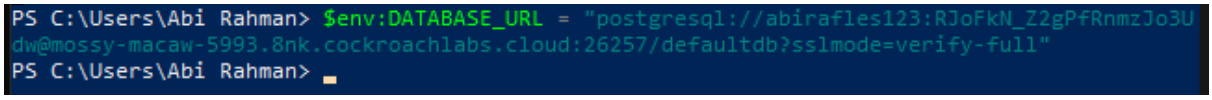
  C:\Windows\system32>
  C:\Windows\system32>.\env\Scripts\activate

  (env) C:\Windows\system32>

- Install the required modules to the virtual environment:

-

3. Set the DATABASE_URL environment variable to the connection string for your cluster:
   env:DATABASE_URL = "postgresql://abirafles123:RJoFkN_Z2gPfRnmzJo3Udw@mossy-macaw-5993.8nk.cockroachlabs.cloud:26257/defaultdb?sslmode=verify-full"



4. To initialize the example database, use the cockroach sql command to execute the SQL statements in the dbinit.sql file:
   cat example-app-python-sqlalchemy\dbinit.sql | cockroach sql --url "postgresql://abirafles123:RJoFkN_Z2gPfRnmzJo3Udw@mossy-macaw-5993.8nk.cockroachlabs.cloud:26257/defaultdb?sslmode=verify-full"