Microsoft Access I

1.) Opening Microsoft Access from the Windows Button

- Click the **Windows** Button on the bottom left corner of the desktop screen.
- Click **All Programs -> Microsoft Office Folder -> Microsoft Office Access**

2.) Getting Started With Access

- When you open Access, you have the option to work with pre-made database templates or create a new database from scratch.
- You may click on any templates from the "Featured Online Templates" options if you have Internet access or from the "Local Templates" area to find databases already preloaded on Office you either downloaded from the Internet or purchased.
- When using a template, Microsoft assumes that you already know how to modify the template to fit your particular needs. *You may find help when using a template on Microsoft's website. www.support.microsoft.com
- In this class we will create a database from scratch. Double-click on **Blank Database.**
- In the **File Name** box, name your database. **In this class, name it "Music"** *You may notice the file path under the database name. That is where the database will be saved. You may click on the folder image to change where you want to save.
- **Click the Folder Icon -> Save to the desktop, and SAVE AS .accdb**
- **Click the Create button.**

3.) Creating Fields in a Table (All Access databases will have at least one table)

- After clicking the Create button, a blank table will appear waiting for your data with one field (ID) already showing up.
- **Click** the *Add New Field* heading -> select **text**.
- **Type in Album Title -> Press the Enter Key**
- **Name the other columns by repeating the previous steps:**
  -Artist - Rating - Condition – Media
- **Right click** the *ID* field, and select **Rename Column.** Rename the column to Album ID and press **Enter.**
- **Double click** on the *New* cell. In the Fields tab on the ribbon, in the Data Type & Formatting group, make sure the Data Type field is showing **AutoNumber and Unique has a check mark.**
  *AutoNumber will assign a unique id number to each record which is what we need to create a primary field and key to link other tables. Notice the drop down option next to AutoNumber. There are several different options you can select to add specific **Data Types** and formatted data into a field. **We are not checking the "Is Required" box in the ribbon for the Album ID field because it is our primary field and does not need the box checked. The database will automatically insert unique numbers in each record for us.
- Click on the **Album Title** field; check **Is Required** in the Datasheet tab. This will make the field required for every record on this table.
- Click on the **Artist** field; check **Is Required** in the Datasheet tab. *We are making these fields required for every record on this table. This implies that every album we enter into this table
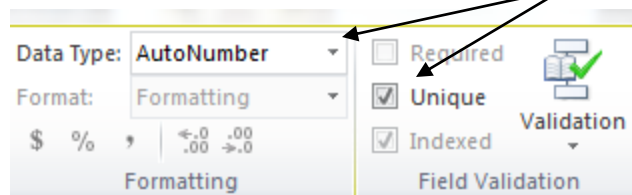
- Click on the **Rating** field; change the Data Type to **Number** because we will rate each album on a scale of 1 to 10. **-> Leave all other fields alone.**

4.) Editing Fields and Saving a Table

- **To Rename a Field:** Right click on the word **Media. ->** Select **Text ->** type **Media Type.** This field will tell us if our album is a CD, MP3, Vinyl or other format.
- **Double Click on the *Add New Field* text. Select **Text.** Type **Format ->** Press the **Enter Key.** This new field will tell us if the album is digital, physical or both.
- To move the Format field before the **Media Type** field, simply hold down the left mouse button just below the text "Format" and drag the mouse in-between the Condition and Type fields and let go of the mouse button.
- To delete a field, simply right click on the field title and select **Delete Column. Right Click** on **the Condition** field. Select **Delete Column.** The column will be removed. *Now look at the **Undo** button on the Ribbon. In most cases, it is grayed out. Meaning, you cannot 'undo' the deleted column when there are no records in the field. We will have to retype the Condition field and move it back.*
- The easiest way to save the table is to go to the Quick Access Toolbar on the upper left hand corner of the Access screen and click on the diskette. *I recommend using the Quick Access Toolbar to save because we will be saving very often to update changes to our database. However, you can still use the Office Button to save.*
- **Click the Save Diskette on the Quick Access Toolbar ->** Name the table **Album -> Click the Save Button.** In the left navigation bar to the left of the Access screen, you will see Table 1: Table change to Album : Table.
- So far your table should look like this:
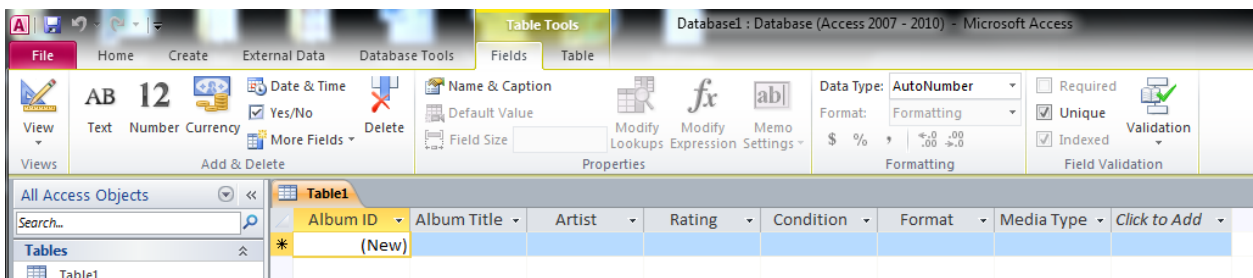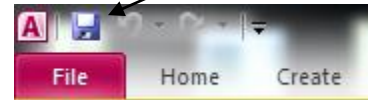
5.) Entering Records into the Album Table

- The Album Table looks very similar to a spreadsheet that we have seen in Excel. It is broken down into columns and rows. However, each row is considered a record. **Now, data entry!**
- Click on the first record under Album ID if you are not there and press the **Tab Key** to move over to Album Title. Type **Aphrodite and press the tab key.**
- The **Album ID** auto filled with a unique number and the *New* went down a row.
- Artist is **Kylie Minogue** -> **Tab**
- **Rating-> 10 ; Condition -> Excellent ; Format -> Digital ; Media Type -> MP3**
- After typing MP3, press the **Enter** key to move down to the next record.
- Press **the Tab** key to move to the Album Title field in the next record.
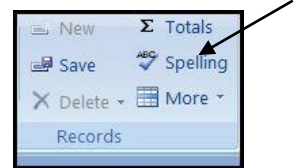
- **Album Title -> Fame Monster / Artist -> Lady Gaga / Rating -> 7 / Condition -> Good / Format -> Physical / Media Type -> Picture Vinyl**
- **Type in the following two records:**

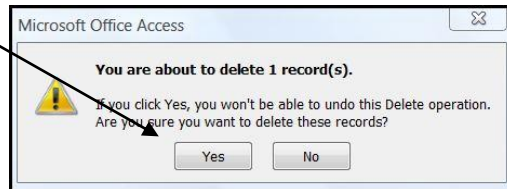| Album ID	Album Title	Artist	Rating	Condition	Format	Media Type	Click to Add
1	Aphrodite	Kylie Minogue	10	Excellent	Digital	MP3	
2	Fame Monster	Lady Gaga	7	Good	Physical	Vinyl	
3	Body Talk	Robyn	7	Excellent	Digital	MP3	
4	Aphrodite	Kylie Minogue	10	Excellent	Digital	MP3	
(New)							

- You may double click the vertical line between fields or grab the line and stretch the column if your data does not fit in a field.

6.) Editing/Deleting Records in a Table
- To fix a typing error in a record, simply double left click on the cell and retype.
- **Double left** click in the Rating field for Body Talk, Robyn record.
- **Change the 7 to a 5 -> Press the Enter Key** to get out of that particular cell.
- The **Spell Check** command in Access 2007 is located in the **Home Tab, not the Review Tab** like in other Office products.
- Click on the **Spell Check** command to find any spell check errors. *It is **VERY** important to spell all records, fields and other data correctly. Later when we set up forms and queires, they search by spellings. So a serach can lose records if there are misspellings!
- **Notice we have two Aphrodite records. Let's delete one.**
- **Left click** on the blue box to the left of record 4, column Album ID.
- Clickin on the blue box selects the entire record. Hit the **Delete Key** on the keyboard. **Don't** select delete on the Ribbon!
- Access will ask if you really want to delete that particular record; Click **YES.**

Album ID	Album Title
1	Aphrodite
2	Fame Monster
3	Body Talk
4	Aphrodite
(New)	

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You are about to delete 1 record(s).

If you click Yes, you won't be able to undo this Delete operation. Are you sure you want to delete these records?

[Yes]   [No]

- **Type in a new record:**
  -Album Name -> Light Years / Artist -> Kylie Minogue / Rating -> 9 / Condition -> Good / Format -> Physical / Media Type -> CD.
- Notice the Album ID goes from 3 to 5. The unique feature will remember ID 4 and not use it again. In terms of using this particular field for a key, it does not matter if the numbers are not in sequential order. However, they **have** to be unique!
- **Save** the table.

7.) Formatting Data and Copy/Paste
- Click into the cell that has the text "Lady Gaga"

- In the **Home Tab** -> click the **Bold Command Button**. Notice the whole table will **Bold.** This same feature happens when changing text styles, text size, text color, etc. **Press the Control Key and the letter B on your keyboard to un-bold your text.**
- However, the text align options are separated by fields. For example, **Click anywhere inside the rating field -> Click the Text align center button in the Home Tab.**
- **To Copy and Paste a record**, let's pretend we have the Aphrodite album as a vinyl record as well. **Right click the light blue box** to the left of Album ID 1.

Album ID	Album Title
1	Aphrodite

- **Select Copy**.
- **Right click** on the light blue box that has the star, and select **paste.**
- **Now change the Media Type field in this new record to vinyl and Format to physical.**

8.) Data Type Options

- By now, you may realize that DATATYPES are extremely important to maintain your **data integrity**. However, you may add new data types. *Remember the term "Data Integrity." We are going to discuss this far more in-depth the coming lessons.*
- **In the Datasheet Tab -> View Command Button -> Select Design View.**
- Your table moves to the "Design View"
- **Field Name:** The name of individual fields in a database appear here.
- **Data Type:** If you click on any of the data type fields, you will notice a drop down button to the right of the field. You can select the type of data each field will represent in the database. For example, in the rating field, it will always be a number. That is why we change it to **Number**.
- **Description:** This is a description of individual fields that will appear in the task bar on the bottom of the Access screen. Descriptions are not required.
- **Click the empty field box under "Format" and type Album Cover.**
- **Click in the Data Type field and change the option to "Attachment."**
- If the attachment option is not there you need to save the whole database as **.accdb** database. To save the WHOLE database, click on the Office button on the upper left of the Access screen. Go to **Save As -> Change Music.dcb to Music.accdb and click SAVE.**
- Go back to the **Design View -> Album Cover-> Data Type Options -> Change to Attachment**

File name:	Music.accdb
ve as type:	Microsoft Office Access 2007 Database (*.accdb)

- Go back to the View Command in the Ribbon.
- Change your view back to **Datasheet View**
- You will have to save all your changes -> Choose Yes when prompted to Save.
- You will notice the **Album Cover** field change to paper clips.
- Now let's insert the album cover images.
- **Double left click** on the paperclip in the first Aphrodite record.
- The Attachments dialogue box will appear.
- **Click Add -> Locate the image on your computer -> click Insert -> the attachment will appear in the dialogue box.**
- **Click OK**
- Look at the Album Cover field. **Notice the number next to the paperclip will change to (1)!**
- **Now place the Fame Monster Album cover into the field.**

9.) Find/Replace

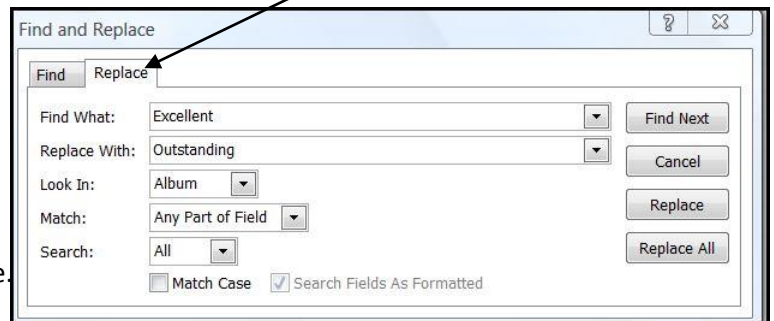- The **Find** and **Replace** command buttons in the Home Tab in the Ribbon

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allow you to find records or change an item(s) in a field. This works great when you have a database with hundreds of records.

- **Click the Find command button.**
- The **Find and Replace** dialog box will appear.
- Type **Kylie** in the Find What box.
- Change **Look In** from Album ID to **Album. *This is so we search the entire table not just the Album ID field.***
- Change the Match drop down to **Any Part of Field.**
- Click **Find Next.**
- Look back onto your table, the **Find** feature found the first record with the term "Kylie."
- **In the Find and Replace dialogue box, click Find Next.**
- The Find feature will find each record with the word "Kylie" in it. When you click Find Next again, you will get the next record.
- When the Find feature can find no other Kylie record, the pop up box will appear:
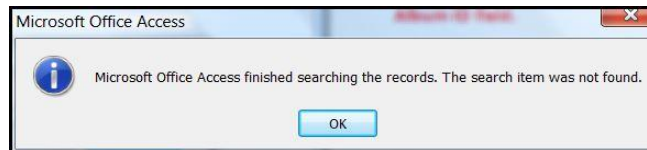
- Click **Ok** to get rid of the box.
- In the **Find and Replace** dialogue box, click on the **Replace** tab.
- On your table, click on the word Condition to highlight the entire field.
- In the **Find What** box, type: Excellent
- In the **Replace With** box, type: Outstanding
- Click **Replace All** in the dialogue box.
- All words that were Excellent change to Outstanding!
- You will be prompted if you want to continue.
- **Click Yes.**
- The warning box that appears when you Replace All states "You won't be able to undo this Replace operation." Is this really true? Not really, you can always replace all to Excellent again or manually type Excellent in each record.
- Press the **Cancel** button or the **red box with a white X** in the Find and Replace dialogue box to get rid of the box.

10.) Sorting and Filters
- The sort and filter command buttons are located in the Home tab in the ribbon. They are highly used when working with a large to huge database. You can sort data by particular fields or filter data to fit specific criteria.
- **To sort by a field**, click on the **Format** field to highlight the whole field.
- **Click the A-Z** sort command button.
- The field sorts alphabetically.
- Each field has its own sorting button.
- Hover your mouse over the right side of the **Artist** field.
- Now you can sort by individual entries in a field.

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- Deselect all options in the Artist sort except Kylie Minogue.
- Click **Ok.** Just the Kylie Minogue records appear!
- To get all the records back on your table, click the **Select All.**
- Click **Ok.** All records will appear again.
- To get rid of your sorts, click on the **Clear all Sorts** command button just under the Z-A sort button.
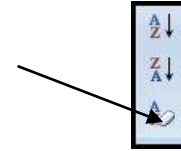
- To filter a table, first click on a field you want filtered. For example, let assume we what to look at all digital albums on our table. This means we need to filter out all physical albums.
- **Click on the Format Field to highlight the entire column.**
- Click the **Filter** command button in the Home Tab, on the ribbon.
- Deselect all options except **Digital -> Click OK.**
- You may use the Advanced or Wizard filter buttons to get specific searches. They are the buttons in the Sort & Filter group that have the lightning bolt and slide screen behind the gray filter.
- When you filter a table, the **Toggle Filter** command button will activate.
- To get rid of your filter, simply click on the **Toggle Filter** button. All records will return to your table. *If you click the Toggle Filter button again, the table will revert back to your last filter. In this case, it will go back to filtering out the physical formats.
- Try filtering the Rating field.
- Click on the Rating field -> Click the Filter command button -> Select Number Filters -> Choose **Between** -> Type 6 in Smallest -> Type 9 in Largest -> Click **OK**
- Just your albums with ratings between 6 and 9 will appear in your table. As you can probably tell by now, this a powerful tool when you are organizing information with a lot of data or working with a huge database.

11.) The IMPORTANCE of Data Integrity

- When setting up your database, it is very important to think about what type of data is inputted in each field. For example, you may notice that our rating system is a number system with numbers between 1 and 10. Well, we do not what anyone to mistakenly put the date or the number 15 in that field. That is considered invalid data! You always want to avoid invalid data because your whole database loses its integrity when invalid data is entered into tables. **So we will have to set data rules and input masks so we do not "accidently" input invalid data into any of our fields.**
- To set data integrity we need to go back to the **Design View.**
- **In the Home Tab -> Click View -> Design View**
- **Click on the Data Type field for Rating**
- At the bottom of the screen, two tabs appear. We need to be in the **General** tab.
- Click the drop down box to the right of "Long Integer" and change it to Integer. We are only working with numbers between 1 and 10. We do not need long numbers.
- Change **Format** to Fixed Number. We are not working with currencies or decimals.
- Change **Decimal Places** to 0. (Only numbers 1-10).

- Go down to **Required.** Is a rating <u>always</u> required for this field? If yes, change the required entry to YES.
- Will most of your music have a similar rating all the time? In other words we can set a default to always appear in the rating field, we will just have to change it when the rating is different.
- In the **Default Value** field, type the number 5. 5 will appear in each record for now on as it is now our default value.
- **Now, SAVE your work!**
- A warning will appear letting us know that data integrity has changed. **Click YES.**
- Go back to the **Datasheet View. [Home Tab -> View -> Datasheet View]**
- Observe the **Rating** field in the "new" record.
- The number 5 appears as our default number for the field.
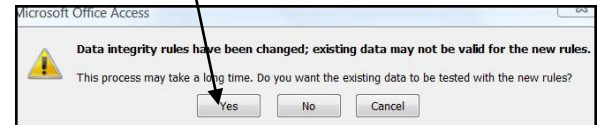
12.) Input Masks
- Input masks are important to format data in one particular way. For example, an input mask will tell you or anyone inputting data into the table that the way to format a date is 08/13/2010 **NOT** August 13, 2010 or 8-13-2010. Input masks are broken down into three pieces separated by semi-colons. The input mask we are going to use is: **09;1;_**
- Go back to the **Design View -> Rating Field -> Input Mask -> Type 09;1;_**
- The **first** part of the input mask is **09.** The **0** tells Access that the rating field MUST start with a digit. The **9** tells Access that a second digit is **Optional.** Our rating system is a series of numbers between 1 and 10. Not all ratings will have that second digit. **However,** this does not tell Access that we do not want 11 typed into our rating field. (We come back to that in a bit.)
- There are several other input markers used. You can find a list of different markers for required or optional letters, phone numbers, symbols, etc. at **http://office.microsoft.com/en-us/access-help/control-data-entry-formats-with-input-masks-HA010096452.aspx**
- The **second** part of the input mask you can only input 0 or 1. If 0 is selected, then the data in the field will be stored with the database. If 1 is selected, the data in the field is **NOT** stored with the database but will still be displayed. This is used if you need to free up space in a large database.
- The **third** part the input mask is simply a marker to help the data entry person know to type something in the field. In our input mask, we have an underscore _. When we type a new record an underscore will appear in the rating field letting us know to type data.
- **SAVE YOUR TABLE AND GO BACK TO THE DATASHEET VIEW.**
- Type in a new record:
  Album Title: Body Talk 2 ; Artist: Robyn ; Rating 10 ; Condition: Outstanding ; Media Type: MP3 ; Format: Digital. *Notice when typing the rating into the field. Two underscores appeared letting us know to enter data. If you go back and delete the first number and try to leave the record, you will be prompted that is not allowed.
- Change the rating from 10 to 7. Make sure to change the first digit to 7 and delete the second digit!
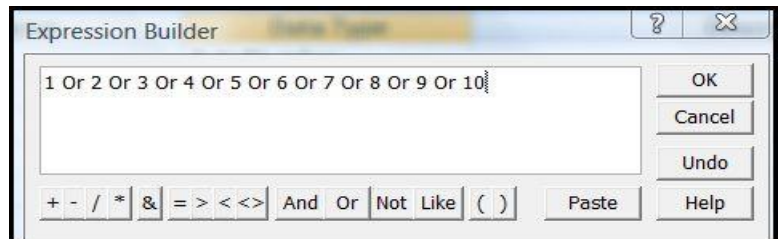
13.) Data Validation
- Data validation will tell Access that only certain characters belong to a particular field. In other words, we do not want the numbers 11-99 in our rating field. We will have to limit the numbers that go into this field. We do that with data validation.

- Go back to the **Design View -> Rating Field -> Validation Rule -> Click the ... button on the right side of the field.**

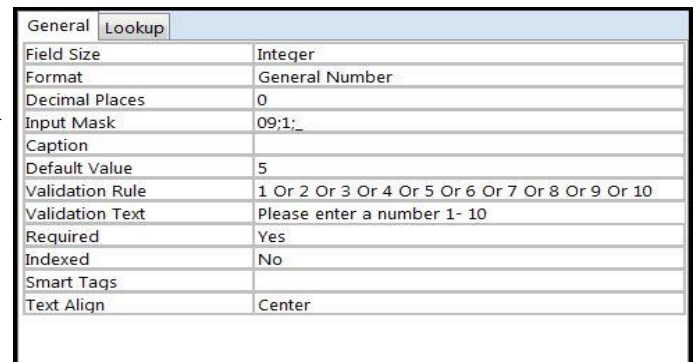| Validation Rule	...
Validation Text	

- The **Expression Builder** dialogue box will appear. This is where we will tell Access to only allow numbers 1 – 10 into this field.
- You can different validation expressions by double clicking the **Function folder -> Built-In Functions. However**, we will type in our expression.
- In the white box on the top part of the Expression Builder box, **Type 1 -> Click the Or button -> Type 2 -> Click the Or Button -> Type 3 -> Click the Or button -> Type 4 -> Click the Or button -> Type 5 -> Click the Or button -> Type 6 -> Click the Or button -> Type 7 -> Click the Or button -> Type 8 -> Click the Or button -> Type 9 -> Click the Or button -> Type 10**
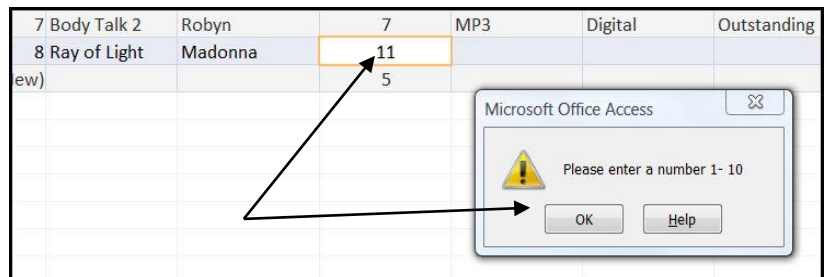- The Expression Builder will look like this:
- **Click the OK** button in the Expression Builder.
- The expression is now in the **Validation Rule field!**
- In the **Validation Text** field type: "**Please enter a number 1 – 10**"

Expression Builder

1 Or 2 Or 3 Or 4 Or 5 Or 6 Or 7 Or 8 Or 9 Or 10

OK
Cancel
Undo

+ - / * & = > < <> And Or Not Like ( ) Paste Help

- The **Validation Text** field will pop up a warning box to inform the person that only a number between 1 and 10 allowed into this field.
- The **General Tab** for the Rating field should look like this so far:

General	Lookup	
Field Size	Integer
Format	General Number
Decimal Places	0
Input Mask	09;1;_
Caption	
Default Value	5
Validation Rule	1 Or 2 Or 3 Or 4 Or 5 Or 6 Or 7 Or 8 Or 9 Or 10
Validation Text	Please enter a number 1- 10
Required	Yes
Indexed	No
Smart Tags	
Text Align	Center

- **SAVE your table. You will be prompted that data integrity rules have changed. Click YES.**
- Go back to the **Datasheet View. [Home tab-> View Button -> Datasheet]**
- Let's enter a new record into our table.
- **New record: Ray of Light ; Madonna ; 11 ; Picture Vinyl ; Physical ; Good**
- **When typing in a new record -> the in rating field type 11.** Notice you cannot use 11. Change the rating to 7.

7	Body Talk 2	Robyn	7	MP3	Digital	Outstanding
8	Ray of Light	Madonna	11			
ew)			5			

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⚠ Please enter a number 1- 10

OK   Help

- For <u>text</u> validation Rules, quotes are needed when manually typing an expression in the validation rule field or the expression builder will put them in for you: **"Physical" Or "Digital"**

- If time allows, change the Validation Rules for the **Media Type, Format** and **Condition** fields. If we only have certain media types [MP3, CD, Picture Vinyl, etc.] make those the only options in the Media Type field.
- There are only two conditions [Physical and Digital]. There are only certain types of conditions [Outstanding, Good, Fair, Poor]. Can you make those Validation Rules?
- Hopefully, by now you see the IMPORTANCE of data integrity (especially validation rules). Validation rules will not allow misspellings or unneeded numbers. For example, you cannot enter Vinly in the Media Type field. You will be prompted to fix that error. Without data integrity, a database can eventually be useless to completely fall apart.

Validation Rule	"Physical" Or "Digital"
Validation Text	Please type Physical or Digital

14.) Data Entry
- So far in this class we have only worked with one table. Let's add some more data to the **Album** table. **1.)** Add a new field titled **Cost.** For each record: a CD costs $7.99, a MP3 costs $9.99, a vinyl costs $20.99 and a picture vinyl costs $25.99.
- Do you remember how to add the dollar signs to field? **Go to the Design View -> Click in the Cost field -> Go to the Format rule at the bottom of the screen and change it to Currency.**
- Go back to the **Datasheet View** -> let's add two more records. The table should like the following:

Album ID	Album Title	Artist	Rating	Media Type	Format	Condition	🔗	Cost	Add New Field
1	Aphrodite	Kylie Minogue	10	MP3	Digital	Outstanding	(1)	$9.99	
2	Fame Monster	Lady Gaga	7	Picture Vinyl	Physical	Good	(0)	$25.99	
3	Body Talk	Robyn	5	MP3	Digital	Outstanding	(0)	$9.99	
5	Light Years	Kylie Minogue	9	CD	Physical	Good	(0)	$7.99	
6	Aphrodite	Kylie Minogue	10	Vinyl	Digital	Outstanding	(0)	$20.99	
7	Body Talk 2	Robyn	7	MP3	Digital	Outstanding	(0)	$9.99	
8	Ray of Light	Madonna	7	Picture Vinyl	Physical	Good	(0)	$9.99	
9	Celebration	Madonna	6	MP3	Digital	Outstanding	(0)	$9.99	
10	Brave	Kelis	5	CD	Physical	Good	(0)	$7.99	
(New)			5				(0)	$0.00	

15.) Adding Tables
- Now that we have enough data on the Album table, we need to create two more tables to turn this database into a relational database and see how we turn the "flat table" into relationships.
- When planning a database, you have to think how to break down your data. For this database, each album contains **songs** and **artists**. Songs and Artists will be two other tables.
- Click the **Create Tab** on the Ribbon -> Click the **Table** command button.
- A new table will appear in the **Navigation Pane.**
- This table will be our **Songs** table.
- Name each field: **Songs ID, Title, Released Year, Genre, Artist ID, Album ID.**
- **Save the Table ; Rename the table "Songs"**

Songs ID	Title	Released Year	Genre	Artist ID	Album ID	Add New Field
(New)						

- Click the **Create Tab** on the Ribbon -> Click the **Table** command button.
- A new table will appear in the **Navigation Pane.**
- This table will be our **Artist** table.

- Name each field: **Artist ID, Last Name, First Name, Primary Genre**
- **Save the Table ; Rename the table "Artist"**

Album	Songs	Artist		
Artist ID	Last Name	First Name	Primary Genre	Add New Field
✳ (New)				

16.) Creating Relationships and Keys

- You may have noticed when we looked at the **Design View** in the Album table; there was a **Key** next to the **Album ID** field. This is the table's primary key.
- Primary keys connect each table. This is why we have a unique album ID, son Each unique ID will connect data between tables.
- Go to the **Design View** in both the **Songs** and **Artist** tables. **Make sure Songs have the primary key symbol.** *If there is no key symbol next to the field you primary field, simply click on the field and click the **Primary Key** command button in the **Design Tab** on the Ribbon -> **Primary Key** command button to activate the primary key.
- While in the Design View in the **Songs Table,** change the **Artist ID** and **Album ID** field to **Number.**
- **SAVE ALL YOU CHANGES HERE!**
- **Close all tables.** Right click on a table tab -> Select close all.
- Click the **Datbase Tools Tabs -> Relationships Command Button.**
- The **Show Table** dialogue box appears with all our tables.
- Click on the Album option and select **Add.**
- Click on the Songs option and select **Add.**
- Click on the Artist option -> select **Add** -> Click the **Close** button to close the dialogue box.
- The tables appear in the **Relationships tab.**
- **Rearrange the tables so they are in this order: Album, Songs, Artist.**
- Notice the Primary key in the Albums table matches the Album ID in the songs table? **Click and drag the Album ID field in the Album table over the Album ID in the Songs table and release.**
- The **Edit Relationships** box appears!
- Make sure Album ID in both fields match.
- Click the box next to **Enforce Referential Integrity.**
- Click the **Join Type** button and select option 2. We are choosing this option because we have no records in the Songs table.
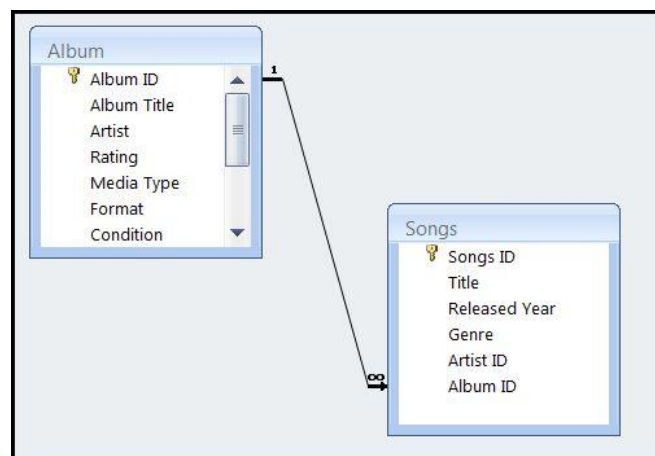- Click **OK then click Create** in the dialogue box.
- **The relationship should appear like the following:**

1 to Many Relationship

10
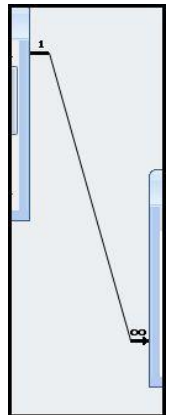
- Do you know why this relationship is a one many relationship? Each album has 10 to 20 songs. Therefore, in the songs table each song can have the same album title. But in the album table, there can only be one album id to identify the individual album.
- Now join the **Artist ID** fields between the Artist and Songs table. **Make sure to Enforce Referential Integrity.**
- In the **Join Type** button and select option 1.We are choosing this option because we have no records in either tables.
- Click Ok and Create. **SAVE YOUR RELATIONSHIPS. *If you wanted to edit the relationship, simply double left click on the connectors and the Edit Relationship dialogue box will appear.**
- In the **Design Tab** click the **Close** command button. To see the relationships again, click on the **Database Tools Tab -> Relationship** command button.
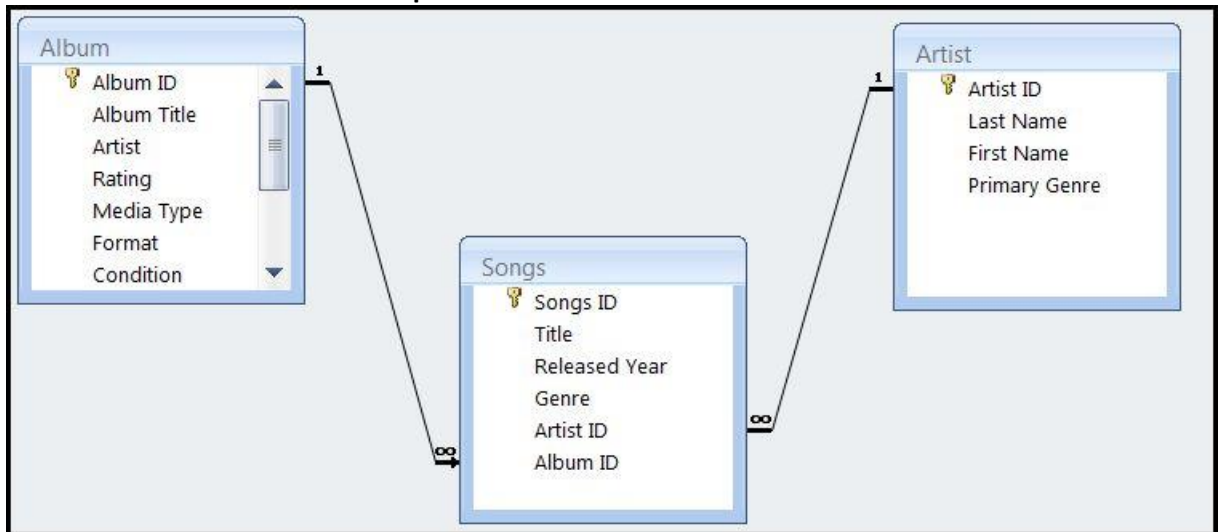
17.) Referential Integrity
- What if we sell an album and delete it out of our Album table? What happens to all the songs from the album in the Songs table? If you do not **Enforce Referential Integrity** when creating the relationships, then the songs become orphans. The more orphan data you have in a database, the more your database becomes useless and/or takes up large amounts of memory.
- What if we wanted to change an Album ID in the Album table? In order for the Songs table to update automatically, the **Cascade Update Related Fields** option in the **Edit Relationships** dialogue box needs to be checked.
- If you want the songs table to automatically update when and album is deleted from the Album table, the **Cascade Delete Related Records** option in the **Edit Relationships** dialogue box need to be checked.
- If your Relationships are not showing -> Go to the Database Tools tab -> Click the **Relationships** command button.
- **Double left click the black arrow between the album table and the songs table.**
- This will bring up the **Edit Relationships Dialogue Box.**
- Click the Cascade Update and Cascade Delete boxes.
- Click OK -> Do the same for the Artist and Songs table.
- Click OK -> **SAVE YOUR WORK HERE!**

11

18.) Sub Datasheets

- Now that we have relationships established between tables, a sub datasheet will allow us to input data in multiple tables simultaneously. For this database, now we can input songs that belong to an album.
- **Double click the Album Table** in the Navigation Pane to bring the table up.
- **Notice the plus signs to the left of each Album ID. Click on the plus sign next to Album ID 1.**
- The **Songs** table will appear. Now you can enter album songs.

Album ID	Album Title	Artist	Rating	Media Type	Format	Condition	🔗	Cost
1 Aphrodite	Kylie Minogue	10	MP3	Digital	Outstanding	🔗(1)	$9.99

Songs ID	Title	Released Year	Genre	Artist ID	Add New Field
* (New)					

2 Fame Monster	Lady Gaga	7	Picture Vinyl	Physical	Good	🔗(0)	$25.99
3 Body Talk	Robyn	5	MP3	Digital	Outstanding	🔗(0)	$9.99
5 Light Years	Kylie Minogue	9	CD	Physical	Good	🔗(0)	$7.99

- Type in: Title – All the Lovers / Released Year - 2010 / Genre – Pop / Artist ID 1
- When you try to enter a new record, you will be prompt that an error has occurred.
- The error occurred, because **We need an artist ID (or a record) for Kylie Minogue.**
- **Go to the Artist table**, and make a record for Kylie Minogue, Lady Gaga, Robyn, and Kelis
- SAVE YOUR ARTIST TABLE! *You will have to remember the Artist ID when inputting that data into the Songs Table. Meaning, in the Artist ID field in the songs table, you will now have to remember that Kylie Minogue is 1.*

Artist ID	Last Name	First Name	Primary Genre	Add New Field
1	Minogue	Kylie	Pop	
2	Lady Gaga		Pop	
3	Robyn		Dance	
4	Madonna		Pop	
5	Kelis		Dance	
*	(New)			

- Now go back to the **Album Table** and continue to add songs: (Songs are below)

Album ID	Album Title	Artist	Rating	Media Type	Format	Condition	🔗	Cost
1 Aphrodite	Kylie Minogue	10	MP3	Digital	Outstanding	🔗(1)	$9.99

Songs ID	Title	Released Year	Genre	Artist ID	Add New Field
1	All the Lovers	2010	Pop	1	
2	Get Outta My Way	2010	Pop	1	
3	Put Your Hands Up	2010	Pop	1	
* (New)					

2 Fame Monster	Lady Gaga	7	Picture Vinyl	Physical	Good	🔗(0)	$25.99

Songs ID	Title	Released Year	Genre	Artist ID	Add New Field
4	Bad Romance	2009	Pop	2	
5	Alejandro	2009	Pop	2	
6	Monster	2009	Pop	2	
* (New)					

3 Body Talk	Robyn	5	MP3	Digital	Outstanding	🔗(0)	$9.99
5 Light Years	Kylie Minogue	9	CD	Physical	Good	🔗(0)	$7.99

19.) Forms (part 1)

- Forms allow a user to input data into a database much like filling out a form online. When you fill out a form, it is connected to a database in the background so data that is inputted into the form will be added to the data that is already stored in the database. There are two advantages with using forms. 1.) A data entry person does not necessarily need to input records into tables. They just use the forms to add the records. 2.) Forms are easier to work with, and they are cosmetically more pleasing to view instead of a table full of columns and rows.
- Open the Album table, and close all other tabs in the database.
- The easiest way to customize a form is to use the **Form Wizard.**
- **Click the Create Tab on the Ribbon -> Form Wizard.**
- The **Form Wizard Dialogue Box** will appear.
- The **Album Table** will appear in the Tables/Queries drop down because we opened it earlier.
- In the **Available Fields** box, we get to manually select which fields we want in the form.
- Select **Album Title and click the single right arrow in the Form Wizard.**
- Select **Artist, Rating, Media Type, Album Cover and Cost** and move them over to the **Selected Fields box.**
- Click the **Next Button.**
- You now get to choose how you want to layout your form.
- Click **Justified.**
- Click the **Next** button.
- Select the **Metro** option.
- Click the **Next** button.
- In the "**What title do you want for you form**" box, name the form **Album.**
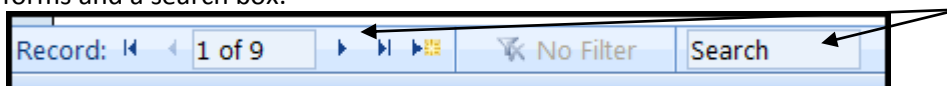- Click the **Finished** button.
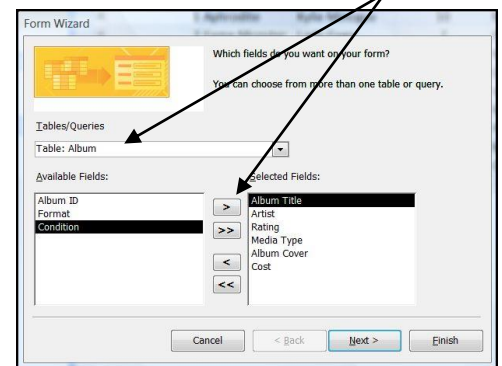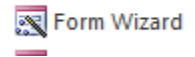
20.) Simple Form Editing

- The newly created **Album** form more than likely formatted oddly.
- Go to the **Design View** in the Ribbon.
- You may notice that each field turns into a text box. Each text box can be resized to properly fit the form. However, the blue bar that states **Form Footer** can also be lowered. Hover your cursor just to the top of the Form Footer bar and it turns into a double arrow pointer. Hold down your mouse button and drag the footer down to open more space for the album art.
- Go back to the **Form View.** [Home tab -> View Button -> Form View]
- There are several more editing, formatting and features options with forms that we will cover in the next class.

21.) Searching and Creating Records with Forms

- At the bottom of the **Form View**, in the status bar, there are several buttons to move through forms and a search box.
- Type **Madonna** in the search box and press the **Enter** key on your keyboard.
- This search will bring you to the first Madonna record.

- If you press the right or left arrows, they will take you to the next or previous record.
- If you press the right or left arrows with lines in front, they will take you to the first and last record on the table.
- Press the right pointing arrow with a star next to create a blank form.
- This is where you can type a new record that will input data into the **Album** table.
- **Type a new Record!** : Album Title: X / Artist : Kylie Minogue / Rating : 9 / Media Type : CD / Double click inside the Album Cover box to open the attachment dialogue menu -> Attach X.jpg -> Cost : $7.99 -> **Press the Enter key on your Keyboard.**
- **You will be moved to a blank record! Click the left pointing arrow in the status bar to see the record you just created!**

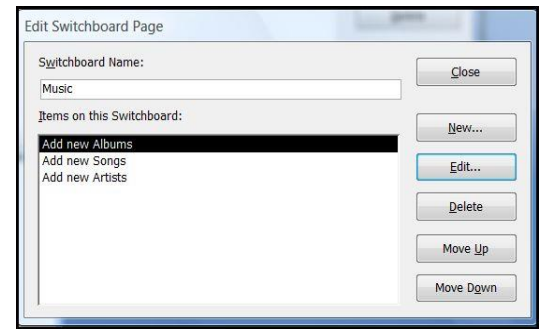**22.) Switchboard** *(Only if there is Time in Class)*
- The switchboard is important, because it allows a user to find forms by clicking a button. However, in previous versions of Access, the Navigation Pane did not exist. A database designer would have to create a switchboard to allow users to navigate between forms to enter new records. In order for the switchboard to work, we need to create forms for the all three tables. The **Album** table already has a form, so we really just need to create a form for the **Songs** and **Artist** tables. ****Double click on the Songs Table in the navigation pane to open the songs table. On the Ribbon, click the Create tab -> Form command button. Next, click the save diskette on the top left corner of the Access screen and save the form Song. ***Repeat these same steps for the Artist table, but name the form Artist. Your navigation pane should look like:**
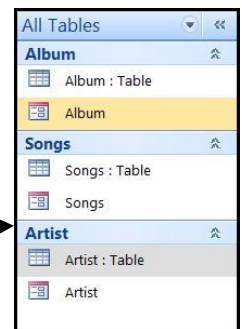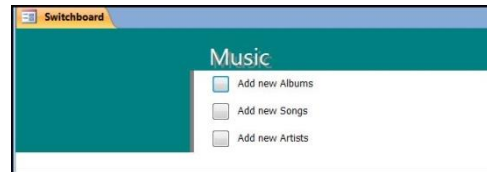
- Close all tabs in the database. [Right click on a tab and select close all]
- Click the **Database Tools** tab on the Ribbon.
- Click the **Switchboard Manager** command button In the Database Tools group.
- You will be warned that **The Switchboard Manager was unable to find valid switchboard in the database. CLICK YES!**
- The Switchboard Manger Dialogue box will appear.
- Click the **Edit Button. Under Switchboard Name, change it to Music.**
- Click the **New** button.
- Another box will appear. In the Text box type **Add new Albums.**
- Click the **Command** drop down arrow and select **Open Form in Add Mode.**
- Click the **Form** drop down arrow and select **Album.**
- **Click OK.**
- Click the **New** button.
- Another box will appear. In the Text box type **Add new Songs.**
- Click the **Command** drop down arrow and select **Open Form in Add Mode.**
- Click the **Form** drop down arrow and select **Songs.**
- **Click OK**
- Click the **New** button.
- Another box will appear. In the Text box type **Add new Artists.**
- Click the **Command** drop down arrow and select **Open Form in Add Mode.**

- Click the **Form** drop down arrow and select **Artists.**
- **Click OK**
- The **Edit Switchboard Page** box should look like this:
- Click the **Close** button in the Edit Switchboard Page box.
- The **Switchboard Manager** box changes to **Music.**
- **Click the Close button on the Switchboard Manager box.**
- The **Switchboard** now appears in our **Navigation Pane on the left side of the Access screen.**
- **Click the Switchboard Form in the Navigation Pane.**
- Click on **Add new Albums.**
- A blank form should appear and is now ready for you to enter data.
- Now every time you open this database, the switchboard will appear. This is so that a person who does not know Access well can just open a form directly from the switchboard and enter data from there instead of using tables or other features in Access a person may not know.

[Advanced Form Technique that will be covered more in the next class:
Open the Album Form **->** Go to the Design View **->** In the Design Tab, click the Button command in the Controls group **->** draw a button on the form **->** When you finish drawing a button the Command Button Wizard box appears **->** In the Categories box, select Form Operations **->** In the Actions box, select Close Form **->** Click Next **->** Click Next again **->** Type "Close Form" in the text box under the "A meaningful name will help…" **->** Click Finish.
Return to the Form View **->** Click the new button on the form **->** The form will close and take you back to the switchboard. **]**