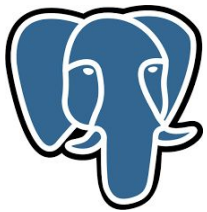
Bratislava #3

Access databases with python

What is a database?

Types of databases

- Relational databases: PostgreSQL, MySQL, SQLServer, SQLite, Oracle
- NoSQL databases: MongoDB, DynamoDB (Document databases)
- Graph databases: neo4j, Azure Cosmos DB
- ...




Relational databases

- Tables, columns and rows
- Primary keys
- Foreign keys
- Constraints?

SQL queries

- Keywords:
  - SELECT
  - FROM
  - WHERE
  - AND
  - OR
  - ORDER BY
- https://bytescout.com/blog/20-important-sql-queries.html
- https://www.makeuseof.com/tag/important-sql-commands-programmer-know/
- https://tableplus.io/blog/2018/09/the-most-commonly-used-sql-queries-with-examples.html
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Access a database with python - environment

- Prepare your environment (Visual Studio Code on Windows)
  - python -m venv <name>
  - In Select Interpreter > choose the newly created environment
    - for this to work I had to do:
      - find PowerShell app
      - right-click and select `Run as admin`
      - write this command:
        - Set-ExecutionPolicy RemoteSigned
      - save with `Yes for all`
    - When the env is activated you see the (<name>) on the beginning of the powershell
- Now you can install some python packages/libraries > https://pypi.org/
  - python -m pip install <package>

Access a local database - SQLite

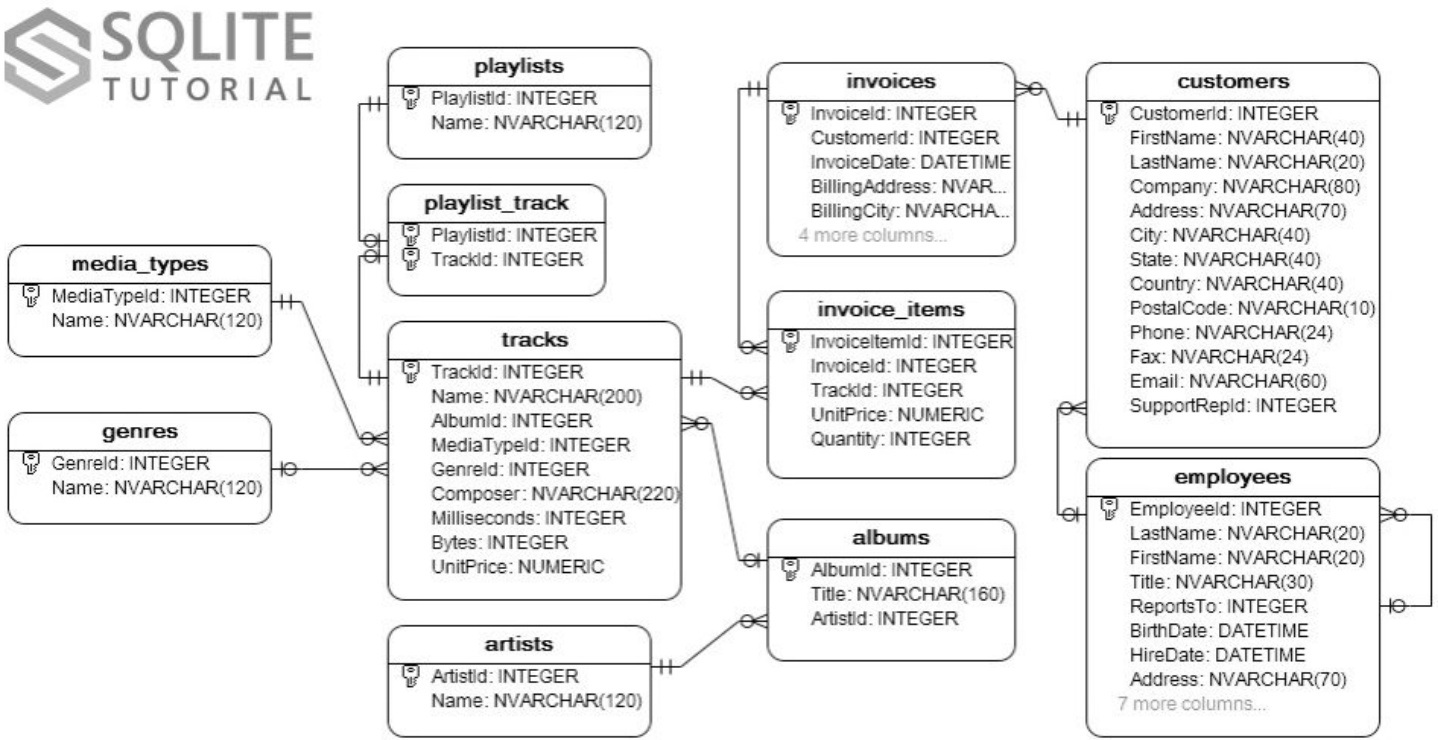
- Download the sqlite sample database from > http://www.sqlitetutorial.net/wp-content/uploads/2018/03/chinook.zip
- Unzip the file into your workspace (chinook.db)
- Do some python:

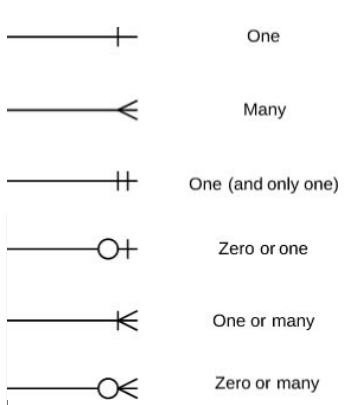
```
import sqlite3

# Connect to the database
connection = sqlite3.connect('chinook.db')

cursor = connection.cursor()
sql = "SELECT COUNT(*) FROM artists;"
cursor.execute(sql)
result = cursor.fetchone()
print(result)
connection.close()
```

Access a local database - SQLite





Access a remote database - MySQL

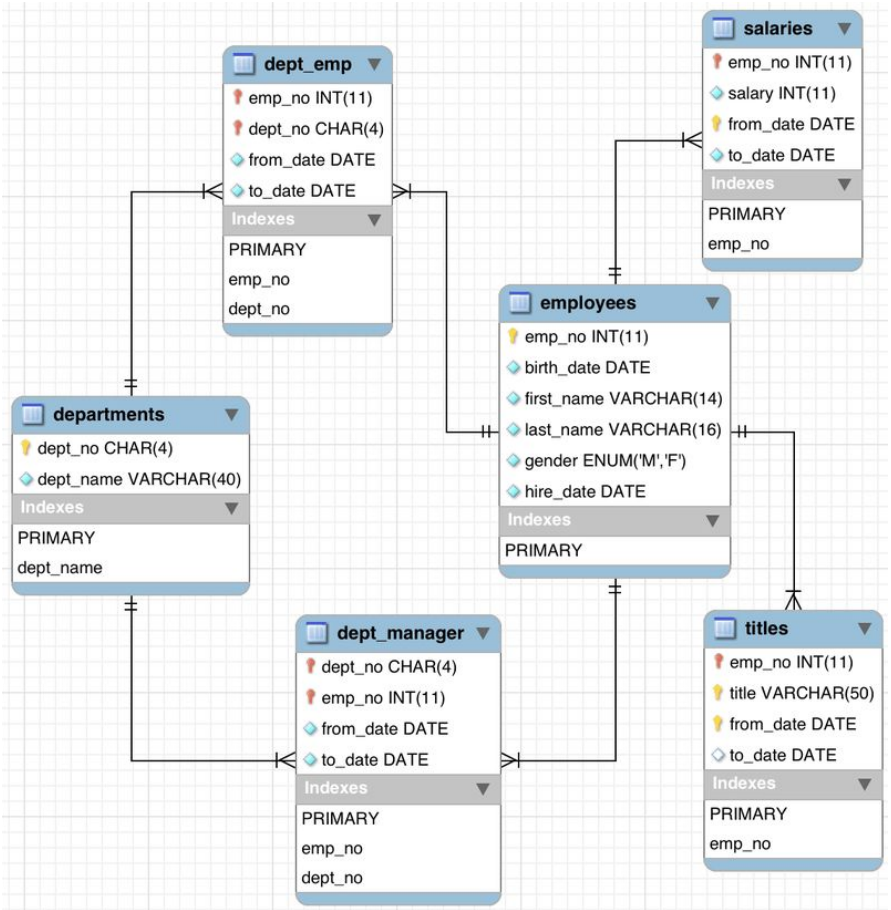
- Do some python: python -m pip install PyMySQL

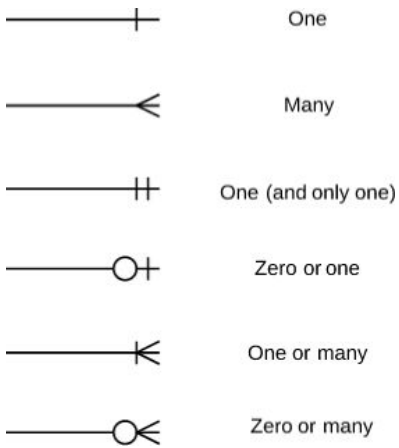
```
import pymysql

# Connect to the database
host, user, password, db = '192.168.223.182', 'pyladies', 'pyladies', 'employees'
connection = pymysql.connect(host=host, user=user, password=password, db=db, cursorclass=pymysql.cursors.DictCursor)

try:
    with connection.cursor() as cursor:
        sql = "SELECT COUNT(*) FROM departments;"
        cursor.execute(sql)
        result = cursor.fetchone()
        print(result)
finally:
    connection.close()
```

Access a remote database - MySQL





Questions?

Python Challenge