

Microsoft Excel
Session 3:

DATABASES & CHARTS

2

Why Do We Use Excel?

- Calculations
- Lists
- Charts

3

Why Do We Use Excel?

- Calculations
- Lists (Databases)
- Charts

4

Agenda

- Homework & Review
- Large Sheets
- Splitting Names
- Data Validation
- Subtotal
- Excel Tables
- Charts
- Homework

5

IF and PMT

What Is a *Database*?

- One or more tables of data

6

6

Maximum Size of a Spreadsheet?

- 16,384 Columns
- **1,048,576 Rows !!**

7

7

What's the Best Program for Databases?

- | | |
|------------------------|--------------------|
| ▪ Oracle RDBMS | ▪ Teradata |
| ▪ IBM DB2 | ▪ ADABAS |
| ▪ Altibase | ▪ MySQL |
| ▪ Microsoft SQL Server | ▪ FileMaker |
| ▪ SAP Sybase ASE | ▪ Microsoft Access |

Not Excel

8

8

What's the Most Popular Program for Databases?

Excel

Why?

- It's widely available
- People already know how to use it
- Has some nice database features

9

9

EXCEL'S DATABASE TRICKS

10

A Simple Database

	A	B	C	D	E	F
1	Date	Salesperson	Customer	Product	Amount	Bonus
2	1/3/2018	Carla Cox	Bauer	Bananas	779	0
3	1/6/2018	Amy Adams	Bauer	Strawberrii	1037	100
4	1/7/2018	Ed Ewing	Kane	Oranges	1442	100
5	1/8/2018	Carla Cox	Ibanez	Oranges	503	0
6	1/9/2018	Carla Cox	Atkins	Apples	1042	100
7	1/19/2018	Ben Barnes	Gomez	Bananas	605	0
8	1/19/2018	Ben Barnes	Fernandez	Oranges	549	0
9	1/20/2018	Dan D. Dixon	Conway	Oranges	840	0
10	1/22/2018	Amy Adams	Hanson	Strawberrii	1049	100
11	1/24/2018	Ed Ewing	Conway	Cherries	1360	100
12	1/27/2018	Amy Adams	Jefferson	Bananas	1403	100
13	1/28/2018	Dan D. Dixon	Dean	Apricots	1088	100
14	1/30/2018	Carla Cox	Ibanez	Apricots	1368	100
15	1/30/2018	Dan D. Dixon	Ibanez	Bananas	1317	100
16	2/7/2018	Carla Cox	Jefferson	Bananas	686	0
17	2/8/2018	Carla Cox	Dean	Apples	811	0
18	2/9/2018	Carla Cox	Bauer	Oranges	624	0

11

A Simple Database

	A	B	C	D	E	F
13	1/28/2018	Dan D. Dixon	Dean	Apricots	1088	100
14	1/30/2018	Carla Cox	Ibanez	Apricots	1368	100
15	1/30/2018	Dan D. Dixon	Ibanez	Bananas	1317	100
16	2/7/2018	Carla Cox	Jefferson	Bananas	686	0
17	2/8/2018	Carla Cox	Dean	Apples	811	0
18	2/9/2018	Carla Cox	Bauer	Oranges	624	0
19	2/10/2018	Carla Cox	Kane	Strawberrii	1123	100
20	2/12/2018	Carla Cox	Elgin	Apples	1482	100
21	2/17/2018	Amy Adams	Jefferson	Cherries	882	0
22	2/22/2018	Ben Barnes	Gomez	Cherries	558	0
23						
24						
25						
26	3/2/2018	Dan D. Dixon	Atkins	Strawberrii	416	0
27	3/2/2018	Carla Cox	Bauer	Apples	989	0
28	3/4/2018	Amy Adams	Hanson	Bananas	821	0
29	3/5/2018	Ed Ewing	Bauer	Bananas	1113	100
30	3/5/2018	Amy Adams	Gomez	Apples	1399	100

Which Column Is Which?

12

Viewing Large Spreadsheets

- **Freeze Panes**
 - Keeps Column Heads at Top of the **Screen**
- **Split View**
 - View different parts at same time
 - Split top and bottom
 - Or Split 4 ways
- **New Window**
 - View a particular area

13

Printing Large Spreadsheets

- **Print Titles**
 - Repeats Column Heads at Top of **Each Page**
- **Page Breaks**
 - Choose where to start a new page
- **Print Area**
 - Choose which cells to print

14

14

How to Make Hundreds of Changes in a Few Clicks

- The **Replace** Tool:
- Click:
Home > Find & Select > Replace

15

15

How Is the Data Organized?

	A	B	C	D	E	F
1	Date	Salesperson	Customer	Product	Amount	Bonus
2	1/3/2018	Carla Cox	Bauer	Bananas	779	0
3	1/6/2018	Amy Adams	Bauer	Strawberries	1037	100
4	1/7/2018	Ed Ewing	Kane	Oranges	1442	100
5	1/8/2018	Carla Cox	Ibanez	Oranges	503	0
6	1/9/2018	Carla Cox	Atkins	Apples	1042	100
7	1/19/2018	Ben Barnes	Gomez	Bananas	605	0
8	1/19/2018	Ben Barnes	Fernandez	Oranges	549	0
9	1/20/2018	Dan D. Dixon	Conway	Oranges	840	0
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18	2/9/2018	Carla Cox	Bauer	Oranges	624	0

16

16

Two Sorts of Sorting Tools

- **Sort by One Column**
 - Easy
- **Sort by Multiple Columns**
 - Sort by one column, then another
 - Choose: **Custom Sort**

17

17

Filter: Pick Some Data

- Click: **Home > Sort & Filter > Filter**
- Choose which column(s) to filter
- Choose desired values
- Or, choose a range of values

18

18

The COUNTIF Function

- Counts only certain cells
- The "Chicago" function
 - *Counts only certain votes*
- =COUNTIF(*range, criteria*)
- =COUNTIF(D4:D9, "East")

19

19

Conditional Formatting

- Format changes depending on a condition
- Use a rule: >1000
- Or, Color Scales (red, yellow, green)

20

20

Which Is Better?

$$= D8 * B4$$

Or

$$= TotalSales * TaxRate$$

21

21

A Cell by Any Other Name ...

- You can define names for cells
 - E.g., "TotalSales" instead of "D8"
- Easier to create formulas
- Easier to understand formulas
- Use the **Name Box**

22

22

Can We Sort by Salesperson's Last Name?

	A	B	C	D	E	F
1	Date	Salesperson	Customer	Product	Amount	Bonus
2	1/3/2018	Carla Cox	Bauer	Bananas	779	0
3	1/6/2018	Amy Adams	Bauer	Strawberries	1037	100
4	1/7/2018	Ed Ewing	Kane	Oranges	1442	100
5	1/8/2018	Carla Cox	Ibanez	Oranges	503	0
6	1/9/2018	Carla Cox	Atkins	Apples	1042	100
7	1/19/2018	Ben Barnes	Gomez	Bananas	605	0
8	1/19/2018	Ben Barnes	Fernandez	Oranges	549	0
9	1/20/2018	Dan D. Dixon	Conway	Oranges	840	0
10	1/22/2018	Amy Adams	Hanson	Strawberries	1049	100
11	1/24/2018	Ed Ewing	Conway	Cherries	1360	100
12	1/27/2018	Amy Adams	Jefferson	Bananas	1403	100
13	1/28/2018	Dan D. Dixon	Dean	Apricots	1088	100
14	1/30/2018	Carla Cox	Ibanez	Apricots	1368	100
15	1/30/2018	Dan D. Dixon	Ibanez	Bananas	1317	100
16	2/7/2018	Carla Cox	Jefferson	Bananas	686	0
17	2/8/2018	Carla Cox	Dean	Apples	811	0
18	2/9/2018	Carla Cox	Bauer	Oranges	624	0

23

23

Separating Text

- **Text to Columns**
 - Breaks text into columns
 - **Delimiter**: Where text is split
 - Usually a space
- **Flash Fill**
 - New, powerful technique
 - Guesses your intentions

24

24

Combining Text

- E.g., First + Last = Full Name
- Use the "&" Operator
 - =D5 & " " & D6
- Or, use the CONCATENATE function
- Or, use **Flash Fill**

25

25

Tired of Typing Each Name?

	A	B	C	D	E	F
1	Date	Salesperson	Customer	Product	Amount	Bonus
2	1/3/2018	Carla Cox	Bauer	Bananas	779	0
3	1/6/2018	Amy Adams	Bauer	Strawberries	1037	100
4	1/7/2018	Ed Ewing	Kane	Oranges	1442	100
5	1/8/2018	Carla Cox	Ibanez	Oranges	503	0
6	1/9/2018	Carla Cox	Atkins	Apples	1042	100
7	1/19/2018	Ben Barnes	Gomez	Bananas	605	0
8	1/19/2018	Ben Barnes	Fernandez	Oranges	549	0
9	1/20/2018	Dan D. Dixon	Conway	Oranges	840	0
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26

26

Pick Values from a List

- **Data Validation**
 - Makes it easy to choose values
 - Ensures consistency

27

27

Which Is the Best Salesperson?

	A	B	C	D	E	F
1	Date	Salesperson	Customer	Product	Amount	Bonus
2	1/3/2018	Carla Cox	Bauer	Bananas	779	0
3	1/6/2018	Amy Adams	Bauer	Strawberries	1037	100
4	1/7/2018	Ed Ewing	Kane	Oranges	1442	100
5	1/8/2018	Carla Cox	Ibanez	Oranges	503	0
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28

28

Subtotals

- Find SUM or AVERAGE for sub-groups
- You must Sort data first

29

29

"Iffy" Functions

- **COUNTIF()**
 - Counts only certain data
- **SUMIF()**
 - Totals only certain data
- **AVERAGEIF()**
 - Averages only certain data

30

30

Format as Table

- Easy way to format a table
- Provides some special features

Date	Salesperson	Customer	Product	Amount
7/2/19	Carla Cox	Bauer	Bananas	779
7/5/19	Amy Adams	Bauer	Strawberries	1,037
7/6/19	Ed Ewing	Kane	Oranges	1,442
7/7/19	Carla Cox	Ibanez	Oranges	503
7/8/19	Carla Cox	Atkins	Apples	1,042
7/18/19	Ben Barnes	Gomez	Bananas	605
7/18/19	Ben Barnes	Fernandez	Oranges	549
7/19/19	Dan D. Dixon	Conway	Oranges	840
7/21/19	Amy Adams	Hanson	Strawberries	1,049
7/23/19	Ed Ewing	Conway	Cherries	1,360
7/26/19	Amy Adams	Jefferson	Bananas	1,403
7/27/19	Dan D. Dixon	Dean	Apricots	1,088

31

31

Excel Table Features

- Colorful format
- Format adjusts for insertions
- Easy to Sort, Filter
- Easy, smart Total Row
- Formulas are copied automatically
- Formulas use names

Date	Salesperson	Customer	Product	Amount
7/2/19	Carla Cox	Bauer	Bananas	779
7/5/19	Amy Adams	Bauer	Strawberries	1,037
7/6/19	Ed Ewing	Kane	Oranges	1,442
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7/26/19	Amy Adams	Jefferson	Bananas	1,403
7/27/19	Dan D. Dixon	Dean	Apricots	1,088

32

32

EXCEL CHARTS

33

What's the Best Way to Present Data?

34

Option A

Salesperson	Jul	Aug	Sep	Oct	Nov	Dec	Total
Amy Adams	3,489	1,989	4,141	4,149	1,953	2,976	18,697
Ben Barnes	1,154	952	236	1,688	3,108	874	8,012
Carla Cox	3,692	5,715	1,265	2,439	1,793	1,621	16,525
Dan D. Dixon	3,245	800	361	3,635	2,676	0	10,717
Ed Ewing	2,802	0	1,113	2,236	0	3,747	9,898
Total	14,382	9,456	7,116	14,147	9,530	9,218	63,849

35

34

35

Option B

36

Charts

- The best way to compare data
- Easy to create

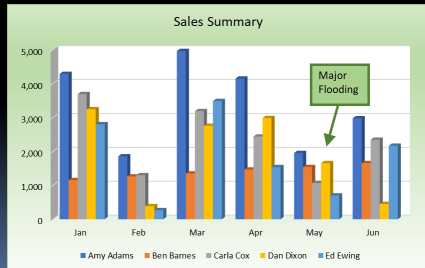
37

36

37

Column Charts

- Probably the most common chart
- Great for 2 variables

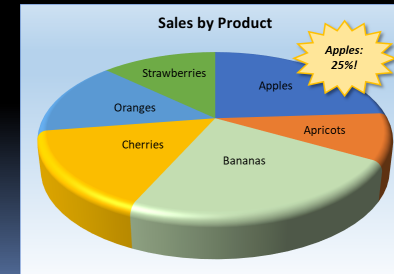


38

38

Pie Charts

- Shows composition of a whole
- Visually shows percentages

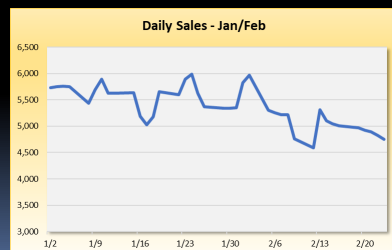


39

39

Line Charts

- Displays large number of data points
- Usually shows trends over time



40

40

REVIEW

41

In a large table, you can keep the column headers in view by using which feature?

- A. Print Preview
- B. Print Area
- C. Freeze Panes
- D. Format as Table

42

42

In a large table, you can keep the column headers in view by using which feature?

- A. Print Preview
- B. Print Area
- C. Freeze Panes
- D. Format as Table

43

43

You can define a name for a cell by using which feature?

- A. The Formula Bar
- B. The Name Box
- C. Sort & Filter
- D. The Status Bar

44

44

You can define a name for a cell by using which feature?

- A. The Formula Bar
- B. The Name Box
- C. Sort & Filter
- D. The Status Bar

45

45