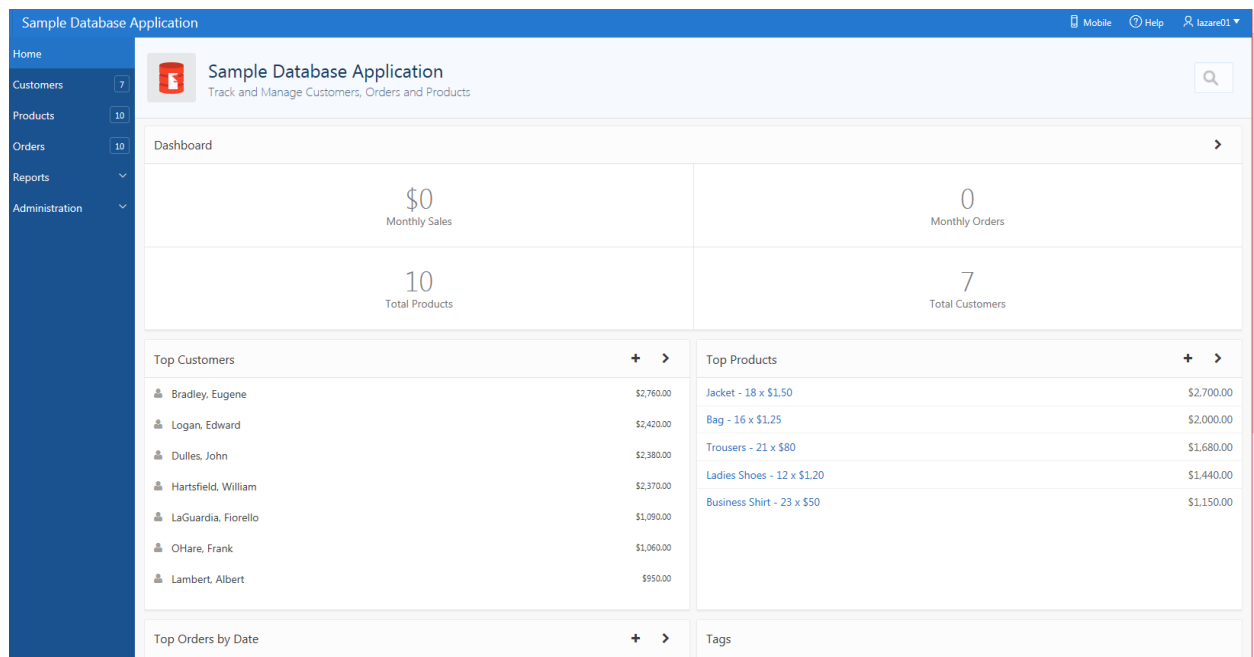


Application Builder

Using APEX 19





Video: <https://www.youtube.com/watch?v=eMkFmGzQS3A>



An example on how something is done



A task for you to complete



Good to know!



An example and a task for you to complete

How to Build a Database Application

Creating Forms (Apex Pages)

You can include a variety of different types of forms in your applications. You can include forms that enable users to update just a single row in a table or multiple rows at once. Application Builder includes a number of wizards you can use to create forms automatically, or you can create forms manually.

Topics:

- Creating a Master Detail Form - two pages with two related tables (new to Apex 19)
- Creating a Master Detail Form - one pages with two related tables.
- Creating a Form Using a Wizard (one table)
- Creating a Tabular Form (one table)
- Creating a Form Manually
- Validating User Input in Forms

Creating a Form based on two related tables (Master/Detail)

A master detail form reflects a one-to-many relationship between two tables in a database. Typically, a master detail form displays a master row and multiple detail rows within a single HTML form. With this form, users can insert, update, and delete values from two tables or views.

Single Page Master Detail

A single page master detail features two editable interactive grids based on two related tables or views. Users select a row in the master grid to update the detail grid. Developers can create a single page master detail with either the Create Application Wizard or the Create Page Wizard.

A single page master detail features two editable interactive grids based on two related tables or views. Users select a row on the master grid to update the detail grid. In this example, when the user selects a department on the master grid to view employees in the detail grid. Developers can create a single page master detail with either the Create Application Wizard or the Create Page Wizard.

Two Page Master Detail

A two page master detail features two pages based on two related tables or views. **The first page is a non-editable interactive grid.** Users click the Edit icon on the first page edit details on the second page. For example, in the **Employee Application**, suppose you want to build a page which displays all employees working in a specific department. A row from the DEPT (master) table would be selected and the matching rows from the EMP table (detail) would be retrieved based on matching values in the EMP table using the foreign key field – deptno with the value held in the DEPT table dept_id field.

Important Note: You are advised to run the scott.sql and re-create emp and dept tables again. This is in case you are still practicing SQL and PL/SQL tasks. This workbook has used scott.sql, however if you have written Triggers and PL/SQL, you may want to use **scott.sql** (emp and depts tables), which is only slightly different – tables and sequences names .

About Master Detail Forms

When running a master detail form, data is rendered as a report using various form elements (including text fields, text areas, date pickers, select lists, radio groups, and so on).

To add(insert) a new row, you Click on **Create**. To edit row details Click on the **Edit** icon (pen).

dept

Dname: ACCOUNTING

Loc: NEW YORK

1 of 4

Cancel

Delete Save >

dept

Q Go Actions Edit Add Row Reset

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

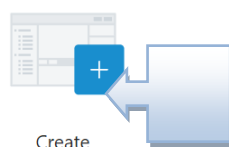
1 rows selected Total 3

For numeric and date fields, you can also pre-define date and number format masks, or apply those format masks after generating the initial form. Wizard generated master detail forms also automatically create validations for some columns. Validations are created for columns that are set to **NOT NULL** in the underlying table and columns of type **NUMBER**, **DATE** or **TIMESTAMP**. Note that validations are not created for columns if the column is set to read-only, either based on the user's selection, or defined user interface defaults.



Creating an Application from Scratch

You can create an application based on a table, query, or drill-down query by selecting **Create Application** in the Create Application Wizard.



Create



Import



Dashboard

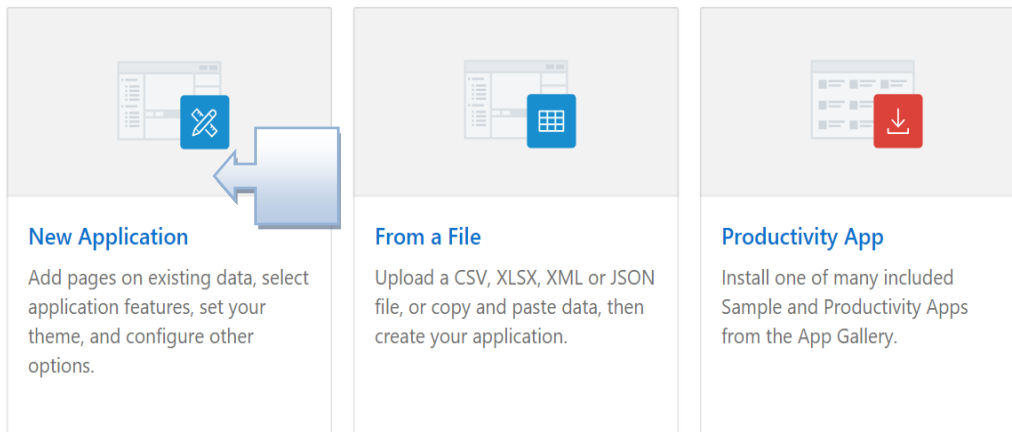


Workspace Utilities

To create an application:

1. On the Workspace home page, click the **Application Builder** icon.
2. Click the **Create** button.
3. For **Create an Application**, select **New Application**. Then Click **Next**.

Create an Application



4. Enter the following and click **Next**:
 - a. Name - Enter a name to identify the application. **Enter: HR_Application**
 - b. Theme – leave the default theme. A Theme can be changed at later stage.
 - c. You could click on **Create Application** at this stage.

[View Blueprint](#) | [Load Blueprint](#)

Create an Application

Name: Appearance:

Pages [?]

Add Page

Home Blank

Features [?] [Check All](#)

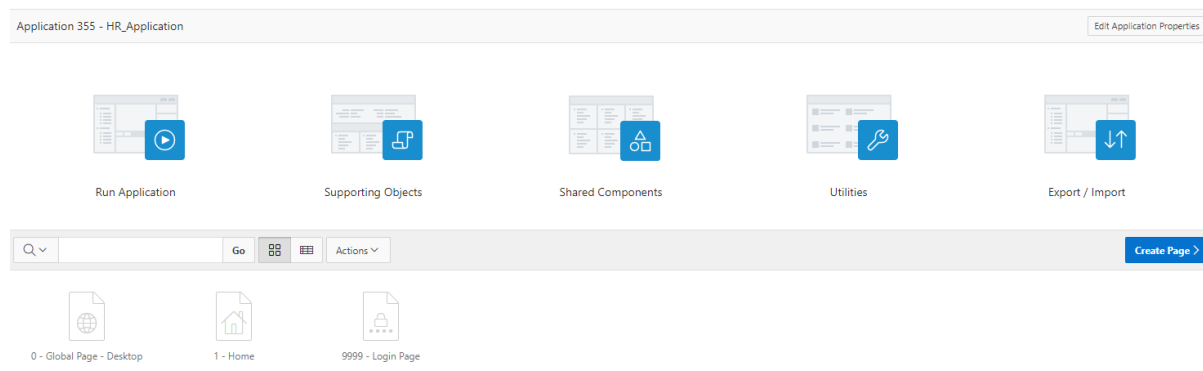
<input type="checkbox"/> About Page Add about this application page	<input type="checkbox"/> Access Control Enable role-based user authorization	<input type="checkbox"/> Activity Reporting Include user activity and error reports
<input type="checkbox"/> Configuration Options Enable or disable application features	<input type="checkbox"/> Feedback Allow users to provide feedback	<input type="checkbox"/> Theme Style Selection Update default application look and feel

Settings [?]

<input type="text" value="Application ID 355"/>	<input type="text" value="Schema LAZARE01"/>	<input type="text" value="Authentication Application Express Accounts"/>
<input type="text" value="Language English (en)"/>	<input type="text" value="Advanced Settings"/>	<input type="text" value="User Interface Defaults"/>

Your Application is now created. If you run it all you will see is a blank canvas, with the label of the application at the top left. Now you are ready to add some content to it, by adding tables that will be

used to manage data. In our case these are Dept and Emp tables. You may want to re-run your **Scott** script to recreate your tables, if you haven't done so already.



Creating a Master Detail Form

The Create Page Wizard provides **support** for creating a master detail from two tables. When created using a wizard, the master form on a master detail form page includes buttons that enable the user to move forward and backward within the master result set. While running the wizard, you choose which columns determine the navigation order.

To create a master detail form using the Create Page Wizard:

1. On the Workspace home page, click the **Application Builder** icon.
2. Select the **Application** and Click **Create Page** button.
3. On Create Page, select **Master Detail**. This is NEW in Apex 19 – three types of Master Detail forms.
4. Choose **Stacked** option and click on **Next**
5. On Page Attributes for Page Name type in **HR Details**
6. Click **Next**.
7. For Navigation Menu, select how you want this page integrated into the Navigation Menu. Depending upon the option you select, additional attributes appear. Click **Next**.

×

Create Master Detail

●
●
●
●

Navigation Menu

Navigation Preference

☐ Do not associate this page with a navigation menu entry ?
☒ **Create a new navigation menu entry**
☐ Identify an existing navigation menu entry for this page

* New Navigation Menu Entry ?

Parent Navigation Menu Entry

- No parent selected - ?

Home

< Cancel
Next >

8. For Master Source select details as specified on the form below:

×

Create Master Detail

●
●
●
●

Master Source

* Master Region Title ?

* Table / View Owner ?

* Table / View Name ?

* Primary Key Column ?

* Select Columns ?

⌕
 >>
 >
 <
 <<

DEPTNO (Number)
 DNAME (Varchar2)
 LOC (Varchar2)

↑
 ↑
 ↓
 ↓

< Cancel
Next >

9. For Detail Source, specify details as displayed below:

Create Master Detail ✕

Detail Source

✓
✓
✓
●

* Detail Region Title ?

Show Only Related Tables: ☒ Yes ☐ No ?

Table / View Owner **LAZARE01** ?

* Table / View Name ?

* Primary Key Column ?

* Master Detail Foreign Key ?

* Select Columns ?

⌕
EMPNO (Number)
⬆

»
ENAME (Varchar2)
⬆

>
JOB (Varchar2)
⬆

<
MGR (Number)
⬆

<
HIREDATE (Date)
⬆

<
SAL (Number)
⬆

<
COMM (Number)
⬆

<
DEPTNO (Number)
⬆

< Cancel
Create

10. Click **Create**. Done. Run the application

RUN

You may be asked to log in. This is the view you should have.

The screenshot displays the HR Application interface. On the left is a navigation sidebar with 'Home' and 'HR Details'. The main area is divided into two sections: 'Department' and 'Employee'.

Department Table:

Deptno	Dname	Loc
10	ACCOUNTING	NEW YORK
20	RESEARCH	DALLAS
30	SALES	CHICAGO
40	OPERATIONS	BOSTON

1 rows selected. Total 4.

Employee Table:

Empno	Ename	Job	Mgr	Hiredate	Sal	Comm
3	James	help	7499	20-FEB-81	9999	-
4	John	help	7499	20-FEB-81	9999	-
5	Ali	help	7499	20-FEB-81	9999	-
7782	CLARK	MANAGER	7839	09-JUN-81	2450	-
7839	KING	PRESIDENT	-	17-NOV-81	5000	-
7934	MILLER	CLERK	7782	03-JAN-82	1300	-

1 rows selected. Total 6.

You can also use Oracle Docs to learn how to create different types:

- [About Master Detail Forms](#)
- [Creating a Master Detail Form Using the Create Application Wizard](#)
- [Creating a Side by Side Master Detail Using the Create Page Wizard](#)
- [Creating a Stacked Master Detail Using the Create Page Wizard](#)
- [Creating a Two Page Drill Down Master Detail Using the Create Page Wizard](#)

<https://docs.oracle.com/en/database/oracle/application-express/19.1/htmldb/managing-master-detail-forms.html#GUID-6143A5AE-FCAB-4D7F-8B8C-7EFBE39359FB>

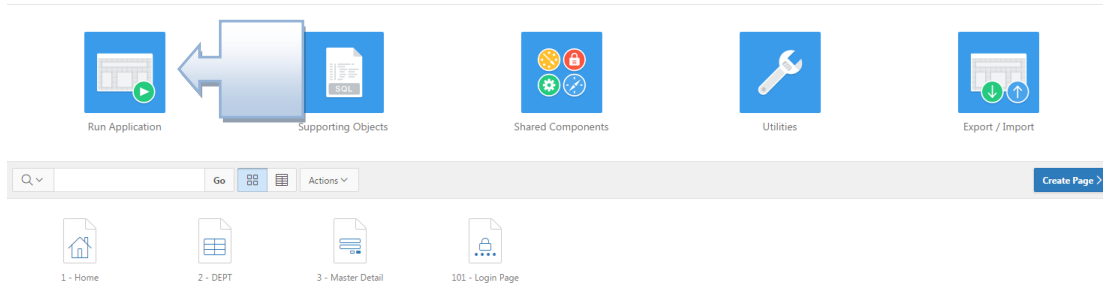


Task:

- Insert a new department.
- Add two new employees in the new department.
- Check in Object Browser that the new details are there.



How to use the Form



1. Click on the **Run** Button.
2. After you **log in** on the first page you'll see is the **Dept** table details. You may need to click on the link: DEPT on the side.
 - a. by using **Add_Row** button. Add any record you want then Click on **Save** button. You may be asked as well to add employee details at this stage.

- b. You can now add a new record for EMP Detail table by using **Add_Row** button. Add any record you want then Click on **Save** button. Again pay attention that empno is not available to add a record.

- c. Try now to Update salary for any employee to 2000. **Save** the change.
- d. To Delete a detail table (emp) record, make sure you checked record you want to delete and press **Delete_Checked**.



Creating a Master/Detail – Side by Side Form

To create a single page Side by Side Form using the Create Page Wizard:

1. Navigate to the application builder
2. Select an application and Click **Create Page**.
3. On Create Page, select **Master Detail**, choose **Side by Side** and click on **Next**
4. In the Master Detail Page Name(Value Required) enter: HR Different View.
5. For Navigation Menu, select **Create a new navigation menu entry** and then select **Home**
6. For Master Detail Page Select options shown below:

Create Master Detail

✓

✓

●

Master Detail Source

* Table / View Owner

LAZARE01

?

* Master Table

DEPT (table)

?

* Primary Display Column

DNAME (Varchar2)

?

* Secondary Display Column

LOC (Varchar2)

?

* Detail Table

EMP

?

Detail Table 2

EMP

?

Detail Table 3

- Select Value -

?

<

Cancel

Create

Click on Create and Run the form. The view will look like the one below:

HR Application lazar01

HR Different View Reset + Create

Search...

Dept Edit

Dname: ACCOUNTING
Loc: NEW YORK

Show All Emp Emp

Emp						
Ename	Job	Mgr	Hiredate	Sal	Comm	
James	help	7499	20-FEB-81	9999	-	
John	help	7499	20-FEB-81	9999	-	
Ali	help	7499	20-FEB-81	9999	-	
CLARK	MANAGER	7839	09-JUN-81	2450	-	
KING	PRESIDENT	-	17-NOV-81	5000	-	
MILLER	CLERK	7782	03-JAN-82	1300	-	

1 - 6

Emp						
Ename	Job	Mgr	Hiredate	Sal	Comm	
James	help	7499	20-FEB-81	9999	-	
John	help	7499	20-FEB-81	9999	-	

Home Application 359 Edit Page 3 Session View Debug Debug Page Info Quick Edit Theme Roller 9999 -



Try to create on your Master Detail type of page Drill Down

How do to it you can follow instructions here, or watch lecture recording.

<https://docs.oracle.com/en/database/oracle/application-express/19.1/htmldb/managing-master-detail-forms.html#GUID-13B701BC-5F10-414E-898A-0399103CCB8D>

Developing Reports

When creating a database application, you can include two types of reports: an **interactive report** or a **classic report**. The main difference between these two report types is the extent to which end users can customize the appearance of the data through searching, filtering, sorting, column selection, highlighting, and other data manipulations.

To learn more about different types of reports and other options, not discussed in the workbook, please visit

<https://docs.oracle.com/en/database/oracle/application-express/19.1/htmldb/developing-reports.html#GUID-A63ECD33-D759-4725-9666-A02719FB35B8>



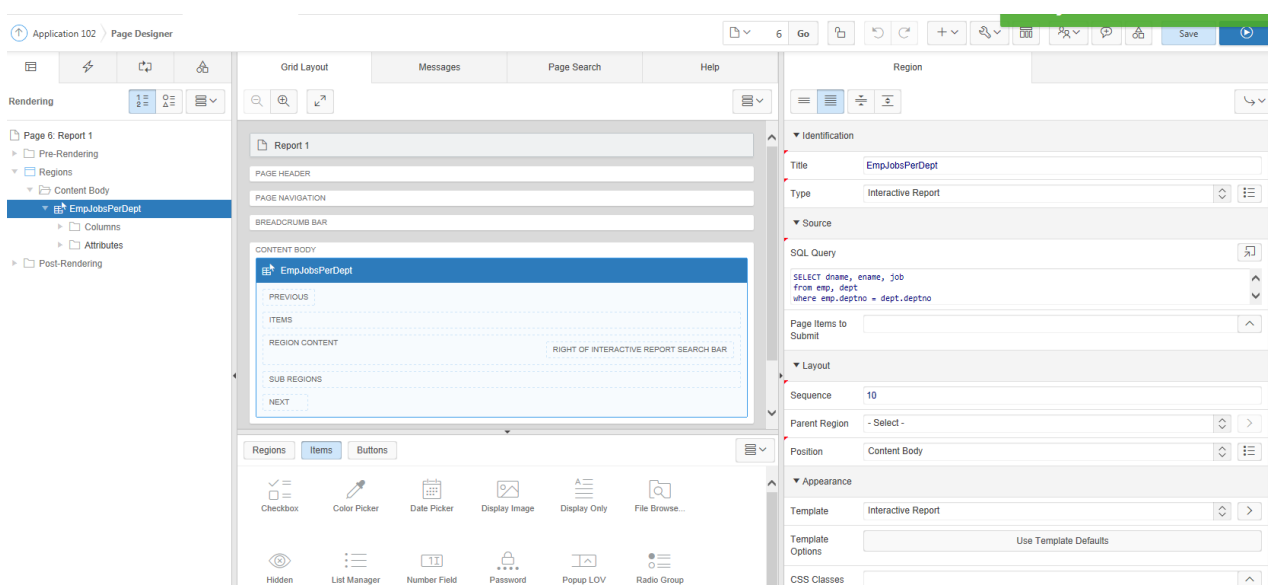
Interactive Reports

To create an interactive report, developers either select a table or provide a SQL statement. Developers can restrict the capabilities available to end users (such as disabling download or support for hiding column). When the end user views the report, report functionality is same across all reports in the application.

When viewing an interactive report, end users can customize how and what data displays. By default, interactive reports include a search bar, an Actions menu, column heading menus, and Edit icons in the first column of each row. Using options on the Actions menu, users can alter the report layout by hiding or exposing specific columns and applying filters, highlighting, and sorting. They can also define breaks, aggregations, charts, group by, and add their own computations. Once customised, the report can be saved as either a private or public report.

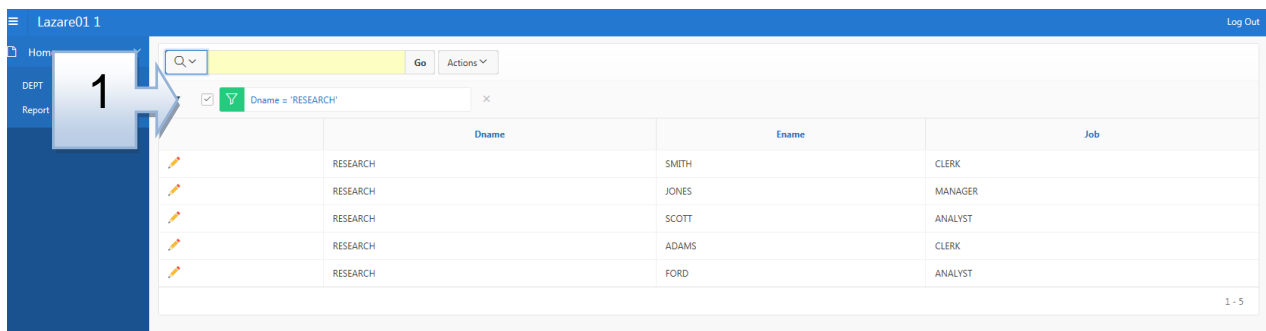
The following is an example of an Interactive Report. What it means is that you can view an output form one or more table, and you can drill up or down through the data in the report. This is why it is called Interactive.

To develop an interactive table you can select either a table or provide a SQL statement. In the example below you can see that an SQL statement is used to create this Interactive report above.



When viewing an interactive report, end users can customize how and what data is displayed. By default, interactive reports include a search bar, an Actions menu, column heading menus, and Edit icons in the first column of each row. Using options on the Actions menu, users can alter the report layout by hiding or exposing specific columns and applying filters, highlighting, and sorting. They can also define breaks, aggregations, charts, group by, and add their own computations. Once customized, the report can be saved as either a private or public report.

See the example below, for employees who are working in the department Research:



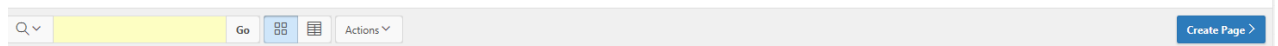
	Dname	Ename	Job
	RESEARCH	SMITH	CLERK
	RESEARCH	JONES	MANAGER
	RESEARCH	SCOTT	ANALYST
	RESEARCH	ADAMS	CLERK
	RESEARCH	FORD	ANALYST



How to create an Interactive Report using a Wizard

<https://docs.oracle.com/en/database/oracle/application-express/19.1/htmldb/creating-report-create-page-wizard.html#GUID-6AB94A05-66FD-408B-A43E-0FDF5227057A>

1. Go to Application page for **HR_Application** and click on **Create Button**.



2. Select **Report** icon.
3. On the Next page select **Interactive report**. Try to remember the ICON for the interactive report.
4. On the next page specify for Page Name: InteractiveReport and click **Next**.
5. On the Navigation Menu page select the second option. In Parent Navigation Menu Entry select Home.
6. Click **Next**
7. Type in the following query and don't forget to validate your query before clicking **Next**.

Create Interactive Report

×

Report Source

Data Source: **Local Database** REST Enabled SQL Service Web Source ?

* Source Type: ☐ Table ☒ **SQL Query** ?

* Enter a SQL SELECT statement ?

Validation successful

```
1 select dname, ename, job from emp, dept where emp.deptno = dept.deptno
```

> SQL Query Example

< Cancel

Create

8. **Validate** your query by clicking on the 'tick' option, and click on **Create**.

9. Run your Interactive report and sort data according to a job, and then filter employee names.

InteractiveReport

Dname	Ename	Job
SALES		SALESMAN
SALES		SALESMAN
SALES		SALESMAN
SALES		MANAGER
SALES		SALESMAN
SALES		CLERK
SALES		newjob

1 - 7

To change name on the Report – if not labelled accordingly from the beginning:

Rendering: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997 998 999 1000 1001 1002 1003 1004 1005 1006 1007 1008 1009 1010 1011 1012 1013 1014 1015 1016 1017 1018 1019 1020 1021 1022 1023 1024 1025 1026 1027 1028 1029 1030 1031 1032 1033 1034 1035 1036 1037 1038 1039 1040 1041 1042 1043 1044 1045 1046 1047 1048 1049 1050 1051 1052 1053 1054 1055 1056 1057 1058 1059 1060 1061 1062 1063 1064 1065 1066 1067 1068 1069 1070 1071 1072 1073 1074 1075 1076 1077 1078 1079 1080 1081 1082 1083 1084 1085 1086 1087 1088 1089 1090 1091 1092 1093 1094 1095 1096 1097 1098 1099 1100 1101 1102 1103 1104 1105 1106 1107 1108 1109 1110 1111 1112 1113 1114 1115 1116 1117 1118 1119 1120 1121 1122 1123 1124 1125 1126 1127 1128 1129 1130 1131 1132 1133 1134 1135 1136 1137 1138 1139 1140 1141 1142 1143 1144 1145 1146 1147 1148 1149 1150 1151 1152 1153 1154 1155 1156 1157 1158 1159 1160 1161 1162 1163 1164 1165 1166 1167 1168 1169 1170 1171 1172 1173 1174 1175 1176 1177 1178 1179 1180 1181 1182 1183 1184 1185 1186 1187 1188 1189 1190 1191 1192 1193 1194 1195 1196 1197 1198 1199 1200 1201 1202 1203 1204 1205 1206 1207 1208 1209 1210 1211 1212 1213 1214 1215 1216 1217 1218 1219 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Excercise: Create another Interacative Report of your own choice, using one of the SQL queries you've produced previously in SQL&PL/SQL workbook.



Classic Reports

In contrast, except for sorting and simple filtering, end users cannot customize a classic report. The following is an example of a classic report built on top of the same data.

Report 1

Empno	Ename	Job ↑	Mgr	Hiredate	Sal	Comm	Deptno
7788	SCOTT	ANALYST	7566	19-APR-87	3000		20
7902	FORD	ANALYST	7566	03-DEC-81	3000		20
7876	ADAMS	CLERK	7788	23-MAY-87	1100		20
7900	JAMES	CLERK	7698	03-DEC-81	950		30
7934	MILLER	CLERK	7782	03-JAN-82	1300		10
7369	SMITH	CLERK	7902	17-DEC-80	800		20
7566	JONES	MANAGER	7839	02-APR-81	2975		20
7698	BLAKE	MANAGER	7839	01-MAY-81	2850		30
7782	CLARK	MANAGER	7839	09-JUN-81	2450		10
7839	KING	PRESIDENT		17-NOV-81	5000		10
7499	ALLEN	SALESMAN	7698	20-FEB-81	1600	300	30
7521	WARD	SALESMAN	7698	22-FEB-81	1250	500	30
7654	MARTIN	SALESMAN	7698	28-SEP-81	1250	1400	30
7844	TURNER	SALESMAN	7698	08-SEP-81	1500	0	30
1	jj	boss	7499	20-FEB-81	9999		30

[Download](#)

1 - 15 Next ▶

To create a classic report, developers either select a table or provide a SQL statement. Classic reports support general keyword search capability, the ability to specify the number of rows that display, and basic column sorting.



How to create a Classic Report

On the Workspace home page, click the **Application Builder** icon.

- Select the application e.g **HR_Application**
- Click **Create Page** and click **Next**.
- Click on Report.
- Select a report type - **Classic Report** and click **Next**.
- On this page: Leave the default values and Click **Next**.

- a. Follow the on-screen instructions. You could give a name to your report: Classic Report
- On the Navigation Menu page select the **second option**: *Create a new navigation menu entry* and highlight HOME page (if you have got one) in the box below.
- Type in the following query:
 - a. `SELECT dname, ename, job FROM emp, dept WHERE emp.deptno = dept.deptno`
 - b. Validate the query and click on **Next**

Create Classic Report ×

Source Type ☐ Table ☒ SQL Query ?

Enter a SQL SELECT statement ?

↶ ↷ 🔍 ↔ 📌 A.. ✓ ⚙️

Validation successful ×

```
1 SELECT dname, ename, job FROM emp, dept WHERE emp.deptno = dept.deptno
```

Column Headings: ☒ Derived from query columns ☐ Generic columns

> SQL Query Example

< Cancel
Create

- Confirm your report and click on **Create**.
- **Run** your Classic report. Values in your report may look differently, but the columns and layout will be the same:



Editing Column Attributes in Page Designer

You can edit Column attributes to precisely control the report layout. For example, you can use these attributes to alter column headings, change column positioning, hide a column, or control how users can manipulate a column.

To access Column attributes:

View the page in Page Designer. When Page Designer appears.

- In the Rendering tree, locate the region and expand the Columns node.
- The columns appear in the Rendering tree.
- Select a column to edit
- The Property Editor displays the attributes for that column.

- Edit the appropriate attributes. To learn more, see field-level Help.
- To edit the column heading:
 - Locate and expand Heading.
 - Edit the Heading and Alignment attributes.
- To control how users can manipulate a column:
 - Locate and expand Enable Users To.
 - For Enable Users To, select Yes or No to control how users can manipulate the report.
- To save your changes click Save. To save and run the page, click Save and Run
- Page.



Editing Interactive Report Attributes in Page Designer

You can edit report attributes to precisely control how a report works. For example, you can use these attributes to configure pagination, create error messages, configure the Search bar, Action menu, and download options, control if and how users save the report, and configure supported views.

To edit report attributes in Page Designer:

- View the page in Page Designer. Page Designer appears.
- In the Rendering tree, locate the region containing the report.
- Under Region, select the **Attributes** node.
- The Property Editor displays the report attributes in the Property Editor.
- Edit the appropriate attributes. To learn more, see field-level Help.
- To save your changes click **Save**. To save and run the page, click **Save and Run**

Charts

Charts are useful for showing summary data in graphical form. APEX allows you to extract data from your tables and display the results in the form of charts. A variety of chart types are available including Bar and Pie charts.

Suppose you want to display a 2D Pie chart showing the comparison of CASH against CREDIT CD purchases, you can do this using the charting facilities as follows:



Adding a Chart to a New Page

To create a **chart** on a new page:

1. On the Workspace home page, click the **Application Builder** icon.
2. Select your application
3. Click **Create Page**.
4. Select **Chart** and click **Next**.

5. For Region, select Pie and click **Next**.
6. On Page and Attribute page fill in the following:

Create Chart

×

✓

●

Page and Region Attributes

* Page Number

17

?

* Page Name

Salary percentage

?

* Page Mode

Normal

Modal Dialog

?

Breadcrumb

- do not use breadcrumbs on page -

▼

?

<

Cancel

Next >

Click **Next**.

7. Select the option *Create a new navigation menu entry* and highlight HOME page (if you have got one) in the box below and click **Next**.
8. Enter your query. In our example enter:

Create Chart ✕

✓
✓
✓
●
●

Source

Source Type ○ Table ● SQL Query ?

SQL Query ?

↶
↷
🔍
↔
📌
A-
✓
⚙️

Validation successful ✕

```
1 select dname, sal from emp, dept where emp.deptno = dept.deptno
```

Page Items to Submit ^ ?

Maximum Rows ?

<
Cancel
Next >

9. Validate query and click Next.
10. On column Mapping, please select the following:

Create Chart ✕

✓
✓
✓
✓
●

Column Mapping

Chart Type: **Pie** ?

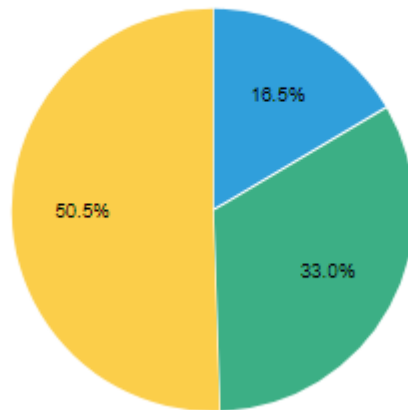
* Label Column **DNAME** ?

* Value Column **SAL** ?

<
Cancel
Create

11. Click Create and Run your page.

■ RESEARCH ■ SALES ■ ACCOUNTING ■ new



This workbook gives you basic ideas about different interface components in Apex. We suggest you investigate applications such as Sample Report and Charts for further guidance on what can be done by Apex Builder.

In your weekly folder, you've also got links to Apex pages on how to create Maps, Calendar, Charts, Reports etc.

Managing Database Application Components

Review the following using oracle document pages

[Creating Maps](#)

[Creating Calendars](#)

[Creating Charts](#)

<https://docs.oracle.com/en/database/oracle/application-express/19.1/htmldb/managing-database-application-components.html#GUID-E7598ABE-5077-4A1F-A3F9-1C89EE2B2CE8>