

# Short Intro To pySQLite

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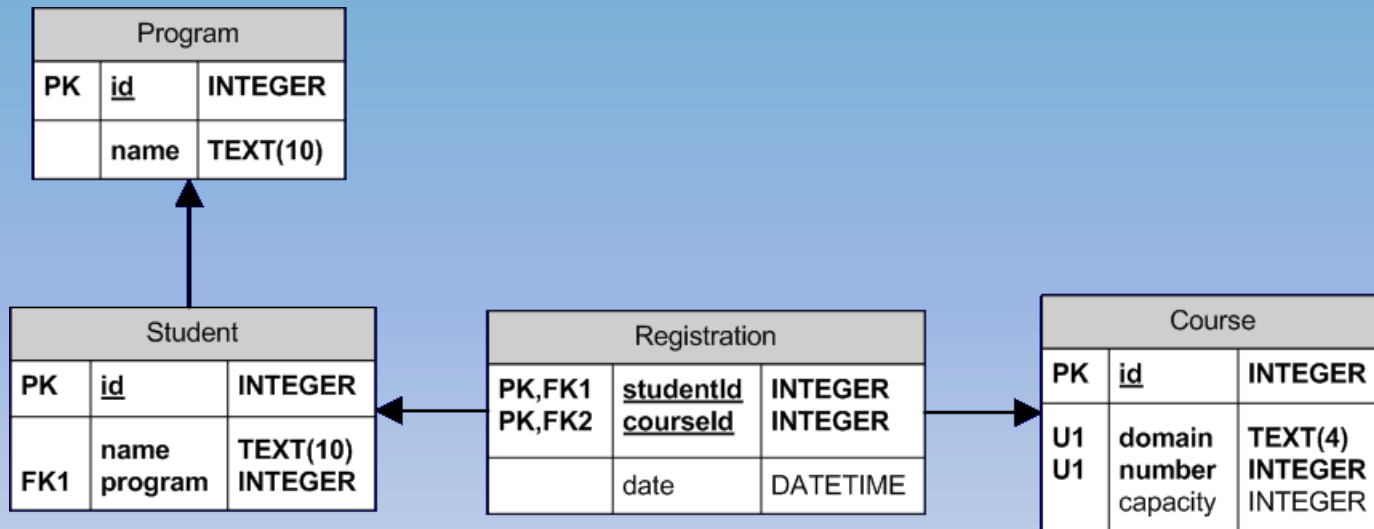
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# OVERVIEW

- ❑ **Relational Databases**
- ❑ **R-DB for Python: pySQLite**
- ❑ **Integrating pySQLite with Python**

# RELATIONAL DATABASE



# PYSQLITE TYPES

Python type	SQLite type
NoneType	NULL
int	INTEGER
long	INTEGER
float	REAL
str (utf-8 encoded)	TEXT
unicode	TEXT
buffer	BLOB

# PYSQLITE: INITIALIZATION

```
import sqlite3

con = sqlite3.connect(":memory:")
cur = con.cursor()

# Wrapper
def printStudents(title):
    s = cur.execute("""
        SELECT * FROM Student
    """)
    print title + ':', s.fetchall()
```

# PYSQLITE: CREATION

```
# Create the tables
```

```
cur.execute("""
```

```
CREATE TABLE Program (  
    id INTEGER PRIMARY KEY,  
    name TEXT NOT NULL  
) """)
```

```
cur.execute("""
```

```
CREATE TABLE Student (  
    id INTEGER PRIMARY KEY,  
    name TEXT NOT NULL,  
    program INTEGER NOT NULL,  
    FOREIGN KEY(program) REFERENCES Program(id)  
) """)
```

```
cur.execute("""
```

```
CREATE TABLE Course (  
    id INTEGER PRIMARY KEY,  
    domain TEXT UNIQUE,  
    number INTEGER UNIQUE,  
    capacity INTEGER  
) """)
```

```
cur.execute("""
```

```
CREATE TABLE Registration (  
    studentId INTEGER UNIQUE,  
    courseId INTEGER UNIQUE,  
    paymentAmount REAL,  
    FOREIGN KEY(studentId) REFERENCES  
    Student(id),  
    FOREIGN KEY(courseId) REFERENCES Course(id)  
) """)
```

# PYSQLITE: INSERTION

```
# Insert data
cur.execute("""
INSERT INTO Program (id, name) values (1, 'History')
""")

pgms = [('Computer Science',), ('Software Engineering',), ('Psychology',)]
cur.executemany("INSERT INTO Program (name) values (?)", pgms)

cur.executescript("""
INSERT INTO Student (id, name, program) values (26001234, 'Booch', 2);
INSERT INTO Student (name, program) values ('Rumbaugh', 2);
INSERT INTO Student (name, program) values ('Jacobson', 2);
""")
```

# PYSQLITE: QUERYING

```
# Query the database
s = cur.execute("""
SELECT * FROM Student
""")
print 'SELECT 1:', s.fetchone()
print 'SELECT all:', s.fetchall()

s = cur.execute("""
SELECT *
FROM Student INNER JOIN
    Program ON Student.program =
    Program.id
""")
print 'INNER JOIN:', s.fetchall()
```

```
s = cur.execute("""
SELECT *
FROM Student INNER JOIN
    Program ON Student.program =
    Program.id
WHERE Student.name LIKE 'R%'
""")
print 'WHERE:', s.fetchall()
```



# PYSQLITE: UPDATE

```
# Update data
s = cur.execute("""
UPDATE Student
SET name = "xyz"
WHERE name LIKE '%o%'
""")

printStudents('UPDATE')
```

# PYSQLITE: DELETION

```
# Delete rows
s = cur.execute("""
DELETE FROM Student
WHERE name = 'xyz'
""")
printStudents('DELETE')
```

# REFERENCES

- **Download pySQLite from:**

<http://pysqlite.org>

- **Tutorials:**

<http://docs.python.org/library/sqlite3.html>

<http://www.devshed.com/c/a/Python/Using-SQLite-in-Python>

<http://initd.org/pub/software/pysqlite/doc/usage-guide.html>