

# Access to SQL

With Peter Radford and Nik Rowlands

- Explain why SQL is computational thinking
- Create SQL queries to search, replace, and insert.
- Design your own SQL queries.
- Keywords: SELECT, UPDATE, INSERT, SQL
- Challenge: Design a SQL query for your own database.

## Outcomes

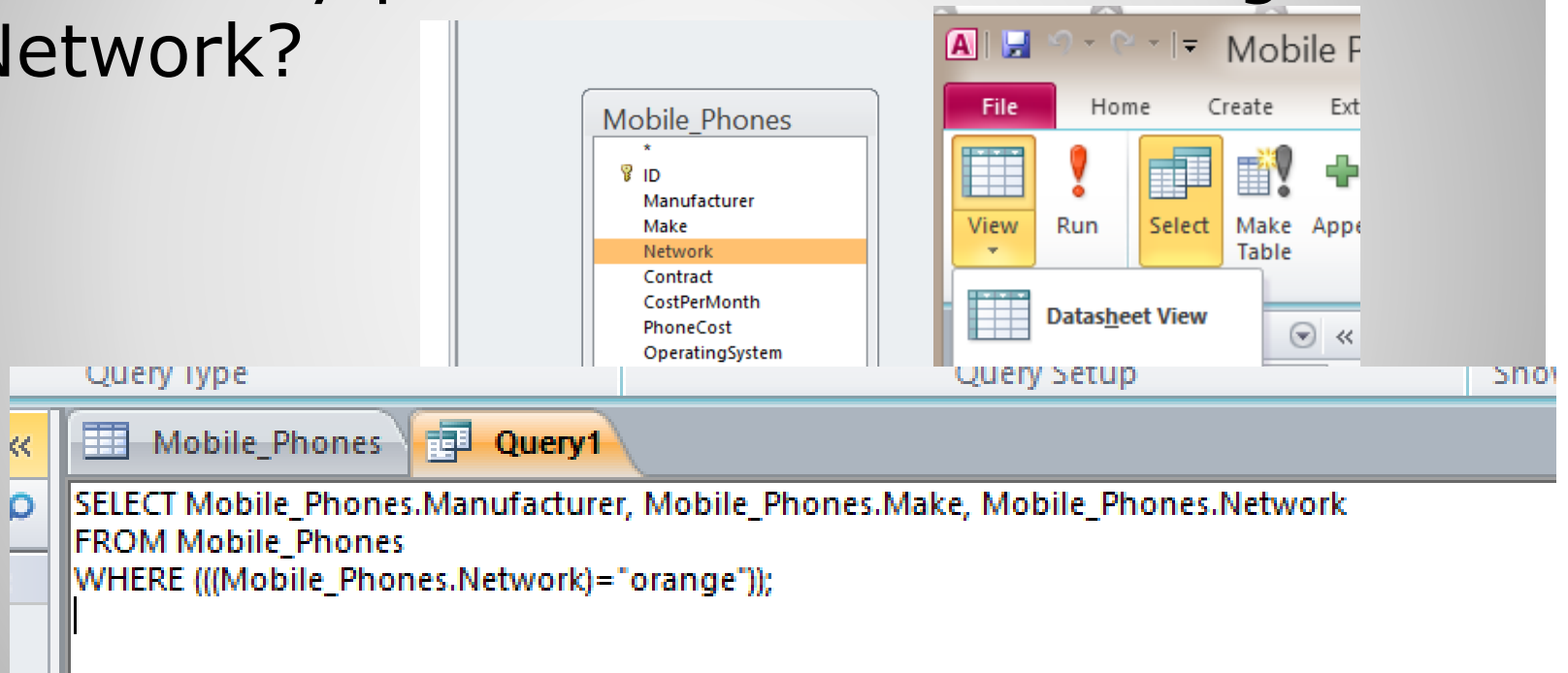
- **Computational Thinking** (CT) is a problem solving method that uses computer science techniques. The term *computational thinking* was first used by Seymour Papert in 1996. Computational thinking can be used to algorithmically solve complicated problems of scale, and is often used to realize large improvements in efficiency. (Wikipedia 😊)

## Computational Thinking

- Analyzing and logically organizing data
- Data modeling, data abstractions, and simulations
- Formulating problems such that computers may assist
- Identifying, testing, and implementing possible solutions
- Automating solutions via algorithmic thinking
- Generalizing and applying this process to other problems

## Computational Thinking

- Analyzing and logically organizing data.
- How many phones are on the Orange Network?



**Microsoft Access**

- Data modeling, data abstractions, and simulations
- Formulating problems such that computers may assist

**Computational Thinking**

- `SELECT count(*) AS phones_on_orange  
FROM Mobile_Phones WHERE  
(((Mobile_Phones.Network)="orange"))  
GROUP BY Mobile_Phones.Network;`

The screenshot shows the Microsoft Access interface. On the left, the 'Records' view of a query named 'Query1' is displayed, showing a single record with the value '7' in the 'phones\_on\_orange' field. On the right, the 'Design Grid' for the query is shown, detailing the fields and their properties.

Expression	Group By	Where
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		"orange"

## Microsoft Access - SQL

- SELECT is SQL's method of querying a database.
- What do the following queries do?
  - SELECT \* FROM Mobile\_Phones;
  - SELECT \* FROM Mobile\_Phones ORDER BY Network;
  - SELECT \* FROM Mobile\_Phones WHERE ((Mobile\_Phones.Contract) = "Monthly");
  - SELECT Make FROM Mobile\_Phones GROUP BY Make;
  - SELECT Manufacturer, COUNT(\*) as total\_phones FROM Mobile\_Phones GROUP BY Manufacturer;

## Microsoft Access - SQL



- UPDATE does exactly what it says on the tin.
- Syntax:
- UPDATE *table* SET *newvalue* WHERE *criteria*;
- UPDATE Mobile\_Phones SET Network = 'Vodafone' WHERE Network = 'Vodaphone';
- There are 3 Lumia phones which have been misspelt as Lumnia.

**Microsoft Access - SQL**

- INSERT
- Syntax
- INSERT INTO *target* [(*field1*[, *field2*[, ...]])] VALUES (*value1*[, *value2*[, ...]])
  
- MAKE SURE THE DATASHEET VIEW IS CLOSED!
  
- INSERT INTO Mobile\_Phones (ID, Manufacturer, Make, Network, Contract, CostPerMonth, PhoneCost, OperatingSystem) VALUES (31, 'Apple', 'IPhone6', 'Orange', 'Monthly', '£49.99', '£59.99', 'IÓS');

**Microsoft Access - SQL**

- Identifying, testing, and implementing possible solutions
- Automating solutions via algorithmic thinking
- Generalizing and applying this process to other problems

```
<?php
#DATABASE CONNECTION

$connect = mysql_connect("localhost","username","password") or die("Couldn't Connect");
mysql_select_db("databasename") or die ("Couldn't find DB");

#Fetch fixture list from database

$queryFixtures = "SELECT * FROM Fixtures ORDER BY FixtureDate, FixtureTime DESC";
$resultFixtures = mysql_query($queryFixtures);

#fetch team lists from database

$queryTeams = "SELECT * FROM Teams ORDER BY TeamName";
$resultTeams = mysql_query($queryTeams);

?>
```

# Computational Thinking