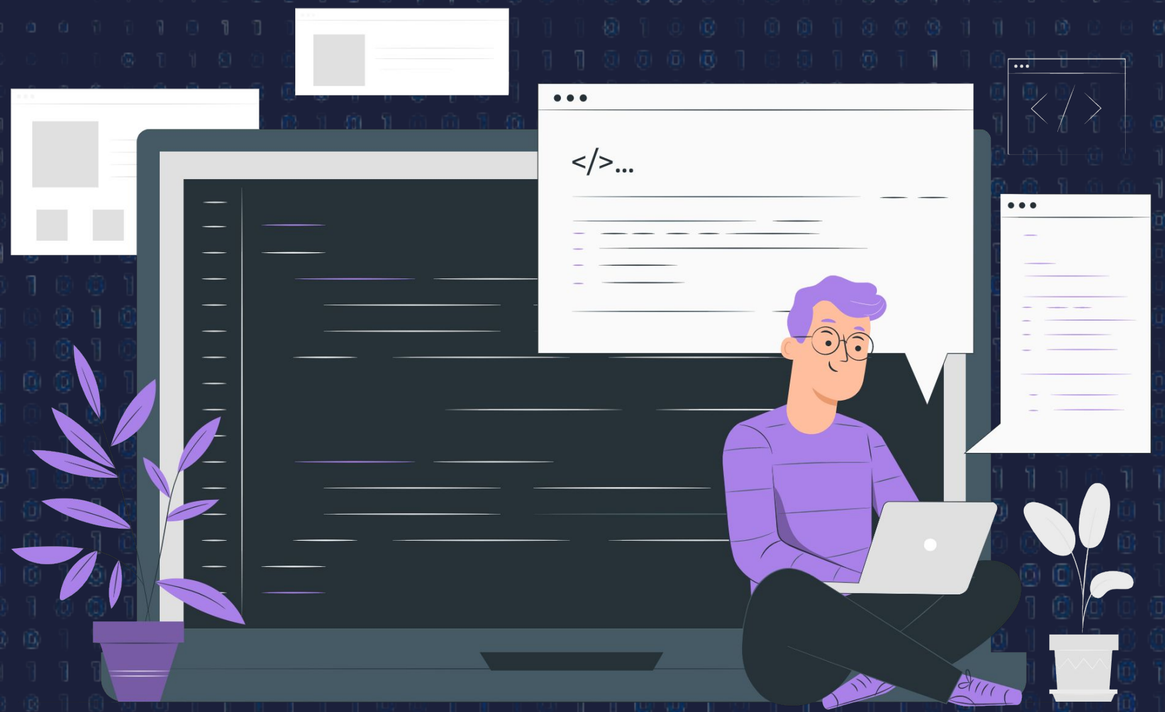
PW SKILLS

Lecture

Database and Java Application Development part 1



List of Concepts Involved:

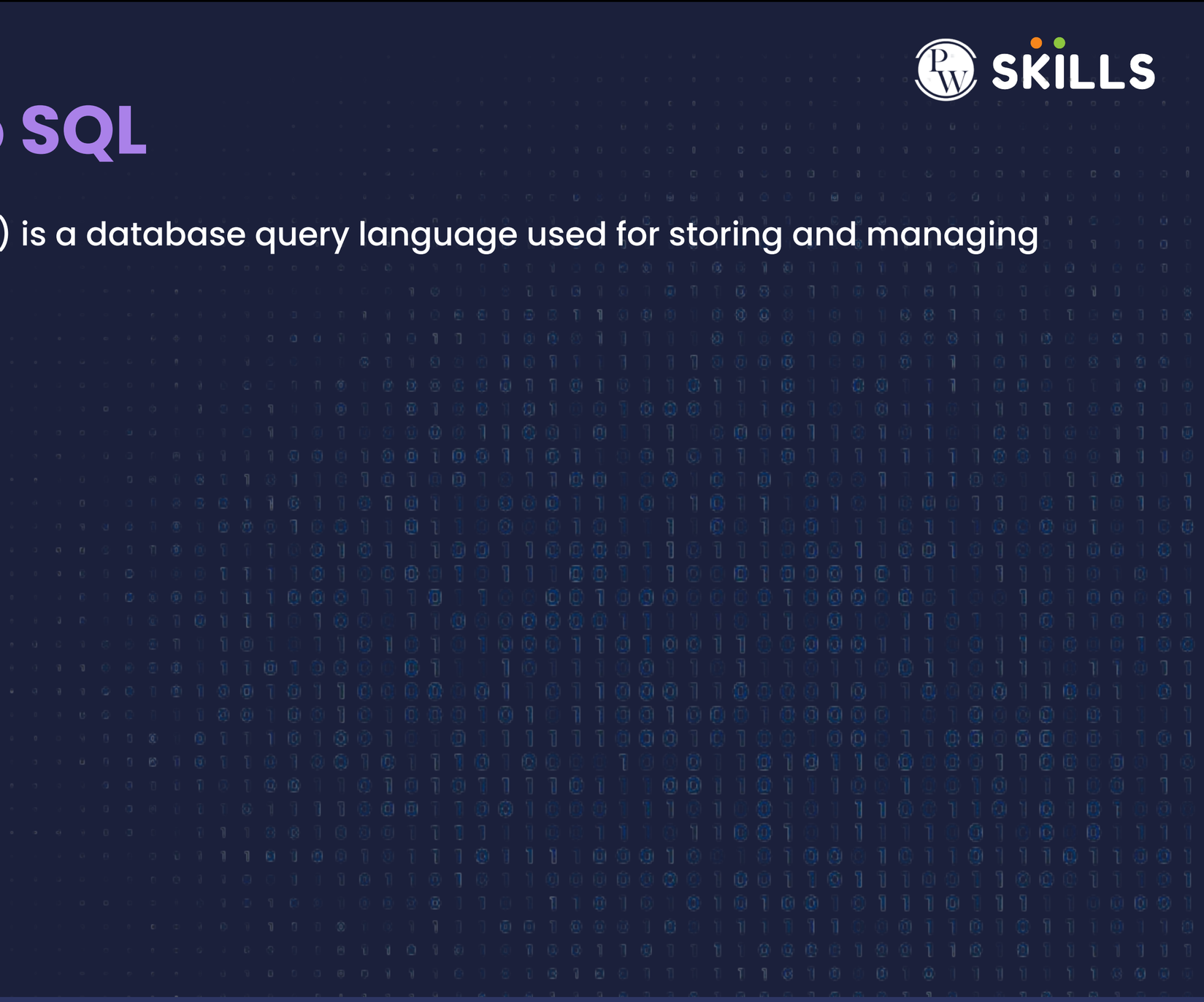
- Introduction to SQL
- DDL and DML Statements
- CRUD operations
- Working with Constraints
- Introduction to JDBC
- Steps followed to create JDBC application
- Need of Statement , PreparedStatement Object
- Connection Pooling, Static vs Dynamic Query
- Introduction to Servlet
- Different ways of creating Servlet
- Scopes in Servlet
- Request Dispatching Mechanism

Topics covered previous Session:

- System Design

Introduction to SQL

Structure Query Language(SQL) is a database query language used for storing and managing data in Relational DBMS.



DDL and DML Statements

SQL defines following ways to manipulate data stored in an RDBMS.

- DDL: Data Definition Language
- DML: Data Manipulation Language
- TCL: Transaction Control Language
- DCL: Data Control Language
- DQL: Data Query Language

CRUD operations

C: create data,
R: reading the data,
U: update or edit the data,
D: and delete the data.

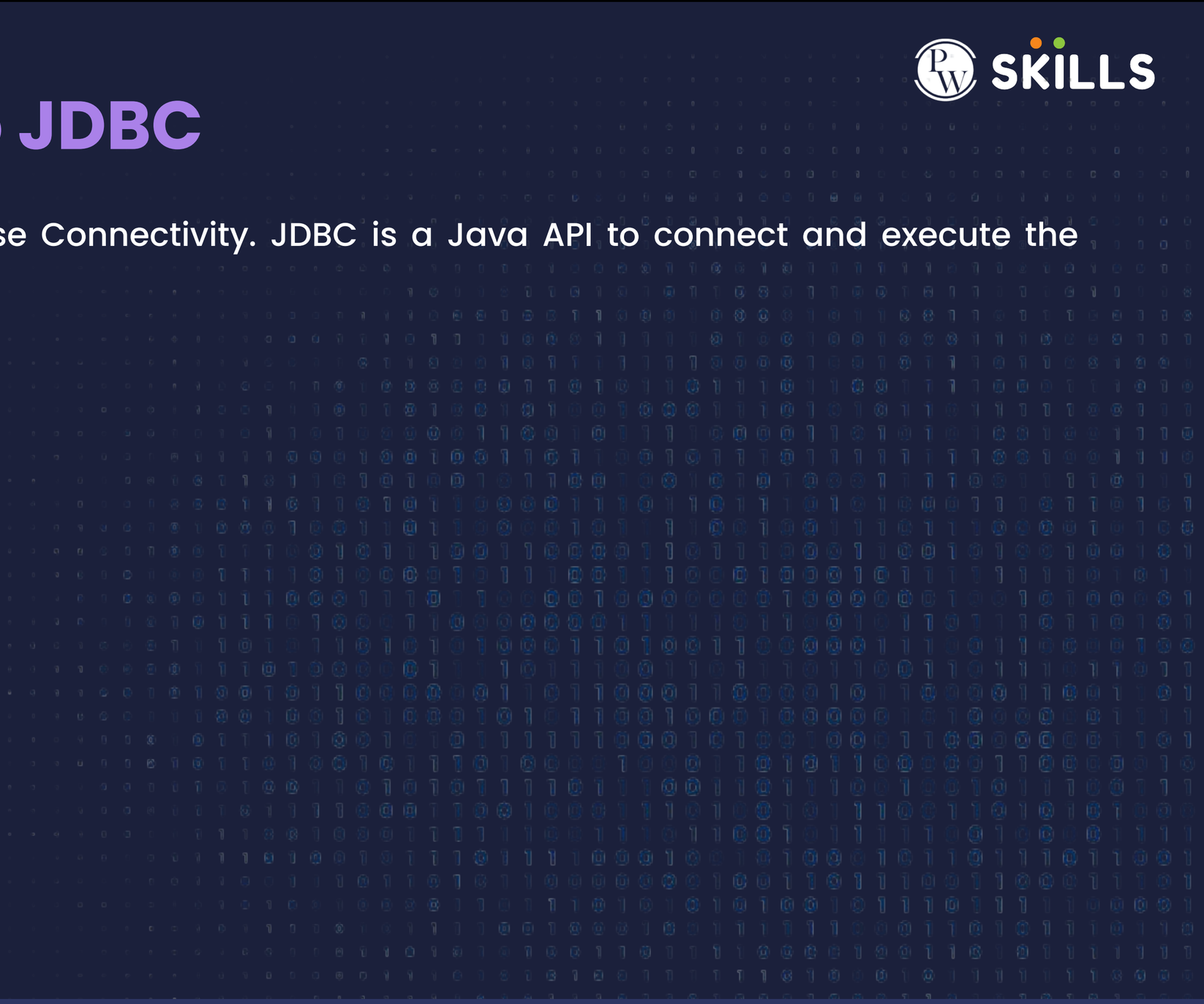
Working with Constraints

Constraints in a database are rules or conditions that are applied to tables or columns to ensure the integrity and consistency of the data. They define limitations and restrictions on the values that can be stored in the database.

- Primary Key Constraint
- Foreign Key Constraint
- Unique Constraint
- Not Null Constraint
- Check Constraint
- Default Constraint

Introduction to JDBC

JDBC stands for Java Database Connectivity. JDBC is a Java API to connect and execute the query with the database.



Steps followed to create JDBC application

Steps followed for developing JDBC Application

- Load and register the Driver
- Establish the Connection b/w java application and database
- Create a Statement Object
- Send and execute the Query
- Process the result from ResultSet
- Close the Connection

Need of Statement , PreparedStatement Object

Statement :

- It is used for accessing your database. Statement interface cannot accept parameters and useful when you are using static SQL statements at runtime. If you want to run SQL query only once then this interface is preferred over PreparedStatement.

PreparedStatement :

- It is used when you want to use SQL statements many times. The PreparedStatement interface accepts input parameters at runtime.

Connection Pooling, Static vs Dynamic Query

Connection Pooling:

Connections are reused rather than created each time a connection is requested.

Static vs Dynamic Query:

- The sql query without positional parameter(?) is called static query.
- The sql query with positional parameter(?) is called dynamic query

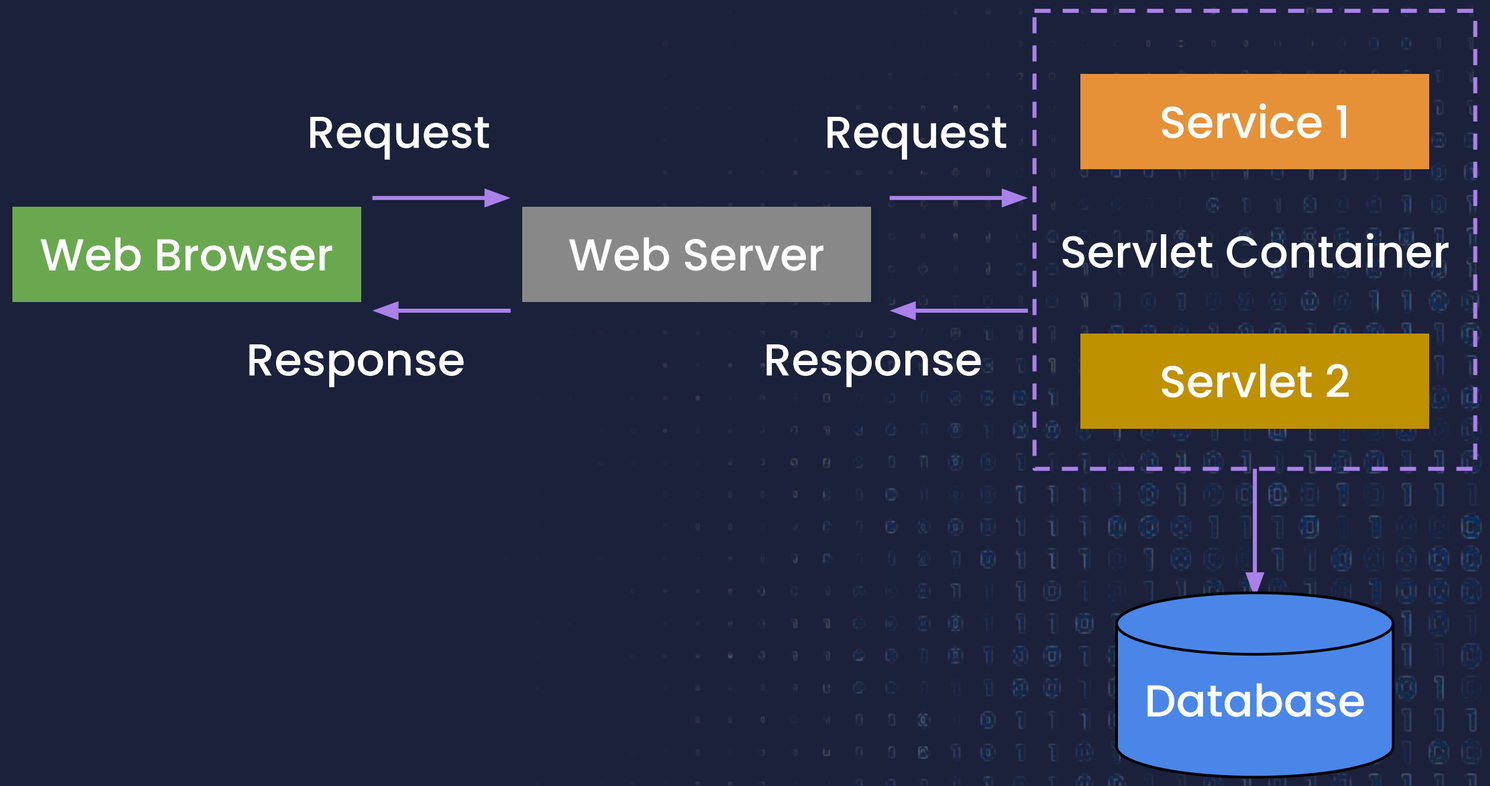
Introduction to Servlet

Servlets are the Java programs that run on the Java-enabled web server or application server. They are used to handle the request obtained from the web server, process the request, produce the response, then send a response back to the web server.

Properties of Servlets are as follows:

- Servlets work on the server-side.
- Servlets are capable of handling complex requests obtained from the web server.

Servlet Architecture



Different ways of creating Servlet

There are three ways to create the servlet.

- By implementing the Servlet interface.
- By inheriting the GenericServlet class.
- By inheriting the HttpServlet class.

Scopes in Servlet

There are 3 scopes in servlet.

- Request scope.
- Session scope.
- Application scope/ ServletContext scope.

Request Dispatching Mechanism

The RequestDispatcher interface provides the facility of dispatching the request to another resource it may be html, servlet or jsp. This interface can also be used to include the content of another resource also. It is one of the way of servlet collaboration.

There are two methods defined in the RequestDispatcher interface.

- forward method
- include method

Next Lecture

- Hibernate(ORM) Framework

PW SKILLS

THANK YOU