Using Microsoft Access

Relational Queries

Creating a query can be a little different when there is more than one table involved. First of all, if you want to create a query that makes use of more than one table, it is necessary to make sure the tables have the necessary relationships created. Secondly, in your query design, you will be selecting fields from more than one table, which could be a little confusing.

In the following exercises, we will be using a database called *Music Collection 2.accdb*. This is similar to the one you created in the previous exercises. The only difference is that it has a lot of CD and Songs records already entered. If this database is not available, you can enter some of your own records in to the one you have created, but the exercises will assume you are using records in the *Music Collection 2.accdb* database.

Exercise 1.   Checking the Existing Records

1. Begin by opening the *Music Collection 2.accdb* database.
2. Open the *CDS* table. 11 CDs have already been entered.

| CD #	CD Title	CD Type	Label	Released	Purchased	Cost	Cover
1	Stoney	Album	UMG Recordings	2016	13/04/17	$19.99	Picture
2	Guardians of the Galaxy: Awesome Mix Vol. 2	Soundtrack	Marvel Music Inc	2017	17/01/19	$15.99	Picture
3	Back In Black	Album	EMI	1980	21/11/08	$22.00	Picture
4	Wiggle Town	Album	The Wiggles Pty, L	2016	30/06/18	$10.99	Picture
5	No Tourists	Album	Take Me To The F	2018	11/11/18	$16.00	Picture
6	NOW Vol. 1 2018	Compilation	Universal Music A	2018	03/05/18	$10.99	Picture
7	Divide	Album	Asylum Records U	2017	10/02/19	$12.99	Picture
8	Thriller	Album	Epic	1982	04/10/91	$25.00	Picture
9	Thank U, Next	Album	Republic Records	2019	10/01/19	$14.99	Picture
10	The Dark Side of the Moon	Album	Harvest	1973	15/08/94	$19.99	Picture
11	The 20/20 Experience	Album	RCA	2013	10/02/14	$19.99	Picture

3. Close the table and open the *SONGS* table. Songs for each of the CDs in the *CDS* table have already been entered.

| Song #	Song Title	Artist	Genre	Duration	Track #	CD #
67	Resonate	The Prodigy	Club	03:50	9	5
68	Give Me a Signal	The Prodigy	Club	04:01	10	5
69	I fall Apart	Post Malone	Hip-hop	03:44	1	6
70	What Lovers Do (feat. SZA)	Maroon 5	Pop	03:19	2	6
71	Stargazing (feat. Justin Jesso)	Kygo	Pop	03:57	3	6
72	Lonely Together (feat. Rita Ora)	Avicii	Pop	03:02	4	6
73	Take Cover	Jordie Ireland	Pop	04:04	5	6

4. Close the table.

Exercise 2.   Creating a Relational Query

1. Select the **Create** tab on the **Ribbon**.
2. Click **Query Design**.
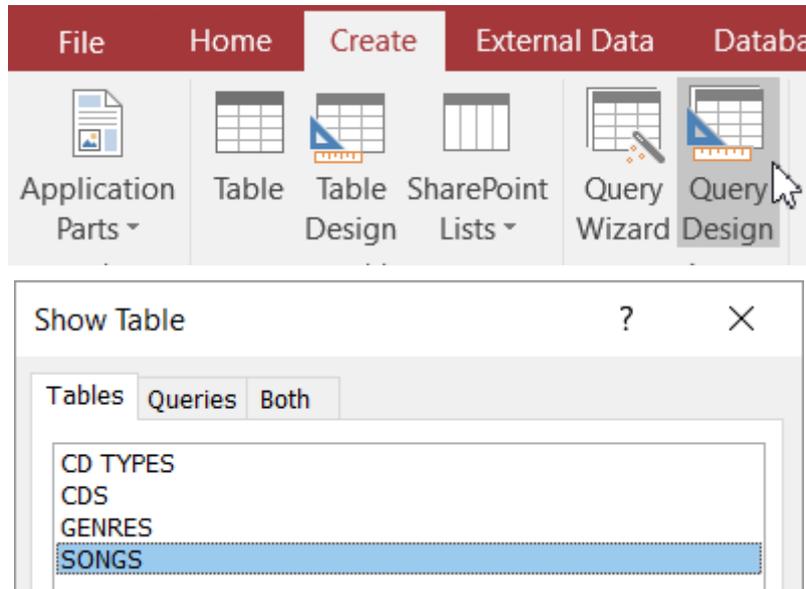
3. Double-click on *CDS* and *SONGS* to add them both to the *Query Design* window.
4. Click **Close** to close the *Show Table* dialog.
5. Resize and adjust your design window so that you have enough room to work with.
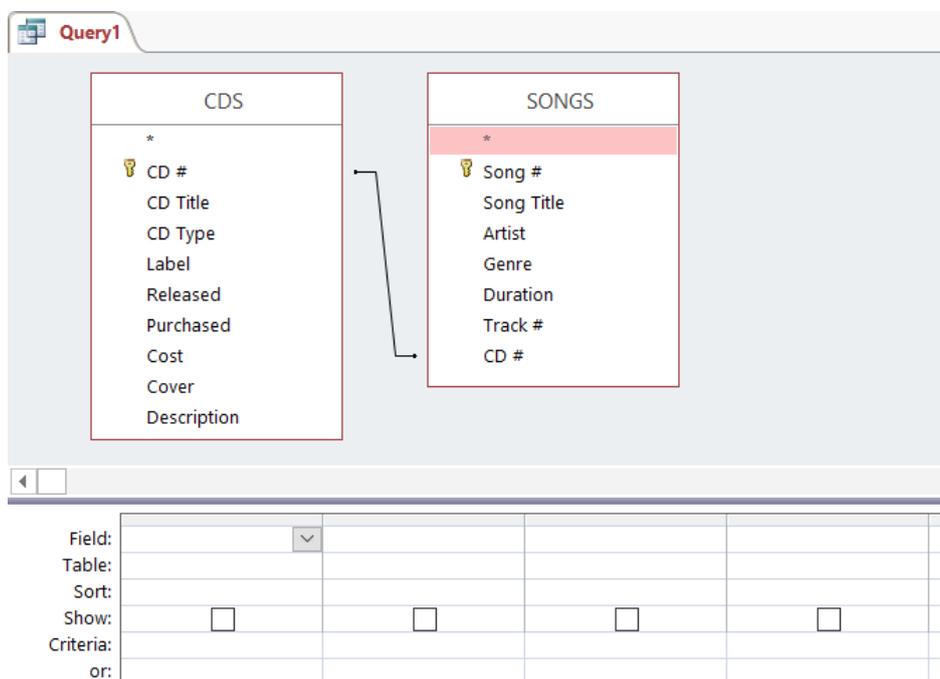
We will start by creating a query which shows all songs by a particular artist. We want the results of the query to display some fields from the *SONGS* table and some fields from the *CDS* table so we know which CD each song is found on.
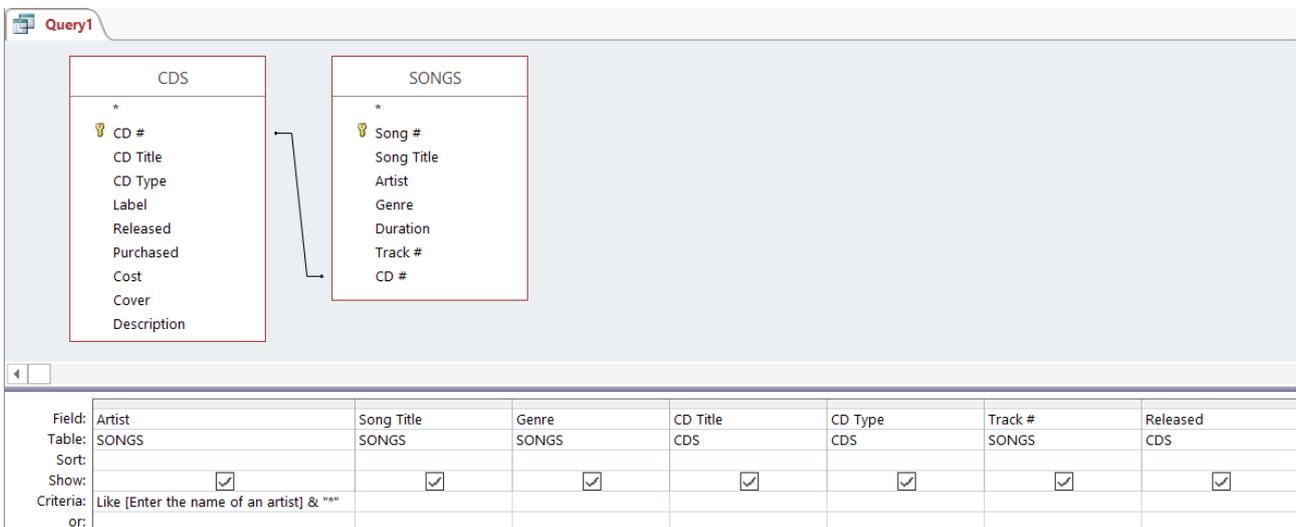
6. Double click on each of the following fields to add them to the **QBE** (Query by Example) grid.

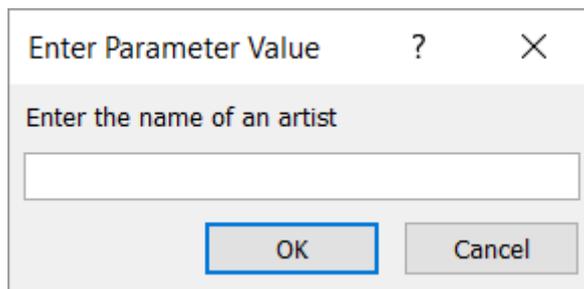| Field	From table:
Artist	SONGS
Song Title	SONGS
Genre	SONGS
CD Title	CDS
CD Type	CDS
Track #	SONGS
Released	CDS

7. Under the Artist field, enter the following parameter criteria:

*like [Enter the name of an artist] & ***

Your query design should look similar to the example below.


8. Click the **View** icon to test the query.

9. For the criteria, enter *post* and click **OK**.

Post Malone	Congratulations (feat. Quavo)	Hip-Hop	Stoney	Album	12	2016
Post Malone	Up There	Hip-Hop	Stoney	Album	13	2016
Post Malone	Yours Truly, Austin Post	Hip-Hop	Stoney	Album	14	2016
Post-Malone	I fall Apart	Hip-hop	NOW Vol. 1 2018	Compilation	1	2018

In the query results, you may notice that one of the artist entries in the results is spelt differently from the others (the last one in the above example). If we hadn't used a wildcard, we would only see entries that were exactly the same as the criteria so that one may not have appeared.

10. Correct the differently spelt entry so that it is the same as the others.

11. Click the **Save** icon 🖫 to save the Query.
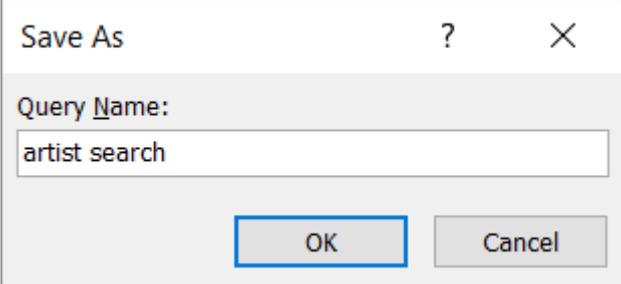
Save As   ?   ✕

Query Name:

artist search

OK   Cancel

12. Enter *artist search* as the query name.
13. Close the query.

| Note	Query results are really just a selection of data from the tables in the database. When you edit data in a query result, it is just the same as editing the data directly in the tables.

Relational Reports

Creating a report in a relational database is much the same as creating a report from a single table database. You can create a report directly from the table(s) or you can create a report based on a query (which in many cases is based on more than one table).

Exercise 3.   Creating a Multi-table Report

In the following exercise, we will create a report based on more than one table, which will list all of the songs in the database grouped by genre.

1. Select the **Create** tab on the **Ribbon**.
2. Click ⬚ Report Wizard
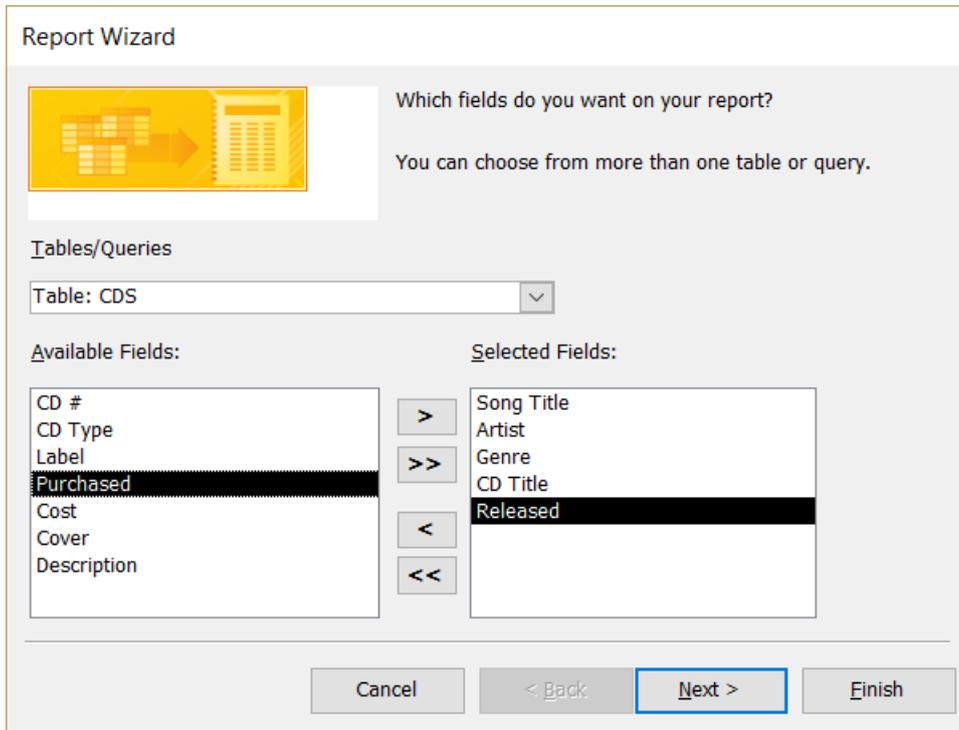
3. Select the following fields for the report (Use the Tables/Queries list to select which table you are viewing fields from).

Field Name	From Table:
Song Title	SONGS
Artist	SONGS
Genre	SONGS
CD Title	CDS
Released	CDS

4. Click **Next** to continue.

5. For the next step of the wizard, make sure view by *SONGS* is selected and click **Next** to continue.
6. In the next step, **double-click** on *Genre* in the list of fields to add that field as a grouping level. This is because we want the songs grouped by their genres.

7. Click Next to continue.
8. For the sorting order, choose *Song Title* and the *Artist* as shown below, then click **Next** to continue.

9. Leave the layout as **Stepped** and click **Next**.
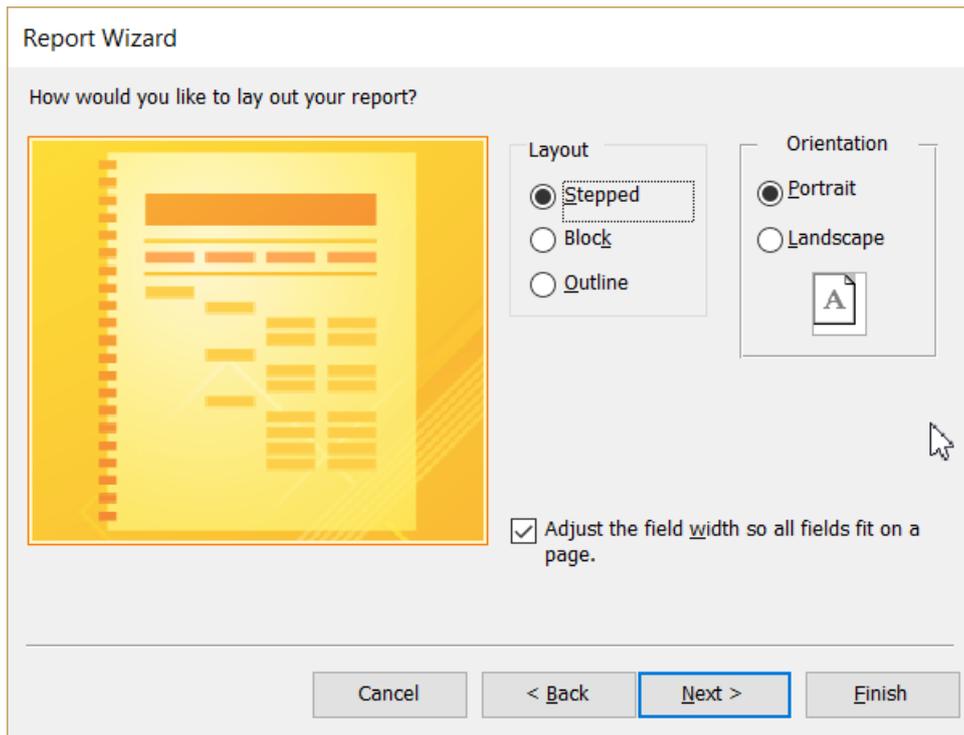
10. For the report title (and main heading) enter *Songs by Genre*. Click **Finish** when done.

Songs by Genre

Genre	Song Title	Artist	CD Title
Club			
	17	MK	NOW Vol. 1 2018
	Boom Boom Tap	The Prodigy	No Tourists
	Champions of London	The Prodigy	No Tourists
	Fight Fire with Fire	The Prodigy	No Tourists
	Give Me a Signal	The Prodigy	No Tourists
	Light Up the Sky	The Prodigy	No Tourists
	Need Some1	The Prodigy	No Tourists
	No Tourists	The Prodigy	No Tourists
	Resonate	The Prodigy	No Tourists
	Timebomb Zone	The Prodigy	No Tourists
	We Live Forever	The Prodigy	No Tourists
Funk			
	Billie Jean	Michael Jackson	Thriller
	Blue Ocean Floor	Justin Timberlake	The 20/20 Experience
	Body Count	Justin Timberlake	The 20/20 Experience

11. Close the report when finished. It will already have been saved as part of the wizard.

## Exercise 4.   Report Modifications

1. Right-click on the *Songs by Genre* report in the **Navigation Pane** and select **Design View**.
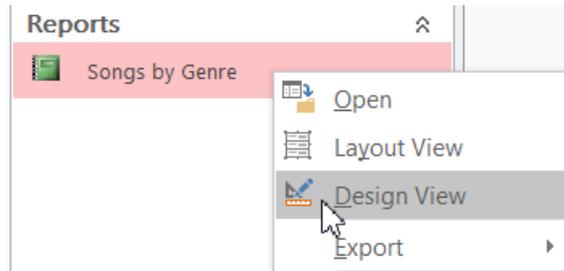
 We will put a text box in the Report Footer that will display the total number of songs listed in the report.

2. Make sure the **Report Design Tools – Design** tab is selected on the **Ribbon**.

3. Click the Text Box icon. **ab**

4. Click in the middle of the Report Footer area to place the textbox. The footer area will expand to make room for the text box.
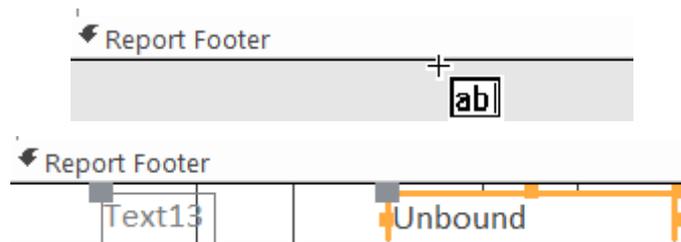
A Text Box will be created in the position you clicked on with a label to the left of it (remember to leave room for the label to the left of the textbox when you place it)

5. Click in the Label and change the text from *Text13:* to *Total Songs*.
6. Click in the Text Box (which currently shows *Unbound*) and enter *=count([Song Title])*.
7. Position the label and textbox to the right of the Report Footer area. You can drag them with the mouse as shown.
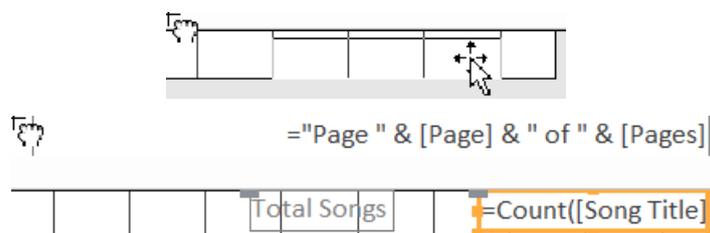
Note   Dragging on a textbox or label will have a different effect depending on where you are dragging from. E.g.

Dragging on one of the squares around the border Re-size the textbox

Dragging on a border of the object Move the object and linked caption/textbox

Dragging the top-left corner of the object will Move the object without linked caption/textbox

8. Select the **Report Design Tools – Format** tab on the **Ribbon**.

Design	Arrange	Format	Page Setup

9. Make sure the textbox is selected and click the **Align Left** icon ☰ so that the resulting total will appear in the left of the textbox area.
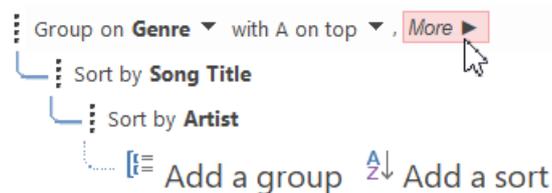
Now we will copy this total so that a total will also appear after each genre group. First we will need to make sure there is a space to put a genre total. The genre header and footer will repeat for each genre in your report. If you look in your report design you will see that there is a Genre Header but no Genre Footer.

10. Select the **Report Design Tools – Design** tab on the **Ribbon**.
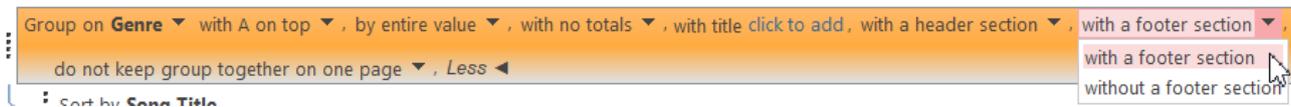11. Click the **Group & Sort** icon.

Group, Sort, and Total

Group on **Genre** ▼ with A on top ▼ , More ▶

Sort by **Song Title**

Sort by **Artist**

[≡ Add a group   ᴬ↓ Add a sort

12. Click **More** to see additional options.
13. Change **without a footer section** to **with a footer section**.

Group on **Genre** ▼ with A on top ▼ , by entire value ▼ , with no totals ▼ , with title click to add , with a header section ▼ , with a footer section ▼ ,
do not keep group together on one page ▼ , Less ◀

with a footer section
without a footer section

Sort by **Song Title**

14. Re-size the new Genres Footer so that it is about ½ cm high as shown (each square represents 1cm).

✦ Genre Footer
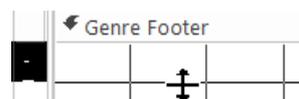
15. Select the textbox if it is not already selected. You will know it is selected when it is surrounded by selection boxes. =Count([Song Title])
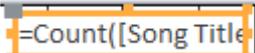
16. Select copy by clicking the 🗎 Copy icon on the Ribbon's **Home** tab (or by using another method such as the **Ctrl C** keyboard shortcut).

17. Click on the *Genre Footer* to select it. ✦ Genre Footer

18. Paste a copy of the selected textbox by clicking the **Paste** icon (or any other method such as the **[Ctrl] [V]** shortcut). A copy of the textbox and the linked label will both appear in the *Genre Footer* area. If it's too big to fit then the footer area will expand.

✦ Genre Footer

Total Songs   =Count([Song Title])
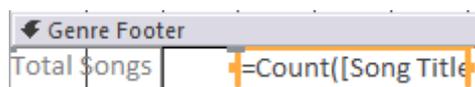
We could drag the new total so that it lines up with the one in the Report Footer but you can easily be more precise using some of the built-in tools.

19. Click on the textbox in the *Genre Footer* if it is not already selected.

20. Hold down **[Shift]** and click on the textbox in the *Report Footer*. Both textboxes will be selected as shown.
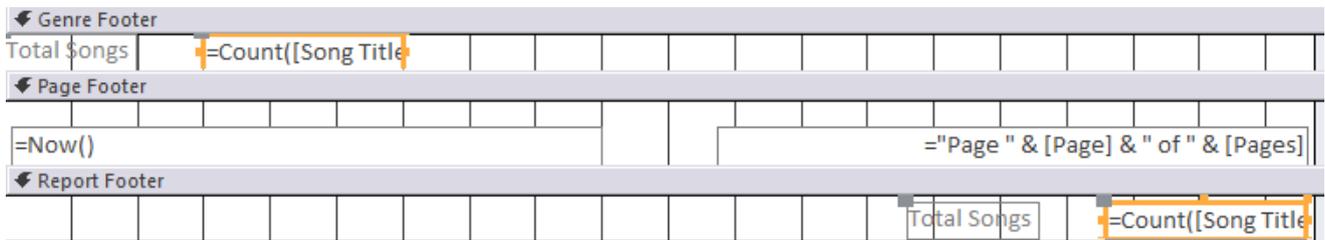
21. Select the **Report Design Tools – Arrange** tab on the **Ribbon**.
22. Click the **Align** icon and select **Right**. Both textboxes will now be lined up along their right edges.
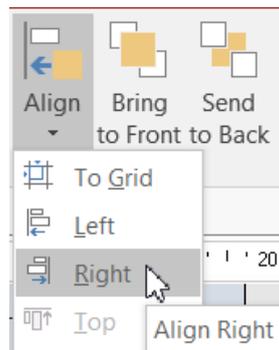
23. Follow the same procedure to line up the *Total Songs* labels as so that the report design appears as shown.
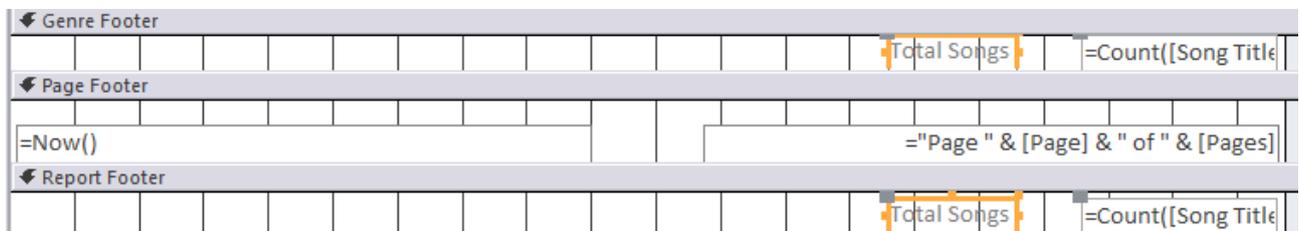
The last thing we will do is to change the properties of the Genre Header. Some of the genres will go over more than one page. We will change the properties to make sure that the header is repeated at the top of each page in these cases.

24. **Right-click** on the **Genre Header** and select **Properties**.

25. Find the **Repeat Section** property (under either the **Format** or **All** tab) and change it to *Yes*. Close the properties panel.
26. Save the changes and click the **Preview** icon in the bottom right corner, to view the changes.
27. Close the report when done.

| **Tip** | Remember that whenever you are modifying properties in Access, you can press the **[F1]** key for a detailed explanation of any property you have selected. It's a great way to learn about all of the different properties, many of which can be extremely useful. |

Relational Forms

Creating a form that is based on more than one relational table provides an easy way to add or edit data in your database. In the example that we have been working on, when a new CD is entered in to the database, the user will most likely want to enter details of songs on that CD straight away. The CD details and Song details are in separate tables but we can use a form to bring it all together in the same place.

Exercise 5.   Creating a Relational Form

1. Select the **Create** tab from the **Ribbon**.
2. Click 🔲 Form Wizard
3. From the list of **Tables/Queries** select *Table: CDS*.
4. Click the **>>** button to select all of the fields from this table.
5. Use the **Tables/Queries** list again to select *Table: SONGS*.
6. **Double-click** on the following fields from the *SONGS* table – *Song Title*, *Artists*, *Genre*, *Duration* and *Track #*. Click **Next** when done.
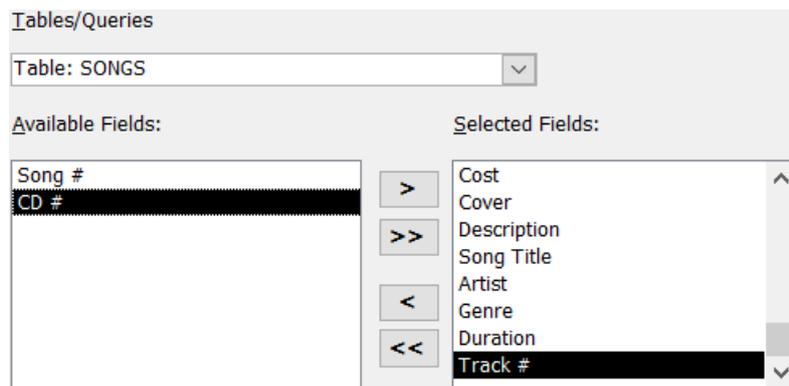
The next step asks how you want to view the data in the form. The default option is a **Form** with a **Subform**. That means that the wizard will actually be creating two forms. One form will be a small form showing song details. This form will be displayed inside a larger form containing the CD details. Because of the relationship between the CDS and SONGS table, the songs subform will only show the songs for the CD that is being displayed in the main form.
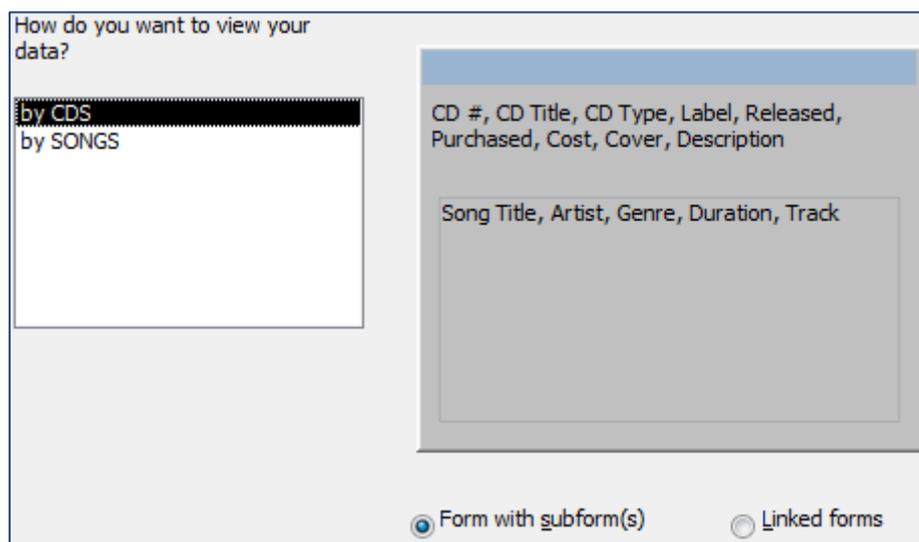
7. Make sure that by *CDS* is selected and click **Next**.
8. The next step asks how you want the subform to appear while it is in the main form. Make sure **Datasheet** is selected so that the subform will appear as a table.
9. Click **Next** to continue.
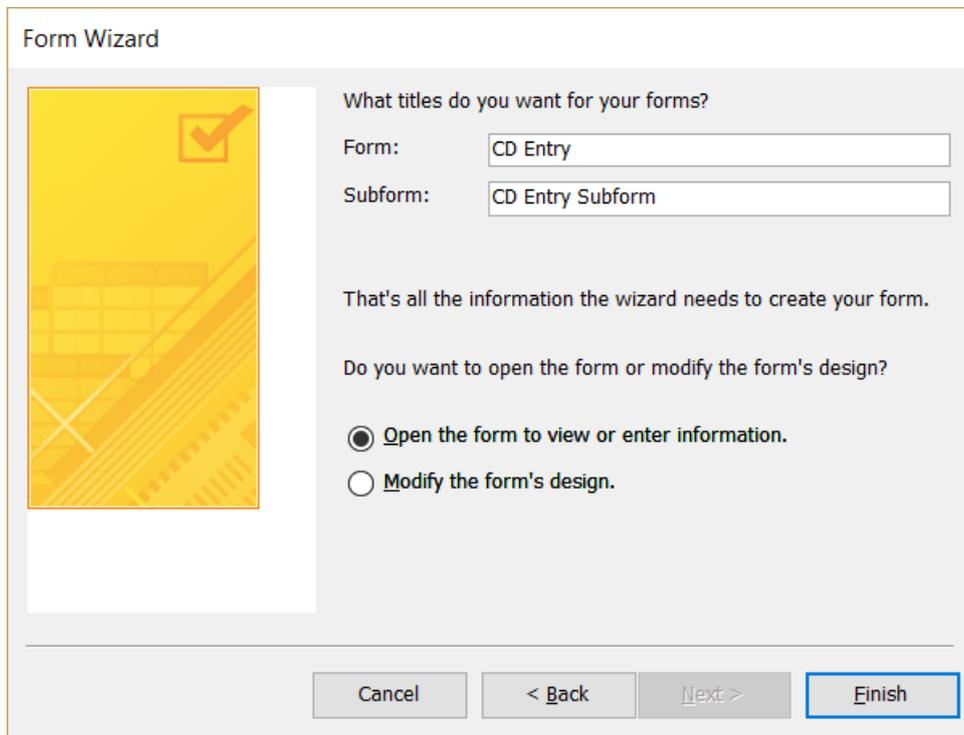
10. In the last step you can specify names for both the main form and the subform. Call the first form *CD Entry* and the second form *CD Entry Subform* as shown above.
11. Click **Finish** to complete the wizard. The completed forms will be automatically saved and then displayed together as a form with a subform inside.
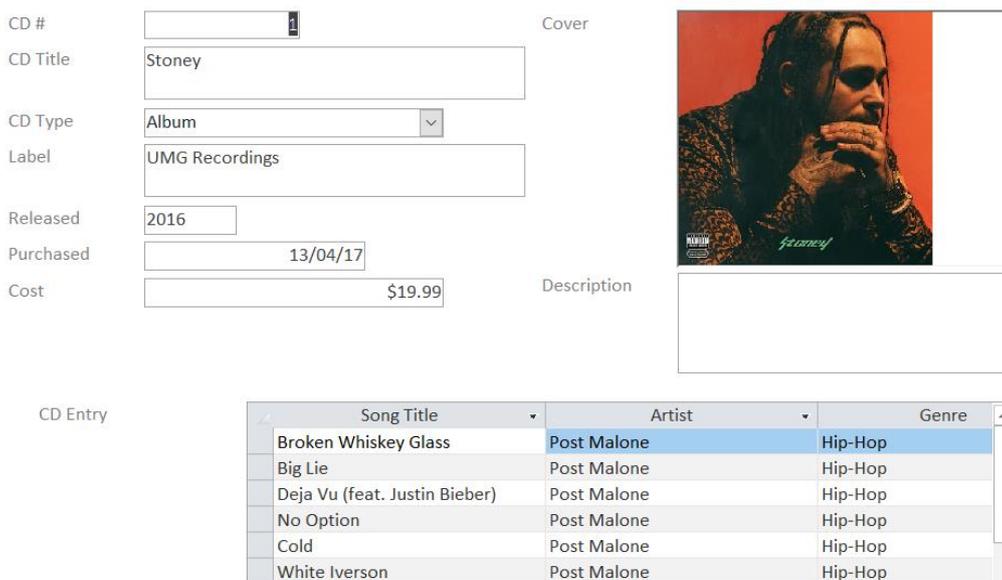
12. Click the next record button at the bottom of the form a few times to see how the CDs display in the form. Notice the songs on each CD displayed in the subform. Record: I◄ ◄ 1 of 11 ► ►I ►⊞
13. Close the form when complete.

Exercise 6.   Customising a Form

Once a form has been created it can be customised to suit your needs and tastes. What follows are a few examples of ways a form can be modified. Once you have completed this exercise, you may want to experiment with further modifications to your own form. While you are working on design changes in a form it is a good idea to save the changes periodically.
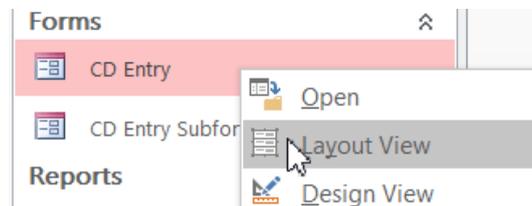
1. **Right-click** on the *CD Entry* form and select **Layout View**.

The **Layout View** allows you to modify the design of the form, while still being able to see the data displayed in the Form. This makes it a lot easier to place objects so that they look neat.

2. The *CD Entry* label next to the subform isn't really needed and it's taking up space that could be used for the subform itself. Click on the label so that it is selected as shown below and press the **[Delete]** key to remove it.


3. Click on the subform to select it.
4. Move your mouse over the border on the left of the subform and drag to the left so that it extends to the left edge of the main form.
5. Resize the right edge of the subform also to make it as wide as the main form if necessary.

6. Resize the Cover image box so that it is just large enough to fit the cover image. In this database the images are all the same size so making the containing box the same size will make it nice and neat.
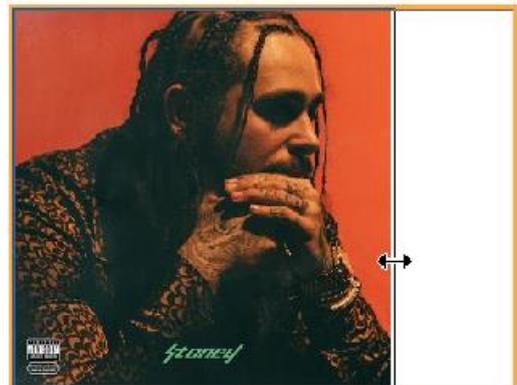
7. Resize and re-position the elements on the form so that they all look neater. Remember to re-size any labels or text boxes that are too small to fit the text. Below is an example of how they could be positioned.

8. Next we'll do is resize the columns in the subform to make them fit better. Move your mouse between the column headings and drag left or right to adjust the column width.

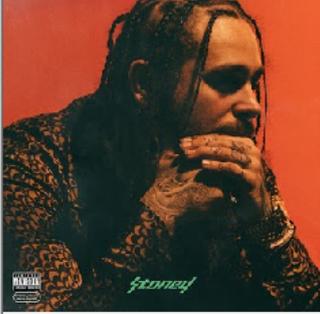9. Re-size all of the columns until the form appears similar to the example shown.

10. Change to **Form View** so you can see the form in use with the changes. Remember you can change views by using the View icon on the ribbon or by using the icons in the bottom corner.

11. Use the Form navigation buttons to view some of the different CDs in the form.
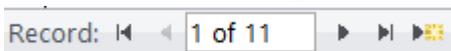
Make sure you use the navigation buttons at the bottom of the form. The other navigation buttons directly beneath the subform are for selecting Songs within the subform.

Tip   You can press the **Page Up** and **Page Down** keys to switch between records in a form.

12. Save and close the form when done.