Oracle APEX: Forms, Reports, Uploading Files, Authentication and Authorization

Lab Objective
Familiarize students with a few intermediate application development options in Oracle APEX – a tool to develop oracle-based database application.

Lab Outcome
After completing this lab successfully, students will be able to:

1. **Create and Use sequence** – used to generate a number automatically**.**
2. **Create** a Basic Form.
3. **Create** a Basic Report.
4. **Create** a Master-Detail Form.
5. **Create** a Report from a query.
6. **Create** a drop-down box.
7. **Insert and View images** in forms and reports, respectively.
8. **Create and Use custom authentication and authorization.**

Psychomotor Learning Levels
This lab involves activities that encompass the following learning levels in psychomotor domain.

Level	Category	Meaning	Keywords
P1	Imitation	Copy action of another; observe and replicate.	Relate, Repeat, Choose, Copy, Follow, Show, Identify, Isolate.
P2	Manipulation	Reproduce activity from instruction or memory	Copy, response, trace, Show, Start, Perform, Execute, Recreate.

Instructions
➢ Follow the instructor during the class.
➢ A simple step-by-step tutorial can be found in this link. https://goo.gl/2m2Vnr
➢ A series of video tutorial on the same project can be found here: https://goo.gl/BT93w4
➢ A tutorial to include images in report can be found here: https://goo.gl/2CPgAX
➢ A tutorial for custom authentication and authorization can be found here: https://goo.gl/fAWabg

Lab Activities
1. **Log into your existing Oracle APEX account.**
2. **Create a basic form using templates.**
3. **Create a basic report using templates.**
4. **Create a master-detail form, showing parent table and child table relationship. Details in the class.**
5. **Create a report based on a query. Details in the class.**

6. **Create a table player and country with the following attributes.**

Player	Country
player_id (number, primary key)	country_code (number, primary key)
player_name (varchar2)	country_name (varchar2)
country_code (number, foreign key)	file_lob (blob)
file_lob (blob)	file_name (varchar2)
file_name (varchar2)	file_mimetype (varchar2)
file_mimetype (varchar2)	file_updatedate (varchar2)
file_updatedate (varchar2)	file_characterset (varchar2)
file_characterset (varchar2)	

7. **Creating appropriate sequences**
   ```
   Create sequence <sequence_name> start with <value> increment by
   <value>;
   ```
8. **Creating the initial application with a form and a report for both tables**

9. **Create a drop-down box for player form to display country name. video tutorial:**
   https://goo.gl/v6FSaV

10. **Insert and view images. Sample code is shown below**
    Details can be found here: https://goo.gl/2CPgAX
    Video Tutorial: https://goo.gl/1sdDw9

    ```
    select "ROWID",
    decode(nvl(dbms_lob.getlength(FILE_LOB),0),0,null,
           '<img alt="Altr text" src="' ||
    apex_util.get_blob_file_src('P9_FILE_LOB',ROWID) || '" width = "75"/>')
    "IMAGE",
    "FILE_NAME",
    "FILE_MIMETYPE",
    "FILE_UPDATEDATE",
    "FILE_CHARACTERSET"
    from "#OWNER#"."PICTURES"
    ```

11. **Create custom authentication**
    i)   Create my_users table. This table includes the users who can access this application.

    ```
    create table my_users (
    user_id number,
    user_name varchar2(20),
    user_password varchar2(20),
    user_activated number default 0,
    primary key(user_id));
    ```

    ii)   Creating a sequence
    ```
    create sequence my_users_seq start with 30001 increment by 1;
    ```

    iii)   Insert one record at least
    ```
    insert into my_users values
    (my_users_seq.nextval,'admin','admin123',1);
    ```

iv) Write this function in appropriate place (Shard Components) [Details in the class]

```
FUNCTION my_auth (
    p_username IN VARCHAR2,
    p_password IN VARCHAR2)
RETURN BOOLEAN AS
    found number := 0;
BEGIN
  SELECT 1 into found FROM MY_USERS
            WHERE upper(USER_NAME) = upper(p_username)
            AND upper(USER_PASSWORD) = upper(p_password)
            AND USER_ACTIVATED = 1;
    RETURN TRUE;
EXCEPTION
    WHEN NO_DATA_FOUND THEN
  RETURN FALSE;
END;
```

v) Create an access control page