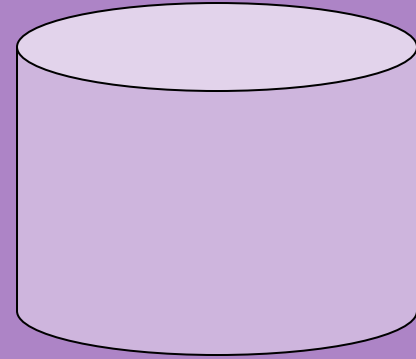




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# APEX Pages(Forms) & Reports

Sanela Lazarevski (Module Leader)



# Learning outcomes

- How to create
  - Forms
  - Reports
  - Charts
- Demo packages (see video recording of SAMPLE database application)

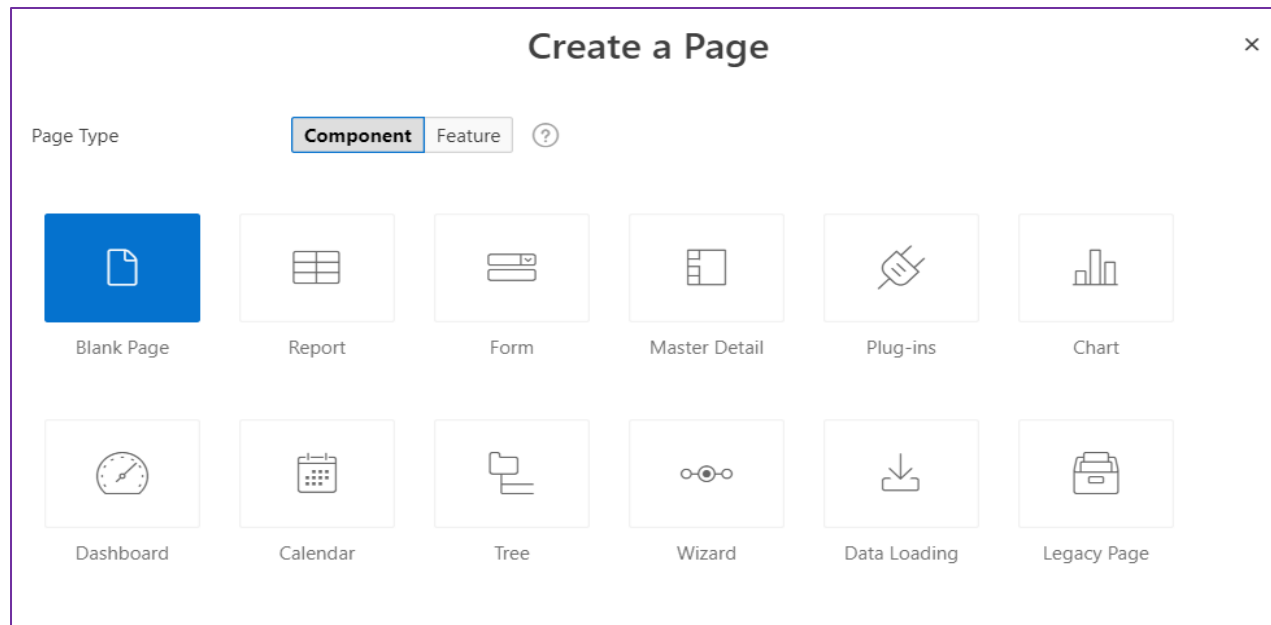
<http://docs.oracle.com>

# APEX Applications

- Most users of databases use a graphical front end application.
- APEX provides database access via Pages and Reports
- The data is displayed using Web Pages
- Report data is interactive

# APEX Applications

- An application is a collection of pages with links that connect them.
- It includes authentication methods and authorisation rules.
- Includes user interface templates.
- Possible Pages to create



# APEX Page

- A page is the basic building block
- Pages contain interface items:
  - Tabs
  - Lists
  - Buttons
  - Items
  - Regions.

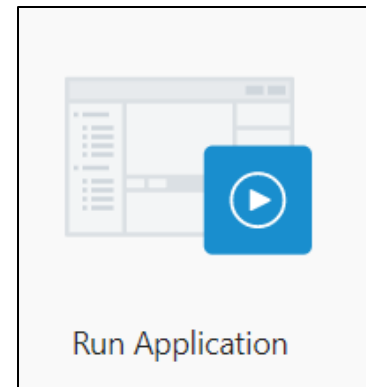
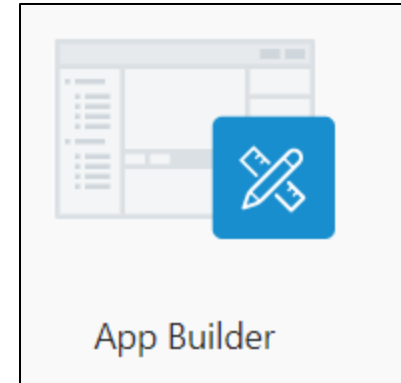
# APEX Page

- Regions - Logical sub section of a page
  - HTML
  - Text
  - SQL Queries
  - PL/SQL generated HTML
  - Charts

Rendered using a Region Template positioned using display points defined in the template.


# Running an Application

- Click on Application Builder Icon
- Select a Sample Application
  - included within APEX  
(Look under Tasks – Sample Applications  
May need to install it first )
- Click on the Run Application Icon




# Building an Application

## Create an Application




### New Application

Add pages on existing data, select application features, set your theme, and configure other options.



### From a File

Upload a CSV, XLSX, XML or JSON file, or copy and paste data, then create your application.



### Productivity

Install one Sample and create your application from the A


[Websheet](#) · [Quick SQL](#) · [Copy Application](#) · [Help](#)

View Blueprint | Load Blueprint


## Create an Application

Appearance  
Vita, Side Menu

Pages ?




Add Page




Home


Blank

Edit 


Features ? Check All

☐ 


About Page  
Add about this application page

☐ 


Access Control  
Enable role-based user authorization

☐ 


Activity Reporting  
Include user activity and error reports

☐ 

Configuration Options  
Enable or disable application features

☐ 

Feedback  
Allow users to provide feedback

☐ 

Theme Style Selection  
Update default application look and feel


Settings ?


Application ID  
146

Schema  
LAZARE01

Authentication  
Application Express Accounts

Language  
English (en)

Advanced Settings 

User Interface Defaults 

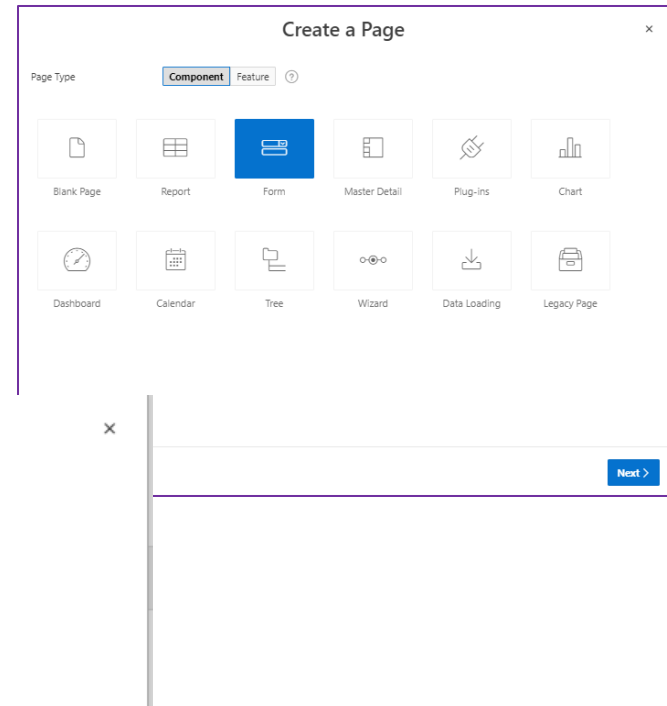
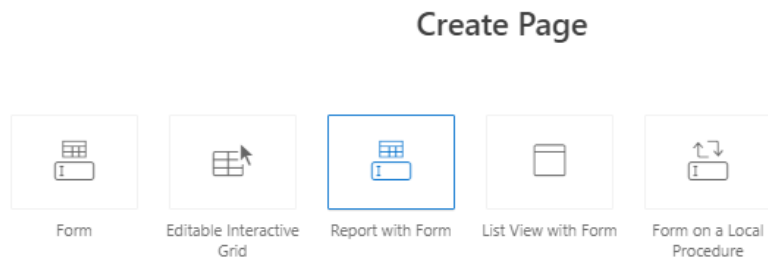
Cancel

Create Application



# Building a Page - FORM

- Type:



- Result:

	Ename	Job	Mgr	Hiredate	Sal	Comm	Deptno
	SMITH	CLERK	7902	17-DEC-80	800	-	20
	ALLEN	SALESMAN	7698	20-FEB-81	1600		
	WARD	SALESMAN	7698	22-FEB-81	1250		
	JONES	MANAGER	7839	02-APR-81	2975		
	MARTIN	SALESMAN	7698	28-SEP-81	1250		
	BLAKE	MANAGER	7839	01-MAY-81	2850		
	CLARK	MANAGER	7839	09-JUN-81	2450		
	SCOTT	ANALYST	7566	19-APR-87	3000		
	KING	PRESIDENT	-	17-NOV-81	5000		
	TURNER	SALESMAN	7698	08-SEP-81	1500		
	ADAMS	CLERK	7788	23-MAY-87	1100		
	JAMES	CLERK	7698	03-DEC-81	950		
	FORD	ANALYST	7566	03-DEC-81	3000		

**Employee Page**

Ename: SMITH

Job: CLERK

Mgr: 7902

Hiredate: 17-DEC-80

Sal: 800

Comm:

Deptno: 20

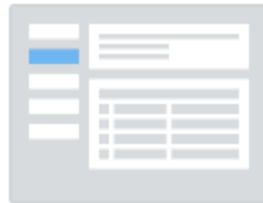
# Building a Simple Application

- Using the Employee Management System
  - Tables – DEPT and EMP
  - The demo building a master detail page (form)

## Create Master Detail



Stacked



Side by Side



Drill Down

# Demo –scott script

- Build Single Page Master/Detail Form: Stacked

**Dept** Save

Search: All Text Columns Go Actions Edit Add Row Reset

<input type="checkbox"/>	<input type="checkbox"/>	Dname	Loc
<input checked="" type="checkbox"/>	<input type="checkbox"/>	ACCOUNTING	NEW YORK
<input type="checkbox"/>	<input type="checkbox"/>	RESEARCH	DALLAS
<input type="checkbox"/>	<input type="checkbox"/>	SALES	CHICAGO
<input type="checkbox"/>	<input type="checkbox"/>	OPERATIONS	BOSTON

1 rows selected Total 4

**employee**

Search: All Text Columns Go Actions Edit Add Row Reset

<input type="checkbox"/>	<input type="checkbox"/>	Ename	Job	Mgr	Hiredate	Sal	Comm
<input checked="" type="checkbox"/>	<input type="checkbox"/>	CLARK	MANAGER	7839	09-JUN-81	2450	-
<input type="checkbox"/>	<input type="checkbox"/>	KING	PRESIDENT	-	17-NOV-81	5000	-
<input type="checkbox"/>	<input type="checkbox"/>	MILLER	CLERK	7782	03-JAN-82	1300	-

1 rows selected Total 3

- Build Drill Down Pages Master/Detail Form: Drill Down

**Form on DEPT**

Dname  
ACCOUNTING

Loc  
NEW YORK

1 of 4

Cancel Delete Apply Changes >

Search: All Text Columns Go Actions Edit Add Row Reset

<input type="checkbox"/>	<input type="checkbox"/>	Empno	Ename	Job	Mgr	Hiredate	Sal	Comm
<input checked="" type="checkbox"/>	<input type="checkbox"/>	7782	CLARK	MANAGER	7839	09-JUN-81	2450	-
<input type="checkbox"/>	<input type="checkbox"/>	7839	KING	PRESIDENT	-	17-NOV-81	5000	-
<input type="checkbox"/>	<input type="checkbox"/>	7934	MILLER	CLERK	7782	03-JAN-82	1300	-

1 rows selected Total 3

# Demo –scott script cont.

- Build Single Page Master/Detail Form: Side by Side one table

ADAMS  
23-MAY-87

ALLEN  
20-FEB-81

BLAKE  
01-MAY-81

CLARK  
09-JUN-81

FORD  
03-DEC-81

JAMES  
03-DEC-81

JONES  
02-APR-81

KING  
17-NOV-81

Emp Edit

Ename	ADAMS
Job	CLERK
Mgr	7788
Hiredate	23-MAY-87
Sal	1100
Deptno	20


Emp +


No data found.

# Demo –scott script cont.

- Build Single Page Master/Detail Form: Side By Side two tables

## Employee Details

 Reset

 Create

ACCOUNTING  
NEW YORK

OPERATIONS  
BOSTON

RESEARCH  
DALLAS

SALES  
CHICAGO

Dept




Dname

ACCOUNTING

Loc

NEW YORK

Emp


	Ename	Job	Mgr	Hiredate	Sal	Comm
	CLARK	MANAGER	7839	09-JUN-81	2450	-
	KING	PRESIDENT	-	17-NOV-81	5000	-
	MILLER	CLERK	7782	03-JAN-82	1300	-


1 - 3

# Demo – different example (venue booking)

- Build Single Page Master/Detail Form: Side By Side **three** tables

## Venue Booking

 Reset

 Create


Jims Bar  
bar

Leeds Academy  
mid-size

The Music Box  
bar

The Turnip Arena  
arena

Venue

 Edit


Venue Name	Jims Bar
Address	59 Street Road, LS2 6JL
Capacity	300
Venue Type	bar
No Stages	1
Prominence	low


Show All

Stage

Venue Booking


Stage




	Stage Name	Stage Feedback	Capacity	Equipment List
	main stage	sticky carpet	300	Broken dreams and half a guitar

1 - 1

Venue Booking



	Booking Start	Booking End	Festival Id
	24-MAR-17	26-MAR-17	1

1 - 1

# Primary Keys

## **IMPORTANT**

- If you do not have a Primary Key specified, which is populated by an SQL sequence, you will encounter errors when trying to add a new record.
  - Best to use the apex object browser for creating table and when prompted for PK choose populated from a new sequence option
- All relevant sequence code and objects can be generated automatically if you select the correct options when creating your tables using the APEX SQL wizard.

# Triggers for PK

- If you have a Form that is based on tables created in a script using DDL and DML commands – create a trigger to populate PK values
- Code example:

```
CREATE or REPLACE trigger emp_T1
BEFORE insert on emp
for each row
BEGIN
IF :NEW.empno IS NULL THEN
  SELECT emp_SEQ.NEXTVAL
  INTO :NEW.empno
  FROM SYS.DUAL;
END IF;
END;
/
commit;
```

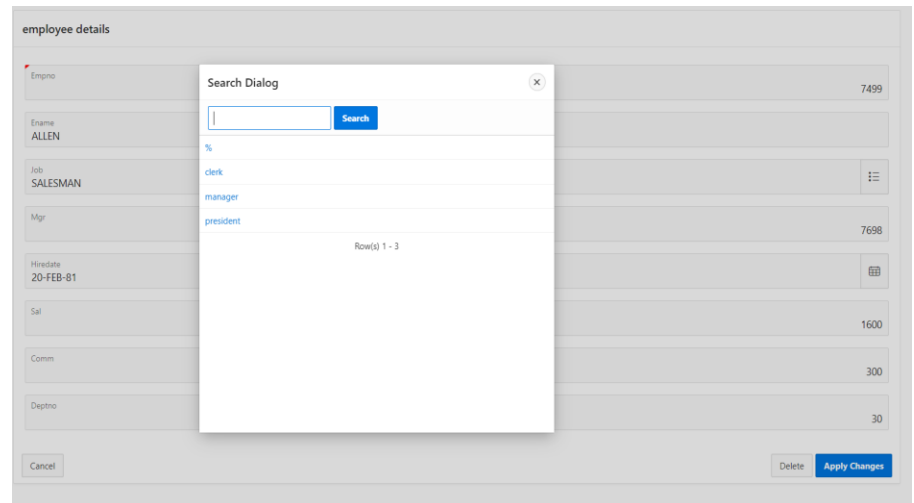


# Otherwise

- Check the workbook examples, where you use ROWID (pages 9-10)

# Page Rendering (Page edit mode)

- Used to alter the usability and appearance e.g.
  - Adding Radio buttons
  - Static List Of Values (LOV's)
    - Fixed set of choices
  - Dynamic List Of Values (LOV's)
    - To extract data from a table
  - Item Validation
  - Page Navigation
  - Themes



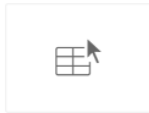
# Reports - DEMO

## Create Page

×



Interactive Report



Interactive Grid



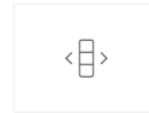
Classic Report



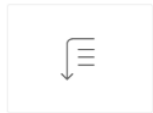
Report with Form



List View



Column Toggle  
Report



Reflow Report

### Job Salaries

Job ↑≡	Max(Sal)	Min(Sal)
ANALYST	3000	3000
CLERK	1300	950
CLERK	800	800
MANAGER	2975	2450
PRESIDENT	5000	5000
SALESMAN	1600	1250

Download

select job,max(sal), min(sal)  
from emp  
group by job;

Empno	Ename	Job	Mgr	Hiredate	Sal	Comm	Deptno
7369	SMITH	CLERK	7902	17-DEC-80	800	-	20
7499	ALLEN	SALESMAN	7698	20-FEB-81	1600	300	30
7521	WARD	SALESMAN	7698	22-FEB-81	1250	500	30
7566	JONES	MANAGER	7839	02-APR-81	2975	-	20
7654	MARTIN	SALESMAN	7698	28-SEP-81	1250	1400	30
7698	BLAKE	MANAGER	7839	01-MAY-81	2850	-	30
7782	CLARK	MANAGER	7839	09-JUN-81	2450	-	10
7788	SCOTT	ANALYST	7566	19-APR-87	3000	-	20
7839	KING	PRESIDENT	-	17-NOV-81	5000	-	10
7844	TURNER	SALESMAN	7698	08-SEP-81	1500	0	30
7876	ADAMS	CLERK	7788	23-MAY-87	1100	-	20
7900	JAMES	CLERK	7698	03-DEC-81	950	-	30
7902	FORD	ANALYST	7566	03-DEC-81	3000	-	20
7934	MILLER	CLERK	7782	03-JAN-82	1300	-	10

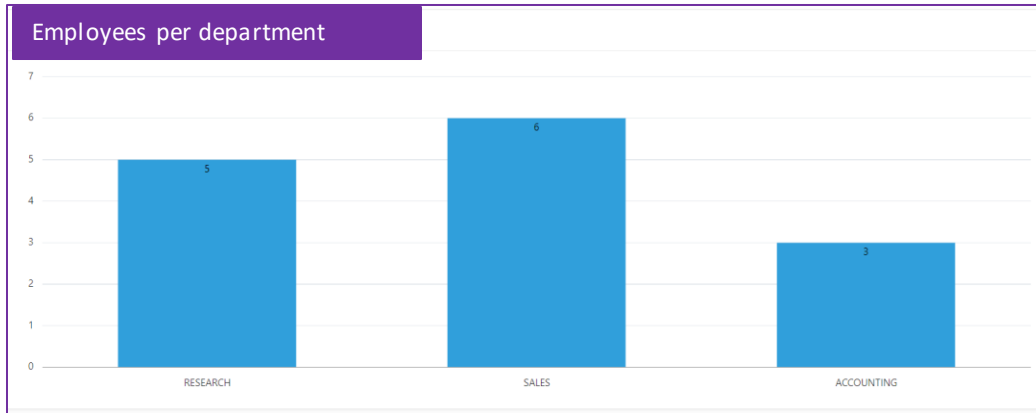
select ename, job, sal  
from emp  
where mgr is null;

Employee no manager

Ename ↑≡	Job	Sal
KING	PRESIDENT	5000

Download

# Chart - DEMO

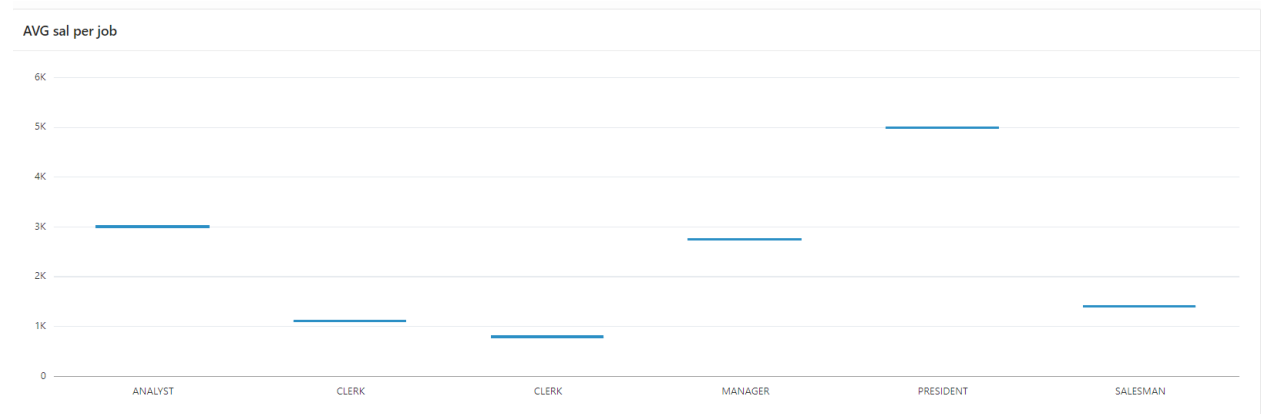


```
select count(empno), dname
from      emp, dept
where dept.deptno = emp.deptno
group by dname;
```

-- average salary and  
average total remuneration  
for each job type.

```
select job, avg(sal) avsal,
avg(sal*12+nvl(comm,0))
avcomp
```

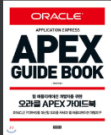
```
From emp
group by job;
```




# Further information

- More on VLE
- Module workbook - available from week 3
- Online Oracle Apex Manual help
- Books


## Books




**APEX Guide Book**  
Sekook Jang - Korean  
[View Details >](#)




**Cloud Computing using Oracle Application Express**  
Riaz Ahmed  
[View Details >](#)




**Oracle APEX 18.1 For Beginners**  
Riaz Ahmed  
[View Details >](#)



**Oracle Application Express**  
Gerardus Blokdyk  
[View Details >](#)



**Oracle Application Express: Build Powerful Data-Centric Web Apps with APEX**  
Arie Geller, Brian Spendolini  
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**Oracle APEX: Das umfassende Handbuch für Entwickler**  
Jürgen Sieben - German  
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# Thank you

Any questions?