

SQL : Views

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Views

- A temporary output of data
 - e.g. running a select statement to find out the value of something
 - Rather than running the select statement each time, use a view
- A **Virtual** table
 - Based on a select query

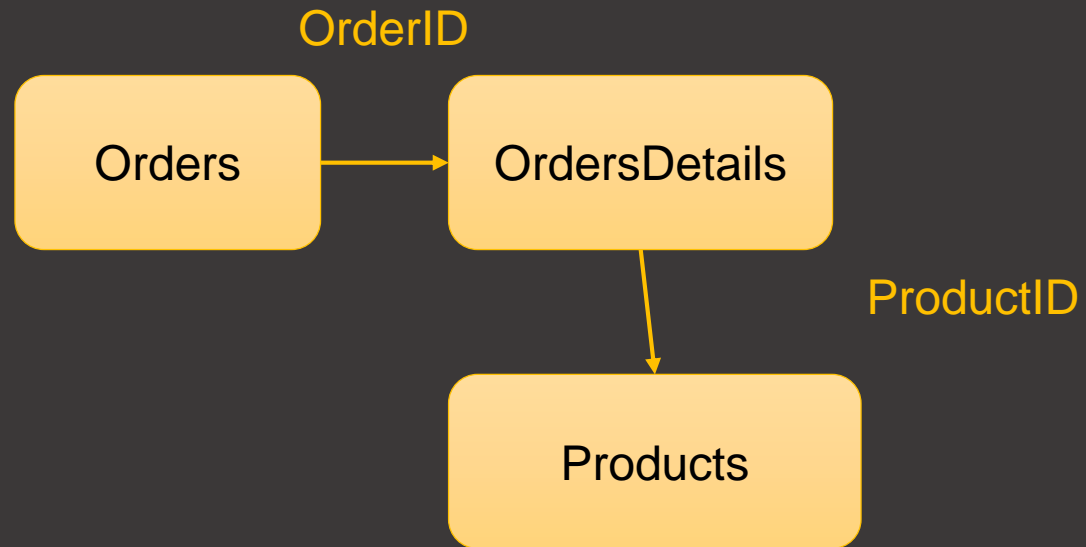
```
CREATE VIEW Sales AS
SELECT sum(OrderDetails.Quantity * Products.Price) as TotalCost,
       Orders.OrderId
FROM OrderDetails, Products, Orders
WHERE orders.OrderId = OrderDetails.OrderId
AND OrderDetails.ProductId = Products.ProductId
GROUP BY orders.OrderId
```

Views

- Centered on a **base** table
- Views look like tables to someone reading the data from them
- Never use an asterisk (*) wild card in view definitions
 - explicitly declare all columns included in a view's definition

```
CREATE VIEW Sales AS
SELECT sum(OrderDetails.Quantity * Products.Price) as TotalCost,
       Orders.OrderId
FROM OrderDetails, Products, Orders
WHERE orders.OrderId = OrderDetails.OrderId
AND OrderDetails.ProductId = Products.ProductId
GROUP BY orders.OrderId
```

Step by Step



```
CREATE VIEW Sales AS
SELECT sum(OrdersDetails.Quantity * Products.Price) as TotalCost
, Orders.OrderId
FROM OrderDetails, Products, Orders
WHERE orders.OrderId = OrderDetails.OrderId
AND OrderDetails.ProductId = Products.ProductId
GROUP BY orders.OrderId;
```

Views.. continued

- You use the name of the view where you would use an SQL statement
- Views are created each time they are invoked
 - So data in view will change as underlying data changes
- **Security feature** – restricts users to only see specified columns and rows – not everything
- Views can be used to limit end-user access to just the rows and columns that are relevant to their work
- Usually used as the basis for reports

```
SELECT * FROM Sales
```

Applications

Limit Access:

- Only expose relevant rows/columns & pre-filter the data end users have access to

Anonymize data:

- GROUP BY & aggregate calculations can provide summary statistics

Extensible design:

- Views can be joined to other views & tables to create flexible queries

Joining Tables

- Remember your SQL exercises from earlier lectures
 - Go back to it if you cannot remember.
- Throughout this module we will practice the technique

A wide-angle photograph of the University of Plymouth campus at sunset. The sky is a vibrant mix of pink, purple, and orange, with wispy clouds catching the low light. In the background, several modern university buildings with large glass windows are visible, some of which are illuminated from within. To the left, a tall, dark stone church spire rises above the trees. In the foreground, a body of water, likely the Barbican Reservoir, reflects the colorful sky. A fountain is active on the right side of the water. The overall mood is serene and picturesque.

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