Java for Selenium

Day-10

Agenda

- ArrayList
- HashMap
- JDBC

ArrayList

- ArrayList is pre defined class in Java used for dynamic array for storing elements.
- ArrayList can contains duplicate elements.
- We can add, insert and remove elements from ArrayList.

Syntax:

```
ArrayList al=new ArrayList();
```

```
ArrayList<String> al=new ArrayList<String>();
```

Java ArrayList Example1


```
import java.util.ArrayList;
public class ArrayListExample {

public static void main(String[] args) {

ArrayList<String> list = new ArrayList<String>();

// adding elements to array list
list.add("Raj");
list.add("Ravi");
list.add("Pavan");
list.add("Simran");
list.add("Arvinder");

System.out.println(list.size());    // returns number of elements in array list

for (String s : list) // reading elements from array list
{
System.out.println(s);
}
}
}
```

Java ArrayList Example2


```
import java.util.ArrayList;

public class ArrayListExample2 {
public static void main(String[] args) {

ArrayList al = new ArrayList();

// adding elements to array list
System.out.println("number of elements" + al.size()); // Number of elements present in al

al.add("welcome");
al.add(10);
al.add(10.456);
al.add('C');

// Number of elements present in al
System.out.println("number of elements in array list after adding are:" + al.size());

System.out.println("elements in array list:" + al);
```

```
// inserting elements into array list
al.add(2, "training"); // 2 is describes after number of elements not position
System.out.println("elements in array list:" + al);

al.add(4, 1234); // 4 is describes after number of elements not position

System.out.println("number of elements in array list after inserting are:" +
al.size());
System.out.println("elements in array list:" + al);

// Removing elements from array list

al.remove("welcome"); // Directly specify the value
System.out.println("elements in array list:" + al);

al.remove(2); // 2 describes after number of elements not exactly position
System.out.println("elements in array list:" + al);

}

}
```

HashMap

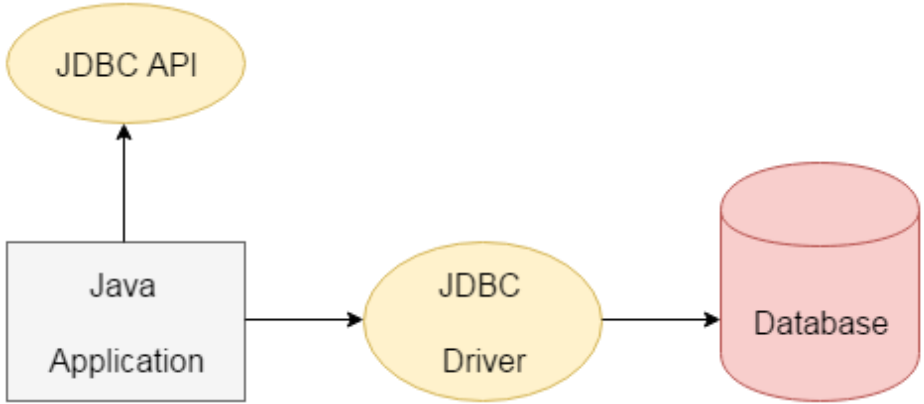
- The important points about Java HashMap class are:
  - A HashMap contains values based on the key.
  - It contains only unique elements.
  - It maintains no order.

Java HashMap Example

```
import java.util.HashMap;
import java.util.Map;

public class HashMapExample {
public static void main(String[] args) {
HashMap <Integer,String> hm=new HashMap<Integer,String>();

//Adding key pairs into hash map
hm.put(100,"raj");
hm.put(200,"rahul");
hm.put(300,"kiram");

System.out.println(hm);

for(Map.Entry m:hm.entrySet())
{
System.out.println(m.getKey()+"  "+m.getValue());
}

hm.remove(300);
System.out.println(hm);
}
}
```

JDBC – Java Database Connectivity

- Java JDBC is a java API to connect and execute query with the database.
- JDBC API uses jdbc drivers to connect with the database.



Database and SQL

- Database: stores the data in the tables.
- SQL- a language used for communicate to the database.
  - DML : Data Manipulation Language
  - DDL : Data Definition Language
  - DCL : Data Control Language
  - TCL : Transaction Language

- DML : Data Manipulation Language
  - Insert
  - update
  - delete
  - select (DRL - Data Retrieval Language)

Database Components

- Database Client
  - CLI
  - GUI
- Database Server

4 Steps to connect to the database in java

1. Creating connection
2. Creating statement
3. Executing queries
4. Closing connection

JDBC Example1


```
import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.SQLException;
import java.sql.Statement;

public class JDBCExample1 {
   public static void main(String[] args) throws SQLException {
            //step1 : create connection
            Connection con=DriverManager.getConnection("jdbc:oracle:thin:@localhost:1521/pdborcl","hr","hr");
            //step2 :create statement(query)
            //String insertquery="insert into employee values(108,'saran','abc')";
            //String updatequery="update employee set First_name='Raj' where Employee_id=106";
            String deletequery="delete employee where Employee_id=108";
            Statement stmt=con.createStatement();
            //step3: Execute the statement
            stmt.executeQuery(deletequery);
            //step4  :close the connection
            con.close();
            System.out.println("program completed");
            }
```

JDBC Example2


```
import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.ResultSet;
import java.sql.SQLException;
import java.sql.Statement;
public class JDBCExample2 {
    public static void main(String[] args) throws SQLException {
                //step1 : create connection
                Connection con=DriverManager.getConnection("jdbc:oracle:thin:@localhost:1521/pdborcl","hr","hr");
                //step2 :create statement(query)
                String selectquery="select employee_id,first_name,last_name From employees";
                Statement stmt=con.createStatement();
                //step3: Execute the statement
                ResultSet rs=stmt.executeQuery(selectquery);
                //step 4: reading the data from result set
                while(rs.next()==true)
                {
                System.out.print(rs.getInt("employee_id")+"  ");
                System.out.print(rs.getString("FIRST_NAME")+"  ");
                System.out.print(rs.getString("LAST_NAME")+"  ");
                System.out.println();
                }
                //step4  :close
                rs.close();
                con.close();
                System.out.println("program completed"); } }
```

Assingment

ArrayList:

1. Define an array list and store some values and read them using for…each loop.
2. Define an array list with 5 elements and Search an element present or not in the arraylist.
3. Define a array list with 5 integers and print them in reverse order.

HashMap:

1. Create a HashMap and do the following.
   - Add the following keys(EMPID's) and their values(ENAME's) to the HashMap

EMPID	ENAME
101	DAVID
102	SCOTT
103	JOHN

   - Read and print all the keys and their values using for each loop.
   - Remove a pair from HashMap

     101 DAVID
   - Print the keysets in HashMap.

JDBC:

1. Connect to database and check how many number of records present in the Employee table.
2. Connect to database and display all the employees details who are belongs to deptno 10.
3. Connect to database and Display employee details whose is earning highest salary.