Steps in Connecting a PHP Code to a Database

1. Definition

Database connectivity in PHP enables interaction between a PHP application and a database like MySQL. It is used to store, retrieve, modify, and delete data dynamically based on user interaction. PHP provides built-in functions such as `mysqli_connect()` to help establish and manage the connection.

2. Types / Methods Involved

1. `mysqli_connect()` – Establish a connection to the database

2. `mysqli_select_db()` – Select a database (optional)

3. `mysqli_query()` – Execute SQL queries

4. `mysqli_fetch_assoc()` – Retrieve result rows as associative arrays

5. `mysqli_close()` – Close the database connection

6. `mysqli_error()` – (Not explained) Displays error message if query fails

1. mysqli_connect() – Connect to the database

Used to establish a connection between PHP and the MySQL server.

It takes hostname, username, password, and database name as parameters.

Syntax:

```php
mysqli_connect("hostname", "username", "password", "dbname");
```

Example:

```php
$conn = mysqli_connect("localhost", "root", "", "student_db");
```

2. mysqli_select_db() – Select a database (optional)

Used to choose a specific database to work on if not given in `mysqli_connect()`.

Returns true on success and false on failure.

Syntax:

```php
mysqli_select_db($conn, "dbname");
```

Example:

```php
mysqli_select_db($conn, "student_db");
```

3. mysqli_query() – Execute SQL query

Executes SQL queries such as SELECT, INSERT, UPDATE, DELETE, etc.

Returns result set for SELECT and true/false for other queries.

Syntax:

```php
mysqli_query($conn, "SQL QUERY");
```

Example:

```php
mysqli_query($conn, "INSERT INTO student VALUES (1, 'Alice')");
```

4. mysqli_fetch_assoc() – Retrieve rows

Fetches each row from the result set returned by a SELECT query.

Returns an associative array representing the fetched row.

Syntax:

```php
mysqli_fetch_assoc($result);
```

Example:

```php
$row = mysqli_fetch_assoc($result);
echo $row["name"];
```

5. mysqli_close() – Close the database connection

Used to disconnect the PHP script from the MySQL server.

Helps release system resources after query execution is done.

Syntax:

```php
mysqli_close($conn);
```

Example:

```php
mysqli_close($conn);
```

Required SQL Code to Run Before PHP Code

```sql
CREATE DATABASE student_db;

USE student_db;

CREATE TABLE student (
    id INT PRIMARY KEY,
    name VARCHAR(50)
);
```

4. Full PHP Code with All Execution

```php
<?php
$conn = mysqli_connect("localhost", "root", "", "student_db");

if($conn) {
    echo "Database Connected Successfully<br>";
} else {
    echo "Connection Failed<br>";
}

mysqli_query($conn, "INSERT INTO student (id, name) VALUES (1, 'Alice')");

$result = mysqli_query($conn, "SELECT * FROM student");

while($row = mysqli_fetch_assoc($result)) {
    echo "ID: " . $row["id"] . " Name: " . $row["name"] . "<br>";
}

mysqli_close($conn);
?>
```

Output

```pgsql
Database Connected Successfully
ID: 1 Name: Alice
```