JDBC is a Java API that enables Java applications to interact with relational databases. It provides a standard interface for connecting to databases, executing SQL queries, and handling the results.

1. **Load the JDBC Driver:** Before you can connect to a PostgreSQL database, you need to load the PostgreSQL JDBC driver. The driver is a Java library (a JAR file) that implements the JDBC interfaces for PostgreSQL.
2. **Create a Database Connection:** After loading the driver, you need to create a connection to the PostgreSQL database. The connection string typically includes information like the database URL, username, and password.
3. **Create a Statement:** Once you have a connection, you can create a Statement object to execute SQL queries.
4. **Execute SQL Queries:** You can use the Statement object to execute SQL queries and receive the results.
5. **Close the Connection:** After you've finished working with the database, it's essential to close the connection to release resources.

Code to Connect to Database

import java.io.BufferedReader;

import java.io.IOException;

import java.io.InputStreamReader;

import java.sql.Connection;

import java.sql.DriverManager;

import java.sql.PreparedStatement;

import java.sql.ResultSet;

import java.sql.SQLException;

// TY B 10

public class connect {

public static void main(String[] args) throws IOException{

//Load the PostgreSQL JDBC driver class

try{

Class.forName("org.postgresql.Driver");

}

catch (ClassNotFoundException cnfe){

System.out.println("Could not find the JDBC driver!");

System.exit(1);

}

String hostname = "localhost:5432";

String username = "tyb10";

String password = "ritesh@10";

String dbName = "university";

String connectionUrl = "jdbc:postgresql://" + hostname + "/" + dbName;

Connection conn = null;

//Connect to the database

try {

conn = DriverManager.getConnection(connectionUrl,username, password);

System.out.println("Connected successfullly");

}

catch (SQLException sqle) {

System.out.println("Connection failed");

System.out.println(sqle);

System.exit(1);

}

}

}

Code to Create into Database

import java.io.IOException;

import java.sql.Connection;

import java.sql.DriverManager;

import java.sql.PreparedStatement;

import java.sql.ResultSet;

import java.sql.SQLException;

public class create {

public static void main(String[] args) throws IOException {

// Load the PostgreSQL JDBC driver class

try {

Class.forName("org.postgresql.Driver");

} catch (ClassNotFoundException cnfe) {

System.out.println("Could not find the JDBC driver!");

System.exit(1);

}

String hostname = "localhost:5432";

String username = "tyb10";

String password = "ritesh@10";

String dbName = "university";

String connectionUrl = "jdbc:postgresql://" + hostname + "/" + dbName;

Connection conn = null;

// Connect to the database

try {

conn = DriverManager.getConnection(connectionUrl, username, password);

System.out.println("Connected successfullly");

}

catch (SQLException sqle) {

System.out.println("Connection failed");

System.out.println(sqle);

System.exit(1);

}

try {

PreparedStatement pstm1 = conn.prepareStatement(

"create table course(course\_id varchar(8),title varchar(50),dept\_name varchar(20),credits numeric(2,0),primary key(course\_id),foreign key(dept\_name)references department on delete cascade on update cascade, check(credits>0))");

pstm1.executeUpdate();

}

catch (SQLException sqle) {

System.out.println(sqle);

System.exit(1);

}

}

}

Code to Insert into Database

import java.io.IOException;

import java.sql.Connection;

import java.sql.DriverManager;

import java.sql.PreparedStatement;

import java.sql.ResultSet;

import java.sql.SQLException;

public class insert {

public static void main(String[] args) throws IOException {

// Load the PostgreSQL JDBC driver class

try {

Class.forName("org.postgresql.Driver");

}

catch (ClassNotFoundException cnfe) {

System.out.println("Could not find the JDBC driver!");

System.exit(1);

}

String hostname = "localhost:5432";

String username = "tyb10";

String password = "ritesh@10";

String dbName = "university";

String connectionUrl = "jdbc:postgresql://" + hostname + "/" + dbName;

Connection conn = null;

// Connect to the database

try {

conn = DriverManager.getConnection(connectionUrl, username, password);

System.out.println("Connected successfullly");

}

catch (SQLException sqle) {

System.out.println("Connection failed");

System.out.println(sqle);

System.exit(1);

}

try {

PreparedStatement pstmt = conn

.prepareStatement("insert into course values('BIO-101','Intro. to Biology','Biology',4)");

pstmt.executeUpdate();

}

catch (SQLException sqle) {

System.out.println(sqle);

System.exit(1);

}

}

}

Code to Select into Database

import java.io.IOException;

import java.sql.Connection;

import java.sql.DriverManager;

import java.sql.PreparedStatement;

import java.sql.ResultSet;

import java.sql.SQLException;

public class select {

public static void main(String[] args) throws IOException {

// Load the PostgreSQL JDBC driver class

try {

Class.forName("org.postgresql.Driver");

}

catch (ClassNotFoundException cnfe) {

System.out.println("Could not find the JDBC driver!");

System.exit(1);

}

String hostname = "localhost:5432";

String username = "tyb10";

String password = "ritesh@10";

String dbName = "university";

String connectionUrl = "jdbc:postgresql://" + hostname + "/" + dbName;

Connection conn = null;

// Connect to the database

try {

conn = DriverManager.getConnection(connectionUrl, username, password);

System.out.println("Connected successfullly");

}

catch (SQLException sqle) {

System.out.println("Connection failed");

System.out.println(sqle);

System.exit(1);

}

try {

PreparedStatement pstmt3 = conn.prepareStatement("select \* from department");

ResultSet rs = pstmt3.executeQuery();

while (rs.next()) {

String title = rs.getString("dept\_name");

System.out.println(title);

String title1 = rs.getString("building");

System.out.println(title1);

int title2 = rs.getInt("budget");

System.out.println(title2);

}

}

catch (SQLException sqle) {

System.out.println(sqle);

System.exit(1);

}

}

}