

Python II

HIGHER DIPLOMA IN DATA ANALYTICS



PyMySQL

- ▶ MySQLdb
- ▶ mysql.connector
- ▶ PyMySQL



connect()

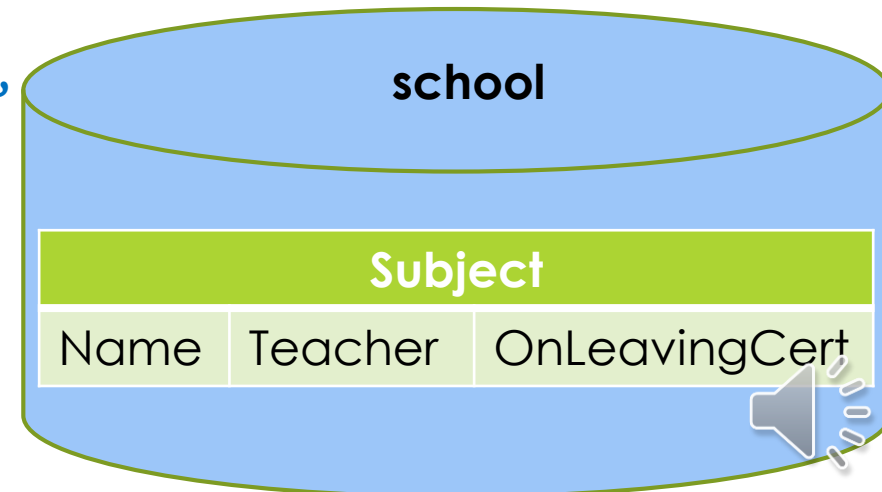
- ▶ The connect() function connects to a MySQL database
- ▶ **host** - Host where the database server is located
- ▶ **user** - Username to log in as
- ▶ **password** - Password to use
- ▶ **db** - Database to use
- ▶ **port** - Port to use
- ▶ **cursorclass** - Custom cursor class to use



Connecting to the Database

```
conn = pymysql.connect( "localhost", "root", "root", "school",  
                        cursorclass=pymysql.cursors.DictCursor)
```

```
conn = pymysql.connect(user="root",  
                        cursorclass=pymysql.cursors.DictCursor,  
                        password="root",  
                        host="localhost",  
                        db="school",  
                        port=3306)
```



Executing a query

```
query = "SELECT * FROM subject"
```

```
with conn:
```

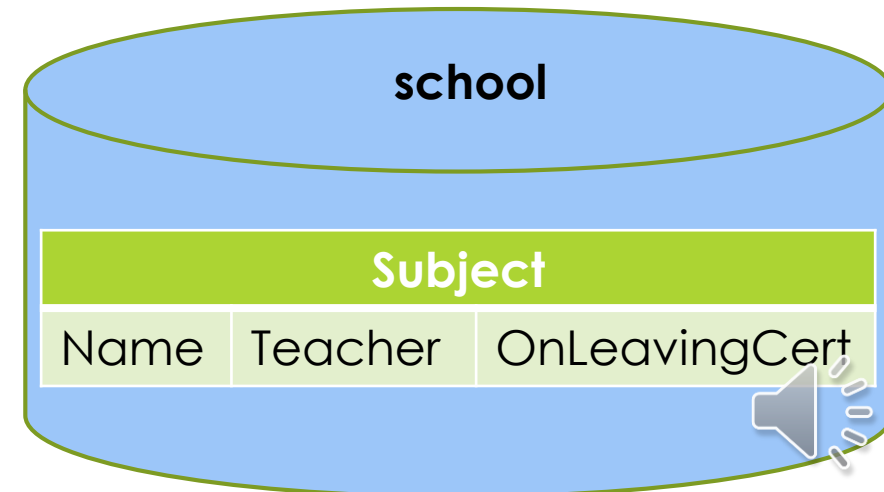
```
    cursor = conn.cursor()
```

```
    cursor.execute(query)
```

```
    subjects = cursor.fetchall()
```

```
    for s in subjects:
```

```
        print(s["Name"])
```



Executing a query

```
query = "SELECT * FROM subject  
        WHERE teacher LIKE %s"
```

```
with conn:  
    cursor = conn.cursor()  
    cursor.execute(query, ("Ms.%"))  
    subjects = cursor.fetchall()  
    for s in subjects:  
        print(s["Name"])
```

French
Spelling

school		
Subject		
Name	Teacher	OnLeavingCert
Biology	Mr. Pasteur	1
Colouring	Mr. Picasso	0
English	Mr. Kavanagh	1
French	Ms. Dubois	1
Maths	Mr. Hawking	1
Religion	Fr. Lynch	1
Spelling	Ms. Smith	0

Inserting new data

```
ins = "INSERT INTO subject
      (Name, Teacher, OnLeavingCert)
      VALUES (%s, %s, %s)"

with conn:
    cursor = conn.cursor()
    try:
        cursor.execute(ins, ("Maths", "Ms. Jones", 1))
        cursor.execute(query,
            conn.commit() ("Maths", "Ms. Jones", "1"))
        conn.commit()
        print("Insert Successful")
    except:
        print("Maths already exists")
```

school

Subject		
Name*	Teacher	OnLeavingCert
Biology	Mr. Pasteur	1
Colouring	Mr. Picasso	0
English	Mr. Kavanagh	1
French	Ms. Dubois	1
Maths	Mr. Hawking	1
Religion	Fr. Lynch	1
Spelling	Ms. Smith	0



Exceptions

```
name = "Maths"
teacher = "Ms. Jones"
lc = 1
with conn:
    try:
        cursor = conn.cursor()
        cursor.execute(query, (name, teacher, lc))
        conn.commit()
        print("Insert Successful")
    except pymysql.err.InternalError as e:
        print("Internal Error", e)
    except pymysql.err.IntegrityError:
        print("Error", name, "already exists")
    except Exception as e:
        print("error", e)
```

```
name = "Spanish"
teacher = "Ms. Jones"
lc = "yes"
with conn:
    try:
        cursor = conn.cursor()
        cursor.execute(query, (name, teacher, lc))
        conn.commit()
        print("Insert Successful")
    except pymysql.err.InternalError as e:
        print("Internal Error", e)
    except pymysql.err.IntegrityError:
        print("Error", name, "already exists")
    except Exception as e:
        print("error", e)
```



Deleting data

```
query = "DELETE FROM subject WHERE NAME = %s"

name = "Maths"

with conn:
    try:
        cursor = conn.cursor()
        rowsAffected = cursor.execute(query, (name))
        conn.commit()
        if (rowsAffected == 0):
            print("Nothing deleted - ", name, "never existed")
        else:
            print(rowsAffected, "row(s) deleted")
    except Exception as e:
        print("error", e)
```



Updating data

```
query = "UPDATE subject SET teacher = %s WHERE name = %s"
subject = "Maths"
newTeacher = "Mr. Murphy"

with conn:
    try:
        cursor = conn.cursor()
        rowsAffected = cursor.execute(query, (newTeacher, subject))
        conn.commit()
        if (rowsAffected == 0):
            print(subject, "not updated")
        else:
            print(subject, "now taught by", newTeacher)
    except Exception as e:
        print("error", e)
```

