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);
                }
        }
}
```