
PDBC – Python Database Connectivity (Notes)

What is PDBC?

PDBC stands for **Python Database Connectivity**.

It refers to the process of **connecting Python programs with databases** so that Python can interact with them.

With PDBC, you can:

- Create data
- Read data
- Update data
- Delete data

(These operations are commonly called **CRUD operations**.)

Why Do We Need Python to Talk to a Database?

Python alone cannot directly communicate with database systems.

So, when we want to use a database like **MySQL**, we need a **bridge** between Python and MySQL.

This bridge is provided by **modules/libraries** such as `pymysql`.

Using Python With MySQL

If you choose MySQL as your database, Python must send **SQL queries** to MySQL.

The process looks like this:

1. Start Python program
2. Create a **connection** to MySQL
3. Create a **cursor** (used to execute queries)
4. Run SQL commands (CREATE, INSERT, SELECT, UPDATE, DELETE)
5. Commit changes

6. Close connection

💡 What is PyMySQL?

PyMySQL is a **Python module** that allows Python to connect to a MySQL database.

✓ It helps Python:

- communicate with MySQL
- send SQL queries
- receive results

✓ Why PyMySQL?

- Pure Python module
- Easy to install
- Widely used

📍 Installation

```
pip install pymysql
```

✳️ Basic Steps for Python-MySQL Connection

1 Import the module

```
import pymysql
```

2 Establish connection

```
conn = pymysql.connect(  
    host="localhost",  
    user="root",  
    password="yourpassword",  
    database="your_db_name"  
)
```

3 Create cursor

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

4 Execute SQL queries

Example:

```
cursor.execute("SELECT * FROM students")
```

5 Commit changes (for insert, update, delete)

```
conn.commit()
```

6 Close cursor and connection

```
cursor.close()
```

```
conn.close()
```

Example Fields

In the example project, student data consists of:

- **name**
- **age**
- **gender**
- **email**

These will be stored in the database table using SQL queries.

Example table:

```
CREATE TABLE students (  
    name VARCHAR(50),  
    age INT,  
    gender VARCHAR(10),  
    email VARCHAR(50)  
)
```

Final Summary

Topic	Explanation
PDBC	Python Database Connectivity
Purpose	Allow Python to communicate with databases
MySQL + Python	Uses SQL queries inside Python
Module	pymysql is used to connect to MySQL
Operations	Create, Read, Update, Delete (CRUD)
Installation	pip install pymysql