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We will look at views in more detail soon, but the assignment for this unit is easier with a view. A view is a select query that is given a name and the view definition is stored in the database. You can then use the view as a data source in a From clause. For the assignment you can just think of the view as a table expression and you can

- select columns from the view
- use filters against the columns in the view
- join the view to base tables using the same syntax you always use

The view we will use in the assignment and also in the subqueries demo contains a join of several tables and the purpose of the view is to hide that complexity from the queries we want to run.

1. Creating a Simple View

Demo 01: This is a very simple view that just exposes three columns for the products table for some of the rows. Note that the view is defined within a database.

```
drop view if exists Product.HW_APL;

create view Product.HW_APL as (
   select prod_id
   , prod_name
   , prod_list_price
   from Product.products
   where catg_id in ('APL', 'HW')
);
```

Demo 02: select data from the view

```
select *
from Product.HW_APL;
+---------+---------------------+-----------------+
| prod_id | prod_name           | prod_list_price |
+---------+---------------------+-----------------+
|    1000 | Hand Mixer          |          125.00 |
|    1070 | Iron                |           25.50 |
|    1071 | Iron                |           25.50 |
|    1072 | Iron                |           25.50 |
|    1080 | Cornpopper          |           25.00 |
|    1090 | Gas grill           |          149.99 |
|    1100 | Blender             |           49.99 |
|    1110 | Pancake griddle     |           49.99 |
|    1120 | Washer              |          549.99 |
|    1125 | Dryer               |          500.00 |
|    1126 | WasherDryer         |          850.00 |
|    1130 | Mini Freezer        |          149.99 |
|    1160 | Mixer Deluxe        |          149.99 |
|    4569 | Mini Dryer          |          349.95 |
|    4575 | Electric can opener |           49.95 |
+---------+---------------------+-----------------+
```

2. Using the View

Demo 03: select data from the view with a filter

```
select *
from Product.HW_APL
where prod_list_price > 100;
+---------+--------------+-----------------+
| prod_id | prod_name    | prod_list_price |
+---------+--------------+-----------------+
|    1000 | Hand Mixer   |          125.00 |
|    1090 | Gas grill    |          149.99 |
|    1120 | Washer       |          549.99 |
|    1125 | Dryer        |          500.00 |
|    1126 | WasherDryer  |          850.00 |
|    1130 | Mini Freezer |          149.99 |
|    1160 | Mixer Deluxe |          149.99 |
|    4569 | Mini Dryer   |          349.95 |
+---------+--------------+-----------------+
```

Demo 04: select data from the view with a join to a base table

```
select PR.prod_id, quantity_ordered * quoted_price as extPrice , order_id
from Product.HW_APL PR
join OrderEntry.orderDetails OD on PR.prod_id = OD.prod_id
where order_id between 110 and 115;
+---------+----------+--------+
| prod_id | ExtPrice | ord_id |
+---------+----------+--------+
|    1090 |   149.99 |    110 |
|    1130 |   149.99 |    110 |
|    1110 |    99.98 |    112 |
|    1080 |    22.50 |    113 |
|    1130 |   625.00 |    114 |
|    1000 |   200.00 |    115 |
|    1120 |  1900.00 |    115 |
|    1080 |    25.00 |    115 |
|    1100 |   180.00 |    115 |
+---------+----------+--------+
```

3. A more complex view

The next view is more complex, includeing several joins and filters and renaming the column names

Demo 05: a more complex view. Note the cast of the order date.

```
drop view if exists OrderEntry.customer_orders;

create view  OrderEntry.customer_orders as (
   select
      OH.order_id  as invoice
   ,  cast(OH.order_date as date) as orderDate
   ,  OH.customer_id  as custID
   ,  PR.catg_id  as category
   ,  OD.prod_id  as itemPurchased
   from OrderEntry.orderHeaders OH
   join OrderEntry.orderDetails OD on OH.order_id= OD.order_id
   join Product.products PR on OD.prod_id = PR.prod_id
   where OD.quoted_price > 0
   and OD.quantity_ordered > 0
);
```

Demo 06: When you use the second view, refer to the column names defined in the view. Note that if an order has more than one detail line, the view returns more than one row

```
select invoice, itemPurchased
from OrderEntry.customer_orders
where month(orderDate) = 6;
+---------+---------------+
| Invoice | ItemPurchased |
+---------+---------------+
|     306 |          1120 |
|     307 |          1120 |
|     378 |          1120 |
|     306 |          1125 |
|     307 |          1125 |
|     378 |          1125 |
|     303 |          1000 |
|     313 |          1000 |
|     540 |          1080 |
|     301 |          1100 |
|     540 |          1110 |
|     302 |          1140 |
|     540 |          1152 |
|     324 |          4576 |
|     390 |          1010 |
|     395 |          1010 |
|     302 |          1040 |
|     312 |          1040 |
|     312 |          1050 |
|     312 |          1060 |
|     312 |          1060 |
+---------+---------------+
```