**Busn 216: Access**

1. Access is a database
	1. Define Database:
		1. Stores raw data
			1. Store data in small parts:
			2. Instead of storing “3443 4th St., Bastrop, NM 75123” as one piece of data, store it as 4 pieces of data:

			
		2. Create useful information from raw data to help make decisions

		Raw Data 🡺 Useful Information
		3. Examples of databases:
			1. Highline:
				1. Highline stores raw data about:

Students

ID, Name, e-mail, grades

Instructors

ID, Name, e-mail, salary

* + - * 1. Useful information Highline might create:

GPA for business students

List of student names and e-mails for a class

* + - 1. Google:
				1. Google stores raw data about every click you ever make:

What you typed in to search engine

What you clicked on

How you misspelled words

* + - * 1. Useful information Google might create:

Most frequent links clicked on after the word “Seattle” or “White Center” is typed

Correct spelling or phrase for a mistyped search request

1. Remind ourselves about what we learned about data and data analysis in Excel:
	1. **Proper Data Set in Excel:**
		1. Field names in first row
			1. Field names say what sort of data can go in the column
		2. No empty field names
			1. It would be impossible to make a PivotTable without field names
		3. Records in subsequent rows
			1. Record = row = collection of bits of raw data = set of related data
		4. Try not to have empty cells in the records
			1. Empty cells sometimes cause trouble, but usually there is a fix
		5. Must have empty cells all around your data set (or have Excel row headers (numbers) or column headers (letters) at the left or above the data set)
	2. **Data Analysis in Excel:**
		1. Create useful information from raw data to help make decisions
		Raw Data 🡺 Useful Information
		2. We used:
			1. Formulas like SUMIFS
			2. Sort, Filter, PivotTables
2. Here is what we will do with data and data analysis in Access:
	1. **Proper Table (Data Set) in Access:**
		1. Field names in first row
			1. Field names say what sort of data can go in the column
		2. Add Data Type and Field Properties (Data Validation) so that bad raw data does not enter the table
		3. Each record must have unique identifier
			1. In order to prevent duplicate records (which wastes space and causes errors) the first field in each Access Table will have a unique identifier.
			2. Examples: Student ID, Invoice Number, Product ID
		4. Records in subsequent rows
			1. Record = row = collection of bits of raw data = set of related data
		5. We will create relationships between tables so that we can “create useful information” from more than one table.
	2. **Data Analysis in Access:**
		1. Create useful information from raw data to help make decisions
		Raw Data 🡺 Useful Information
		2. We will use:
			1. Queries and Reports
3. Why Access instead of Excel for a database?
	1. You can store more raw data in a database than you can in Excel (only 1 million rows)
	2. Easier to build relationships between tables
	3. Create more robust data validation and data types to prevent bad data from getting into the tables
4. First look at an Access database:
	1. Open Database: Double Click in Windows Explorer
	2. All objects in database are stored in one place and are together considered “the database”.
		1. You create a blank database and save it before you create the objects in it
	3. **Four important objects in a database:**
		1. **Tables (Heart of any database)**
		2. **Forms (User interface)**
		3. **Queries (Ask a question of the database)**
		4. **Reports (Useful information created from database)**
	4. Navigation Pane Views:
		1. Table and Related Views:
			1. Shows Table and related objects below table
			2. Object Type – All Access Objects
		2. Groups by Objects:
			1. Example: All Tables are grouped together
	5. Double click objects in the Navigation Pane to Open Objects
	6. Access Work Area has Object Tabs: Click on Tab to view object
	7. All objects have two basic views:
		1. Regular View
			1. Table: Datasheet view
			2. Form: Form view
			3. Query: Datasheet view
			4. Report: Print Preview
		2. Design View (“Underneath view”)
			1. Design view allows us to change all structural elements in the object
			2. Although some structural elements can be added or changed in, Regular view, Design allows you to change all elements
5. More about the four objects:
	1. Tables
		1. The heart of any database
			1. Every database must have at least one table
		2. Tables are where we store the raw data
		3. First we create the tables, and then from tables we can make:
			1. Forms
			2. Queries
			3. Reports
		4. Table elements:
			1. Field names in first row
				1. Field names say what sort of data can go in the column
				2. Add data type and data validation so that bad raw data does not enter the table
			2. Each record must have unique identifier
				1. In order to prevent duplicate records
			3. Records in subsequent rows
				1. Record = row = collection of bits of raw data = set of related data
			4. We will create relationships between tables so that we can “create useful information” from more than one table.
			5. Example from project that we will complete:



* + 1. Forms
			1. “User interface”
				1. Forms are easy to use interfaces for the tables
			2. Used to:
				1. Search for data (example: find a person’s phone number)
				2. Enter data into database (Use tab to move between fields)
				3. Delete data from database
		2. Queries
			1. Queries are used to ask questions of the database and then return the data into a smaller table (dynaset)
			2. Queries can then be used to create reports
			3. Example of a query result when we ask the database” “Show us products that cost less than $10 and have units on hand of greater than or equal to 10:

			
		3. Reports
			1. Nicely presented informational reports used to make decisions
			2. Reports are often based on queries
1. Some of the differences between Access & the other MS programs:
	1. While in Access, you can only have one database open at a time
		1. To view multiple databases, use Windows Explorer
	2. Save:
		1. When you enter raw data into database, Access saves the data automatically
		2. Use the Save button only when you are creating or changing the structure of:
			1. Tables
			2. Forms
			3. Queries
			4. Reports
	3. Undo/Redo
		1. Only works when you are working on:
			1. A record before it is saved (moved on to next record)
	4. Creating an object (Table, Form, Query, Report)