```
!pip install mysql-connector-python
```

```
Collecting mysql-connector-python
  Downloading mysql_connector_python-8.0.32-cp39-cp39-win_amd64.whl (7.9 MB)
     ---------------------------------------- 7.9/7.9 MB 22.9 MB/s eta 0:00:00
Collecting protobuf<=3.20.3,>=3.11.0
  Downloading protobuf-3.20.3-cp39-cp39-win_amd64.whl (904 kB)
     ------------------------------------ 904.2/904.2 KB 55.9 MB/s eta 0:00:00
Installing collected packages: protobuf, mysql-connector-python
Successfully installed mysql-connector-python-8.0.32 protobuf-3.20.3
WARNING: You are using pip version 22.0.4; however, version 22.3.1 is available.
You should consider upgrading via the 'C:\Users\djban\AppData\Local\Microsoft\WindowsApps\PythonSoftwareFoundation.Python.3.9_qbz5n2kfra
```

```
import mysql.connector
conn = mysql.connector.connect(
    host="localhost",
    database="medical_data",
    user="root",
    password="root",
    port="3306"
)


cur = conn.cursor(dictionary=True)
```

Check doctor's data

```
cur.execute('select * from doctors limit 5;')
data = cur.fetchall()
print(data)
```

```
[{'doctor_id': 1, 'name': 'Flora Martinez', 'gender': 'Female', 'insurance': 'Yes', 'new_patients': 'Yes', 'speciality_one': 'Diabetes',
```

Check hospital data

```
cur.execute('select * from hospitals limit 5;')
data = cur.fetchall()
print(data)
```

```
[{'hospital_name': 'Van Holsen Community Hospital', 'state': 'CA', 'city': 'San Francisco', 'doctor': 'Flora Martinez'}, {'hospital_name
```

- Tables can be joined on doctor's name (not sure how accurate that would be)

To undo cell deletion use Ctrl+M Z or the Undo option in the Edit menu

```
cur.execute('select gender, count(1) as count from doctors group by gender order by count desc limit 5;')
data = cur.fetchall()
print(data)
```

```
[{'gender': 'Female', 'count': 13}, {'gender': 'Male', 'count': 7}]
```

```
# check doctors by gender and license
cur.execute('select gender, license, count(1) as count from doctors group by gender, license order by count desc limit 5;')
data = cur.fetchall()
print(data)
```

```
[{'gender': 'Female', 'license': 'MD', 'count': 8}, {'gender': 'Male', 'license': 'PhD', 'count': 4}, {'gender': 'Female', 'license': 'M
```

```
# check doctors with insurance
cur.execute('select insurance, count(1) as count from doctors group by insurance order by count desc limit 5;')
data = cur.fetchall()
print(data)
```

```
[{'insurance': 'Yes', 'count': 14}, {'insurance': 'No', 'count': 6}]
```

```
# check doctors speciality
cur.execute('select speciality_one, count(1) as count from doctors group by speciality_one order by count desc limit 5;')
```

```
data = cur.fetchall()
print(data)
```

```
[{'speciality_one': 'Hypertension', 'count': 4}, {'speciality_one': 'Diabetes', 'count': 3}, {'speciality_one': 'Dermatology', 'count':
```

```
# check doctors 2nd speciality
cur.execute('select speciality_two, count(1) as count from doctors group by speciality_two order by count desc limit 5;')
data = cur.fetchall()
print(data)
```

```
[{'speciality_two': 'Hypertension', 'count': 5}, {'speciality_two': 'immunology', 'count': 4}, {'speciality_two': 'Dermatology', 'count
```

```
# check doctors 2nd speciality
cur.execute('''select speciality_one, speciality_two, speciality_three, count(1) as count from doctors
group by 1, 2, 3 order by count desc limit 5;''')
data = cur.fetchall()
print(data)
```

```
[{'speciality_one': 'Hypertension', 'speciality_two': 'Allergy', 'speciality_three': 'OCD', 'count': 1}, {'speciality_one': 'PTSD', 'spe
```

```
# check hospital data
cur.execute('''select state, city, count(1) as count from hospitals group by 1,2 order by count desc limit 5;''')
data = cur.fetchall()
print(data)
```

```
[{'state': 'CA', 'city': 'Sacramento', 'count': 4}, {'state': 'CA', 'city': 'San Francisco', 'count': 3}, {'state': 'CA', 'city': 'San J
```

```
# join data
cur.execute('''select d.name, d.gender, d.license, h.state, h.city
from doctors d left join hospitals h on lower(d.name) = lower(h.doctor) limit 5;''')
data = cur.fetchall()
print(data)
```

```
[{'name': 'Flora Martinez', 'gender': 'Female', 'license': 'MD', 'state': 'CA', 'city': 'San Francisco'}, {'name': 'Andy James', 'gender
```

```
# see if any doctors not in hospitals table
cur.execute('''select d.name, d.gender, d.license, h.state, h.city
from doctors d left join hospitals h on lower(d.name) = lower(h.doctor)  where  h.state is null limit 5;''')
data = cur.fetchall()
print(data)
```

```
[]
```

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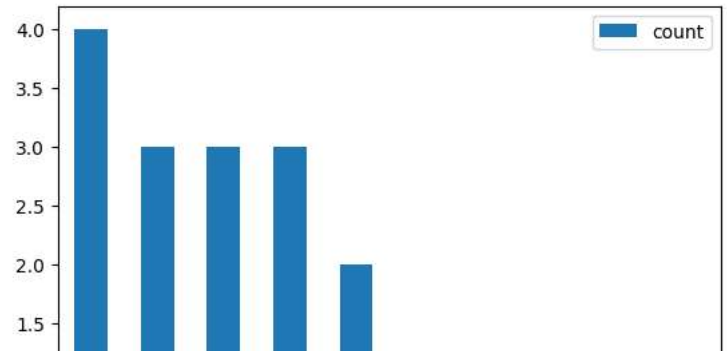
```
import pandas as pd
import matplotlib.pyplot as plt
cur.execute('''select state, city, count(1) as count from hospitals group by 1,2 order by count desc;''')
data = cur.fetchall()

df = pd.DataFrame(data)
df.columns = ['state', 'city', 'count']
df.plot.bar(x='city', y='count')
```

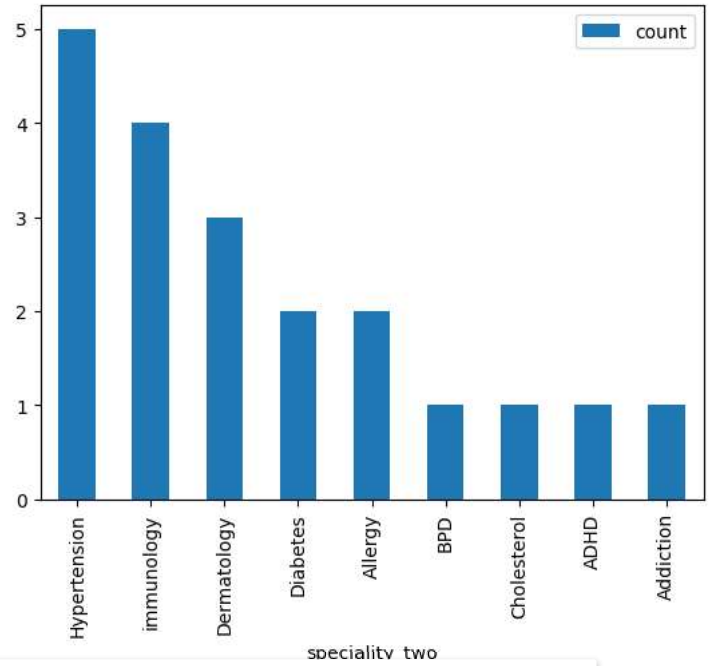
```
<AxesSubplot: xlabel='city'>
```




```
cur.execute('''select speciality_two, count(1) as count from doctors group by speciality_two order by count desc;''')
data = cur.fetchall()

df = pd.DataFrame(data)
df.columns = ['speciality_two', 'count']
df.plot.bar(x='speciality_two', y='count')
```

```
<AxesSubplot: xlabel='speciality_two'>
```



To undo cell deletion use Ctrl+M Z or the Undo option in the Edit menu

```
cur.execute('''select gender, license, count(1) as count from doctors group by gender, license order by count desc;''')
data = cur.fetchall()

df = pd.DataFrame(data)
df.columns = ['gender', 'license', 'count']
df.pivot(index='gender', columns='license', values='count').plot(kind='bar', rot=0)
plt.tight_layout()
plt.show()
```