JDBC ----

Java Client
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Driver ----convertor /translator   }} download ---readymade
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DB Server

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Jdbc url = locate the server from client
Protocol - Jdbc
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Connection was used to create a Statement interface object !!!!!

Why did we need Statement subclass object ?
We need to call the executeUpdate, executeQuery , these methods are in Statement interface !!

Once we get the object , we call the methods.
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While using Statement ---
        Creating string query using variables is very difficult !!!
                String sql = "insert into values("+var+",'"+………………….!!!!!

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Interface PreparedStatement   extends Statement interface (PreparedStatement is a
Statement) -----

        executeUpdate
        executeQuery

Statement	PreparedStatement
stmt = con.createStatement()	Pstmt = con.prepareStatement(SQL)
using a single statement object we can fire different queries	one prepared statement object can fire only one type of query … pstmt is **tied** to SQL
It is difficult to write queries that have many variables, adding null, single quotes etc is problem	A new syntax using **?** Makes it easy to form queries using variables
The query is translated after execute methods are called at run time	The query is translated when the prepared statement object is created } response time is better than queries fired using Statement

```
String sql = "insert into book values(?,?,?)";
//populate the  ? values
      pstmt.setInt(1, Integer.parseInt(values[0]));
      pstmt.setInt(2, Integer.parseInt(values[1]));
      pstmt.setString(3, values[2]);
```

OUTPUT is created by JDBC
      Insert into book values(12,300,null)   // if values[2] is null
      OR
      Insert into book values(12,300,'JDBC basics')   // if values[2] is not null , automatically
      quotes are used

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HW -------------------
Redo yesterday's assignments using PreparedStatement

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Transaction Management ----------

Transaction in database ? Performing 2 or more actions together ----- succeed together or fail
together !!!!

PAYMENT TRANSACTION------------
      Pstmt.executeUpdate(withdraw 1000 rupees from my account)
      Pstmt.executeUpdate (deposit 1000 rupees into another account)

COMMIT only if both succeed together !!!!
OTHER wise if one of them fails then roll back the changes of other !!!!

For achieving transaction ----------- AUTO COMMIT should be set off !! (by default it is true)
Manual commit must be done or manual rollback must be done

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HW --- create account table and do the payment transaction as discussed in class
            Withdraw from one account and add to another account.
            Modify such that the amount to be paid and account numbers are entered by
            user !!!!

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Stored Procedure
      CallableStatement interface extends PreparedStatement

      CallableStatement is used to call a stored procedure (stored procedure is ALWAYS on the
      server side)

HW -------------
      Fire a query for a stored procedure with IN and OUT parameters as discussed in class!!!
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Keywords of JDBC -----
      Driver
      Type4 Driver
      Connector
      Jdbc url

executeUpdate
executeQuery
Execute
Statement
PreparedStatement
CallableStatement
Commit
Rollback
SQLException

Tomorrow ----- Servlets , Tomcat webserver !!!