

## Lecture 8: CRUD Operations

### CRUD Overview:

- Create: INSERT operations
- Read: SELECT operations
- Update: UPDATE operations
- Delete: DELETE operations

### INSERT Operation:

```
import java.sql.*;

public class InsertOperation {
    public static void main(String[] args) {
        String url = "jdbc:postgresql://localhost:5432/demo";
        String username = "postgres";
        String password = "0000";

        Connection conn = null;
        Statement stmt = null;

        try {
            Class.forName("org.postgresql.Driver");
            conn = DriverManager.getConnection(url, username, password);

            // INSERT query
            String sql = "INSERT INTO student VALUES (5, 'Shiva', 70)";

            stmt = conn.createStatement();

            // Execute insert - returns boolean
            boolean status = stmt.execute(sql);
            System.out.println("Execute status: " + status); // false for
INSERT/UPDATE/DELETE

            // Alternative: Use executeUpdate() for INSERT/UPDATE/DELETE
            // int rowsAffected = stmt.executeUpdate(sql);
            // System.out.println("Rows affected: " + rowsAffected);

            System.out.println("Record inserted successfully");

        } catch (Exception e) {
            System.out.println("Error: " + e.getMessage());
        } finally {
            try {
                if (stmt != null) stmt.close();
            }
        }
    }
}
```

```

        if (conn != null) conn.close();
    } catch (SQLException e) {
        System.out.println("Error closing resources: " + e.getMessage());
    }
}
}
}
}

```

## UPDATE Operation:

*// UPDATE query*

```

String sql = "UPDATE student SET sname = 'Arjun' WHERE sid = 5";
int rowsUpdated = stmt.executeUpdate(sql);

System.out.println("Rows updated: " + rowsUpdated);

```

## DELETE Operation:

*// DELETE query*

```

String sql = "DELETE FROM student WHERE sid = 5";
int rowsDeleted = stmt.executeUpdate(sql);

System.out.println("Rows deleted: " + rowsDeleted);

```

## Understanding the execute() Method:

- Returns **true** if result is a ResultSet (SELECT queries)
- Returns **false** if result is an update count (INSERT/UPDATE/DELETE)
- Use **executeQuery()** for SELECT statements
- Use **executeUpdate()** for INSERT/UPDATE/DELETE statements