Dt : 17/11/2023

*imp

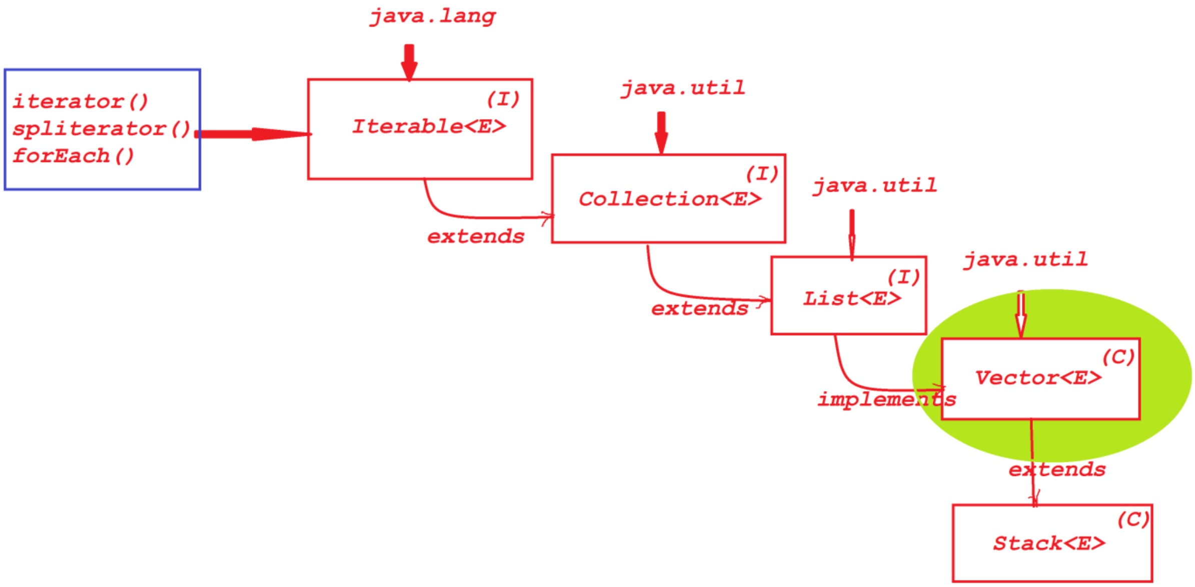
Connection Pooling in JDBC:

=>The process of organizing multiple pre-initialized database connections among multiple users,is known as Connection Pooling Concept.

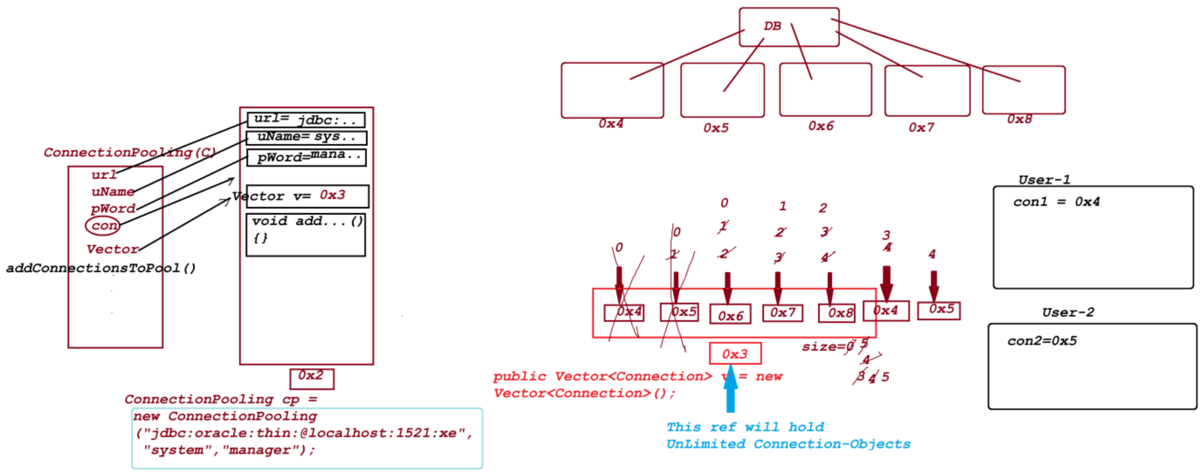
Note:

=>In realtime java.util.Vector<E> is used to hold multiple Pre-Initialized Database Connections(Connection-Objects)

Hierarchy of Vector<E>:



Layout:



```
ConnectionPooling cp =
new ConnectionPooling
("jdbc:oracle:thin:@localhost:1521:xe",
 "system","manager");
```

```
public Vector<Connection> v = new
Vector<Connection>();
```

This ref will hold
UnLimited Connection-Objects

Ex-program:

ConnectionPooling.java

```
package test;

import java.util.*;

import java.sql.*;

public class ConnectionPooling

{

  public String url,uName,pWord;

  public ConnectionPooling(String url,String uName,String pWord)

  {

          this.url=url;

          this.uName=uName;

          this.pWord=pWord;

  }
```

```
public Vector<Connection> v = new Vector<Connection>();
public void addConnectionsToPool()
{
    try {
        while(v.size()<5)
        {
            System.out.println("Pool is Not full....");
            Connection con = DriverManager.getConnection
                    (url,uName,pWord);
            v.addElement(con);//Adding Connection to Pool
            System.out.println(con);
        }//end of loop
        if(v.size()==5)
        {
            System.out.println("pool is full...");
        }
    }catch(Exception e) {e.printStackTrace();}
}//end of loop
public Connection userConnectionFromPool()
{
    Connection con = v.elementAt(0);
    v.removeElementAt(0);
```

```
          return con;

  }//end of method

  public void returnConnectionToPool(Connection con)

  {

          v.addElement(con);//Adding Connection back to pool

          System.out.println("Connection added back to pool...");

  }//end of method

}
```

DBCon12.java(MainClass)

```
package test;
import java.sql.*;
public class DBCon12 {
    public static void main(String[] args) {
        try {
         ConnectionPooling cp =
                 new ConnectionPooling

    ("jdbc:oracle:thin:@localhost:1521:xe",
                          "system","manager");
         cp.addConnectionsToPool();
         System.out.println("Size of Pool :
"+cp.v.size());
         System.out.println("*****User-1*****");
         Connection con1 = cp.userConnectionFromPool();
         System.out.println(con1);
         System.out.println("Size of Pool :
"+cp.v.size());
         System.out.println("****User-2****");
         Connection con2 = cp.userConnectionFromPool();
         System.out.println(con2);
         System.out.println("Size of Pool :
"+cp.v.size());
         System.out.println("****User-1*****");
         cp.returnConnectionToPool(con1);
         System.out.println("Size of Pool :
"+cp.v.size());
         System.out.println("****User-2*****");
         cp.returnConnectionToPool(con2);
         System.out.println("Size of Pool :
"+cp.v.size());
         System.out.println("====Connections=====");
         cp.v.forEach((k)->
         {
             System.out.println(k);
         });
        }catch(Exception e) {e.printStackTrace();}
    }
}
```

o/p:

```
Pool is Not full....

oracle.jdbc.driver.T4CConnection@3159c4b8

Pool is Not full....

oracle.jdbc.driver.T4CConnection@525f1e4e

Pool is Not full....

oracle.jdbc.driver.T4CConnection@75f9eccc

Pool is Not full....

oracle.jdbc.driver.T4CConnection@67e2d983

Pool is Not full....

oracle.jdbc.driver.T4CConnection@5d47c63f

pool is full...
```

```
Size of Pool : 5

*****User-1*****

oracle.jdbc.driver.T4CConnection@3159c4b8

Size of Pool : 4

****User-2****

oracle.jdbc.driver.T4CConnection@525f1e4e

Size of Pool : 3

****User-1*****

Connection added back to pool...

Size of Pool : 4

****User-2*****

Connection added back to pool...

Size of Pool : 5

====Connections=====

oracle.jdbc.driver.T4CConnection@75f9eccc

oracle.jdbc.driver.T4CConnection@67e2d983

oracle.jdbc.driver.T4CConnection@5d47c63f

oracle.jdbc.driver.T4CConnection@3159c4b8

oracle.jdbc.driver.T4CConnection@525f1e4e

===============================================================
```