

```
1 !pip install faker pandas sqlalchemy
```



```
Collecting faker
  Downloading faker-37.1.0-py3-none-any.whl.metadata (15 kB)
Requirement already satisfied: pandas in /usr/local/lib/python3.11/dist-packages (2.2.2)
Requirement already satisfied: sqlalchemy in /usr/local/lib/python3.11/dist-packages (2.0.40)
ERROR: Could not find a version that satisfies the requirement sqlite3 (from versions: none)
ERROR: No matching distribution found for sqlite3
```

```
1 !apt install libsqlite3-dev
```



```
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
libsqlite3-dev is already the newest version (3.37.2-2ubuntu0.3).
libsqlite3-dev set to manually installed.
0 upgraded, 0 newly installed, 0 to remove and 34 not upgraded.
```

```
1 !pip install faker pandas sqlalchemy
```



```
Collecting faker
  Using cached faker-37.1.0-py3-none-any.whl.metadata (15 kB)
Requirement already satisfied: pandas in /usr/local/lib/python3.11/dist-packages (2.2.2)
Requirement already satisfied: sqlalchemy in /usr/local/lib/python3.11/dist-packages (2.0.40)
Requirement already satisfied: tzdata in /usr/local/lib/python3.11/dist-packages (from faker) (2025.2)
Requirement already satisfied: numpy>=1.23.2 in /usr/local/lib/python3.11/dist-packages (from pandas) (2.0.2)
Requirement already satisfied: python-dateutil>=2.8.2 in /usr/local/lib/python3.11/dist-packages (from pandas) (2.8.2)
Requirement already satisfied: pytz>=2020.1 in /usr/local/lib/python3.11/dist-packages (from pandas) (2025.2)
Requirement already satisfied: greenlet>=1 in /usr/local/lib/python3.11/dist-packages (from sqlalchemy) (3.2.1)
Requirement already satisfied: typing-extensions>=4.6.0 in /usr/local/lib/python3.11/dist-packages (from sqlalchemy) (4.13.2)
Requirement already satisfied: six>=1.5 in /usr/local/lib/python3.11/dist-packages (from python-dateutil>=2.8.2->pandas) (1.17.0)
Downloading faker-37.1.0-py3-none-any.whl (1.9 MB)
----- 1.9/1.9 MB 17.9 MB/s eta 0:00:00
Installing collected packages: faker
Successfully installed faker-37.1.0
```

```
1 from faker import Faker
2 fake = Faker()
3 class StudentGenerator:
4     def __init__(self, num_students):
5         self.num_students = num_students
6     def generate_students(self):
7         students = []
8         for _ in range(self.num_students):
9             student = {
10                 'student_id': fake.random_int(min=1, max=1000),
11                 'name': fake.name(),
12                 'email': fake.email()
13             }
14             students.append(student)
15         return students
16 generator = StudentGenerator(10)
17 students = generator.generate_students()
18 print(students)
```



```
 [{'student_id': 606, 'name': 'Dwayne Reynolds', 'email': 'salazaralexis@example.net'}, {'student_id': 612, 'name': 'Michael Roberts
```

```

1 import sqlite3
2 from sqlite3 import Error
3 class DatabaseManager:
4     def __init__(self, db_file):
5         self.db_file = db_file
6         self.conn = None
7     def create_connection(self):
8         try:
9             self.conn = sqlite3.connect(self.db_file)
10            return self.conn
11        except Error as e:
12            print(e)
13    def create_table(self):
14        sql = '''
15        CREATE TABLE IF NOT EXISTS students
16        (student_id INTEGER PRIMARY KEY, name TEXT, email TEXT)
17        '''
18        try:
19            cursor = self.conn.cursor()
20            cursor.execute(sql)
21        except Error as e:
22            print(e)
23

```

```

1 class DatabaseManager:
2     def __init__(self):
3         self.conn = None
4         self.db_file = 'students.db'
5     def create_connection(self):
6         try:
7             self.conn = sqlite3.connect(self.db_file)
8             return self.conn
9         except Error as e:
10            print(e)
11    def create_table(self):
12        sql = '''
13        CREATE TABLE IF NOT EXISTS students
14        (student_id INTEGER PRIMARY KEY, name TEXT, email TEXT)
15        '''
16        try:
17            cursor = self.conn.cursor()
18            cursor.execute(sql)
19        except Error as e:
20            print(e)
21    def insert_students(self, students):
22        sql = ''' INSERT INTO students(student_id, name, email)
23        VALUES(?, ?, ?) '''
24        try:
25            cursor = self.conn.cursor()
26            for student in students:
27                cursor.execute(sql, (student['student_id'], student['name'], student['email']))
28            self.conn.commit()
29        except Error as e:
30            print(e)
31    # Create DatabaseManager object, create table and insert students
32    db_manager = DatabaseManager()
33    db_manager.create_connection()
34    db_manager.create_table()
35    from faker import Faker
36    fake = Faker()
37    class StudentGenerator:
38        def __init__(self, num_students):
39            self.num_students = num_students
40        def generate_students(self):
41            students = []
42            for _ in range(self.num_students):
43                student = {
44                    'student_id': fake.random_int(min=1, max=1000),
45                    'name': fake.name(),
46                    'email': fake.email()
47                }
48                students.append(student)
49            return students
50    generator = StudentGenerator(10)
51    students = generator.generate_students()
52    db_manager.insert_students(students)

```

```
1 !pip install streamlit
```



Collecting streamlit

Downloading streamlit-1.44.1-py3-none-any.whl.metadata (8.9 kB)

```

Requirement already satisfied: altair<6,>=4.0 in /usr/local/lib/python3.11/dist-packages (from streamlit) (5.5.0)
Requirement already satisfied: blinker<2,>=1.0.0 in /usr/local/lib/python3.11/dist-packages (from streamlit) (1.9.0)
Requirement already satisfied: cachetools<6,>=4.0 in /usr/local/lib/python3.11/dist-packages (from streamlit) (5.5.2)
Requirement already satisfied: click<9,>=7.0 in /usr/local/lib/python3.11/dist-packages (from streamlit) (8.1.8)
Requirement already satisfied: numpy<3,>=1.23 in /usr/local/lib/python3.11/dist-packages (from streamlit) (2.0.2)
Requirement already satisfied: packaging<25,>=20 in /usr/local/lib/python3.11/dist-packages (from streamlit) (24.2)
Requirement already satisfied: pandas<3,>=1.4.0 in /usr/local/lib/python3.11/dist-packages (from streamlit) (2.2.2)
Requirement already satisfied: pillow<12,>=7.1.0 in /usr/local/lib/python3.11/dist-packages (from streamlit) (11.1.0)
Requirement already satisfied: protobuf<6,>=3.20 in /usr/local/lib/python3.11/dist-packages (from streamlit) (5.29.4)
Requirement already satisfied: pyarrow>=7.0 in /usr/local/lib/python3.11/dist-packages (from streamlit) (18.1.0)
Requirement already satisfied: requests<3,>=2.27 in /usr/local/lib/python3.11/dist-packages (from streamlit) (2.32.3)
Requirement already satisfied: tenacity<10,>=8.1.0 in /usr/local/lib/python3.11/dist-packages (from streamlit) (9.1.2)
Requirement already satisfied: toml<2,>=0.10.1 in /usr/local/lib/python3.11/dist-packages (from streamlit) (0.10.2)
Requirement already satisfied: typing-extensions<5,>=4.4.0 in /usr/local/lib/python3.11/dist-packages (from streamlit) (4.13.2)
Collecting watchdog<7,>=2.1.5 (from streamlit)
  Downloading watchdog-6.0.0-py3-none-manylinux2014_x86_64.whl.metadata (44 kB)
    44.3/44.3 kB 1.5 MB/s eta 0:00:00
Requirement already satisfied: gitpython!=3.1.19,<4,>=3.0.7 in /usr/local/lib/python3.11/dist-packages (from streamlit) (3.1.44)
Collecting pydeck<1,>=0.8.0b4 (from streamlit)
  Downloading pydeck-0.9.1-py2.py3-none-any.whl.metadata (4.1 kB)
Requirement already satisfied: tornado<7,>=6.0.3 in /usr/local/lib/python3.11/dist-packages (from streamlit) (6.4.2)
Requirement already satisfied: jinja2 in /usr/local/lib/python3.11/dist-packages (from altair<6,>=4.0->streamlit) (3.1.6)
Requirement already satisfied: jsonschema>=3.0 in /usr/local/lib/python3.11/dist-packages (from altair<6,>=4.0->streamlit) (4.23.0)
Requirement already satisfied: narwhals>=1.14.2 in /usr/local/lib/python3.11/dist-packages (from altair<6,>=4.0->streamlit) (1.35.0)
Requirement already satisfied: gitdb<5,>=4.0.1 in /usr/local/lib/python3.11/dist-packages (from gitpython!=3.1.19,<4,>=3.0.7->streamlit) (4.0.1)
Requirement already satisfied: python-dateutil>=2.8.2 in /usr/local/lib/python3.11/dist-packages (from pandas<3,>=1.4.0->streamlit) (2.8.2)
Requirement already satisfied: pytz>=2020.1 in /usr/local/lib/python3.11/dist-packages (from pandas<3,>=1.4.0->streamlit) (2025.2)
Requirement already satisfied: tzdata>=2022.7 in /usr/local/lib/python3.11/dist-packages (from pandas<3,>=1.4.0->streamlit) (2025.2)
Requirement already satisfied: charset-normalizer<4,>=2 in /usr/local/lib/python3.11/dist-packages (from requests<3,>=2.27->streamlit) (3.4.0)
Requirement already satisfied: idna<4,>=2.5 in /usr/local/lib/python3.11/dist-packages (from requests<3,>=2.27->streamlit) (3.10)
Requirement already satisfied: urllib3<3,>=1.21.1 in /usr/local/lib/python3.11/dist-packages (from requests<3,>=2.27->streamlit) (2.3.0)
Requirement already satisfied: certifi>=2017.4.17 in /usr/local/lib/python3.11/dist-packages (from requests<3,>=2.27->streamlit) (2025.11.11)
Requirement already satisfied: smmap<6,>=3.0.1 in /usr/local/lib/python3.11/dist-packages (from gitdb<5,>=4.0.1->gitpython!=3.1.19,<4,>=3.0.7->streamlit) (5.0.0)
Requirement already satisfied: MarkupSafe>=2.0 in /usr/local/lib/python3.11/dist-packages (from jinja2->altair<6,>=4.0->streamlit) (3.0.2)
Requirement already satisfied: attrs>=22.2.0 in /usr/local/lib/python3.11/dist-packages (from jsonschema>=3.0->altair<6,>=4.0->streamlit) (25.1.0)
Requirement already satisfied: jsonschema-specifications>=2023.03.6 in /usr/local/lib/python3.11/dist-packages (from jsonschema>=3.0->altair<6,>=4.0->streamlit) (2025.9.1)
Requirement already satisfied: referencing>=0.28.4 in /usr/local/lib/python3.11/dist-packages (from jsonschema>=3.0->altair<6,>=4.0->streamlit) (0.36.0)
Requirement already satisfied: rpds-py>=0.7.1 in /usr/local/lib/python3.11/dist-packages (from jsonschema>=3.0->altair<6,>=4.0->streamlit) (0.23.1)
Requirement already satisfied: six>=1.5 in /usr/local/lib/python3.11/dist-packages (from python-dateutil>=2.8.2->pandas<3,>=1.4.0->streamlit) (1.17.0)
Downloading streamlit-1.44.1-py3-none-any.whl (9.8 MB)
    9.8/9.8 MB 59.5 MB/s eta 0:00:00
Downloading pydeck-0.9.1-py2.py3-none-any.whl (6.9 MB)
    6.9/6.9 MB 97.7 MB/s eta 0:00:00
Downloading watchdog-6.0.0-py3-none-manylinux2014_x86_64.whl (79 kB)
    79.1/79.1 kB 8.2 MB/s eta 0:00:00
Installing collected packages: watchdog, pydeck, streamlit
Successfully installed pydeck-0.9.1 streamlit-1.44.1 watchdog-6.0.0

1 import streamlit as st
2 import pandas as pd
3 from sqlalchemy import create_engine

1 conn = sqlite3.connect('students.db')
2 cursor = conn.cursor()

1 data = pd.read_sql_query("SELECT * FROM students", conn)

1 st.title("Students Data")
2 st.write(data)

2025-04-26 14:17:22.962 WARNING streamlit.runtime.scriptrunner_utils.script_run_context: Thread 'MainThread': missing ScriptRunContext!
2025-04-26 14:17:23.140
Warning: to view this Streamlit app on a browser, run it with the following command:

streamlit run /usr/local/lib/python3.11/dist-packages/colab_kernel_launcher.py [ARGUMENTS]
2025-04-26 14:17:23.142 Thread 'MainThread': missing ScriptRunContext! This warning can be ignored when running in bare mode.
2025-04-26 14:17:23.254 Thread 'MainThread': missing ScriptRunContext! This warning can be ignored when running in bare mode.
2025-04-26 14:17:23.257 Thread 'MainThread': missing ScriptRunContext! This warning can be ignored when running in bare mode.

1 import sqlite3
2 import pandas as pd
3 conn = sqlite3.connect('students.db')
4 cursor = conn.cursor()
5 data = pd.read_sql_query("SELECT * FROM students", conn)
6 print("Students Database")
7 print(data)
8

Students Database
student_id      name      email
0           206    Susan Miller  theodore77@example.net

```

1	276	Shelby Johnston	zmoore@example.com
2	479	Cindy Smith	sara97@example.org
3	582	Debra Anderson	teresa65@example.com
4	591	Brian Brown	tylerthomas@example.net
5	609	Lisa George	allenjames@example.org
6	771	Teresa Thompson	ymerritt@example.net
7	831	Benjamin Gonzales	kelly99@example.net
8	847	Mark Thompson	michelleparker@example.org
9	955	Aaron Smith	weissjustin@example.org