Computing

Lesson 2: SQL Searches
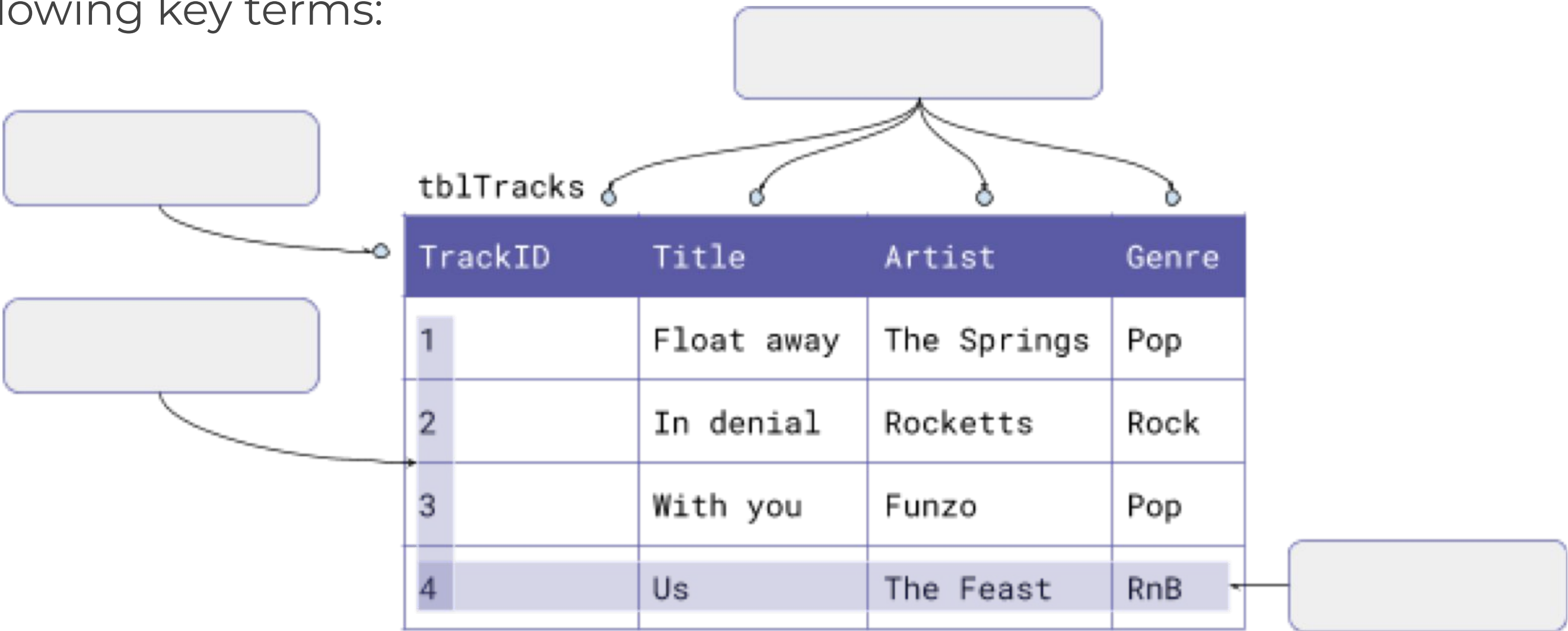
Databases and SQL

Ben Garside

Task 1 - Keyword recap activity

label the database and fill in the missing
blanks with the following key terms:

- Record
- Fields
- Table
- Primary Key
- Foreign Key

tblTracks

TrackID	Title	Artist	Genre
1	Float away	The Springs	Pop
2	In denial	Rocketts	Rock
3	With you	Funzo	Pop
4	Us	The Feast	RnB

Task 2 – Retrieving data with SQL (Operators)

For this activity you will need:

- DB Browser for SQLite
- A copy of the dbMusic.db file which you used last lesson.

Comparison operator	Function
=	Equal to
>	Greater than
<	Less than
=>	Greater than or equal to
<=	Less than or equal to
<>	Not equal to

Task 2 – Retrieving data with SQL (operators)

Logical operator	Function	Example
AND	TRUE if both conditions are TRUE	SELECT * FROM tblTracks Genre = "Pop" AND Artist = "The Springs";
BETWEEN	TRUE if the range is within the comparisons	SELECT * FROM tblDownloads WHERE Time BETWEEN "06:00" AND "07:00";
OR	TRUE if any of the conditions are TRUE	SELECT * FROM tblTracks WHERE Genre = "Pop" OR Genre = "Rock";

Task 2 – Retrieving data with SQL (Code snippets)

Select all of the columns and records from the tblTracks **table**

```
1 SELECT *
2 FROM tblTracks;
```

Select the Title **and** Artist **columns from the** tblTracks **table where the** Genre **is not equal to** Pop**.**

```
1 SELECT Title, Artist
2 FROM tblTracks
3 WHERE Genre <> "Pop";
```

Task 2 part 1 – Retrieving data from the tblTracks table

Retrieve data from the tblTracks table

For each question, design an SQL search that will reveal the answer.

Question 1: How many tracks in the database have the genre Rock ?

Answer	
Code	

Task 2 part 1 – Retrieving data from the tblTracks table

Retrieve data from the tblTracks table

For each question, design an SQL search that will reveal the answer.

Question 2: How many tracks in the database are created by the artist A Box of Spoons ?

Answer

Code

Task 2 part 1 – Retrieving data from the tblTracks table

Retrieve data from the tblTracks table

For each question, design an SQL search that will reveal the answer.

Question 3: How many tracks in the database have a TrackID that is greater than 30 and are of the Soul genre?

Answer

Code

Task 2 part 2 – Retrieving data from the tblDownloads table

Retrieve data from the tblDownloads table

For each question, design an SQL search that will reveal the answer.

Question 1: How many downloads were made in 2011?

Answer

Code

Task 2 part 2 – Retrieving data from the tblDownloads table

Retrieve data from the tblDownloads table

For each question, design an SQL search that will reveal the answer.

Question 2: How many tracks were either downloaded before 6AM or after 10PM?

Answer

Code

Task 2 part 3 – Using ORDER BY

You can change the order of the retrieved records by sorting the data into ascending or descending order. The following steps will show you how this works.

Step 1: Take a look at the code snippet below. What do you think will happen when the data is retrieved?

```
1  SELECT *
2  FROM tblMembers
3  ORDER BY Surname ASC;
```

Task 2 part 3 – Using ORDER BY

Step 2: Copy the code into DB Browser and execute it. Was your prediction correct?

Answer

Task 2 part 3 – Using ORDER BY

Step 3: Change the final three letters from **ASC** to **DESC**.

```
1 SELECT *
2 FROM tblMembers
3 ORDER BY Surname DESC;
```

What changed compared to when you used **ASC**?

Task 2 part 4 – Sorting retrieved data

For each question, design an SQL search that will reveal the answer.

Question 1: What is the TrackID of the first ever download recorded in the database?

Answer

Code

Task 2 part 4 – Sorting retrieved data

For each question, design an SQL search that will reveal the answer.

Question 1: What is the earliest time of day that a track has been downloaded?

Answer	
Code	

Task 3 – Retrieving data from more than one table

For this activity you will need:

- DB Browser for SQLite
- A copy of the dbMusic.db file which you used last lesson
- Slides 4 and 5 on this worksheet to remind you of the operators

Task 3 – Code snippet

This query does the following:

Select the Surname, Download and Title columns from the Members, Downloads and Tracks table. Specify the links between the three tables and retrieve the data for the member with the surname Bibi.

```
1  SELECT tblMembers.Surname, tblDownloads.DownlID, tblTracks.Title
.  FROM tblMembers, tblDownloads, tblTracks
3  WHERE tblMembers.MemberID = tblDownloads.MemberID
4  AND tblTracks.TrackID = tblDownloads.TrackID
5  AND tblMembers.Surname = "Bibi";
```

Task 3 questions

Design an SQL search that will reveal the answer.

Question 1: How many tracks has Percy Winn downloaded?

Answer

Code

Task 3 questions

Design an SQL search that will reveal the answer.

Question 2: How many Pop tracks were downloaded in the year 2012?

Answer

Code

Task 3 questions

Design an SQL search that will reveal the answer.

Question 2: What was the title of the first track downloaded in 2014?

Answer	
Code	

Task 3 questions

Design an SQL search that will reveal the answer.

Question 3: How many downloads did Nadim Abe make after 1st January 2013?

Answer

Code

Task 4 – Parson's puzzle

The code below has been jumbled up. The SQL search should list the title of the tracks that users with the surname Ferner have downloaded. Place the code into the correct order.

```
WHERE tblMembers.MemberID = tblDownloads.MemberID
FROM tblMembers, tblDownloads, tblTracks
AND tblMembers.MemberID = 1;
AND tblTracks.TrackID = tblDownloads.TrackID
SELECT tblMembers.Surname, tblDownloads.DownlID, tblTracks.Title
```

Answer