Malteser Computer Training

Workshop 6 : Excel

Why use Spreadsheet - *Excel*?

Microsoft Excel allows you to store, organize and analyse different types of information. **Google Spreadsheet** is a web-based spreadsheet application developed by Google that functions like Excel

Whether you're starting a budget, planning a garden/vacation, or creating an invoice spreadsheets are a great way to **organize** information **and calculate data**. Working with spreadsheets means *knowing the spreadsheets ribbons, being able to enter and format data, calculate totals & summaries using formulas and functions, highlight data that meets certain conditions, create simple reports & charts and many other.*

Knowing how to use and work with spreadsheets is is often required from **an employee.** *Spreadsheets simplifies processing complex numbers and data, drawing statistics and analysis and to make business predictions based on certain data.* Also, it can actually be used for a variety of **everyday tasks**.

Organize and store contact information

	Name	Phone number	Email address	Date of birth	Age as of September 1st, 2011	Which days will your child be able to attend?	How will your child get home from Art Club?
	Ally Lannister	9199540303	lioness@email.com	8/12/2000	11	Monday, Wednesday	I will walk him home.
	Ta'niya Holt	9195556043	kholt@email.com	4/5/2001	10	Monday	He will be part of a carpool.
	Leopold Loeven	919-475-9340	aloeven@email.com	4/2/2002	9	Monday	I will pick him up by car.

Art Club Contact Information

Calculating statistics, e.g. Exercising

Exercise Log

		SET 1		SET 2		SET 3	
	EXERCISES	REPS	WEIGHT	REPS	WEIGHT	REPS	WEIGHT
Upper Body							
1.	Bench Press	14	65	12	75	10	80
2.	Bench Press (Decline)	10	60	8	70	6	80
3.	Cable Cross	12	50	10	55	8	60
4.	Seated Row	20	50	15	60	10	80
5.	Upright Row	14	65	12	75	10	80
6.	Shoulder Press						
7.	Hammer Curls						
8.	Triceps Extension						
9.	Triceps Lift						

Calculate budgets

Classroom Budget: Fall 2012

Item	Price	Type	To be reimbursed?	Description
New boombox	$69.99	Other	No	
Rolling plastic bins	$42.78	Storage	Yes	Will use for storing flat items-- sketchbooks, canvas
Pastels	$71.80	Art Supply	Yes	
Tissues	$31.23	Classroom Supply	No	
Clothespins	$15.10	Classroom Supply	No	To use for hanging art to dry/display
Clothesline	$21.14	Classroom Supply	No	To use for hanging art to dry/display
Water Colors	$67.00	Art Supply	Yes	
Total	$319.04			

Budget for Fall	$300.00		New Stools	
Budget for Spring	$350.00		Price per unit	$14.99
Total for 2012-13			# of Students	18
			Total	

Creating invoices

Valkarian Digital: IT Department Invoice Order Form

ITEM #	DESCRIPTION	QUANTITY	UNIT PRICE	TOTAL
8413	Eforcity 100ft Cat5 Cat5e RJ45 Patch Ethe	30	5.00	150.00
2165	V082 VPN Router- 8-port switch	1	230.00	230.00
8759	HP ProLiant - ML350 G6 Special Server - 4	2	1,282.00	2,564.00
2189	Corsair XMS2 4 GB : 2 x 2 GB Memory - D	8	57.00	456.00
5681	Lenovo H420 - 7752 - 4 GB RAM - 2.7 GHz	12	330.00	3,960.00
8970	Razer Naga Molten Special Edition - 17-bt	6	42.00	252.00
Total				7,612.00

Sales Tax: 7.5%

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Interface

Access Toolbar and Ribbons

Formula Bar (*fx*)

Cell
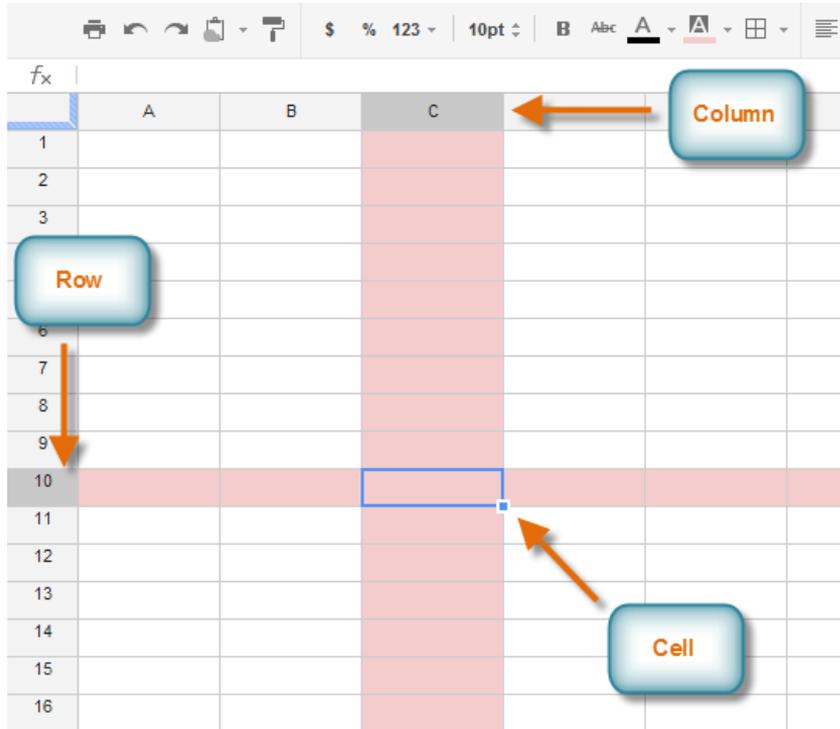
Column

Row

Spreadsheet Grid

Cell Basics

Every spreadsheet is made up of thousands of rectangles, which are called **cells**. A cell is the **intersection** of a **row** and a **column**. Columns are identified by **letters (A, B, C)**, while rows are identified by **numbers (1, 2, 3)**.

Each cell has its own **name**, or **cell address**, based on its column and row. In this example, the selected cell intersects **column C** and **row 10**, so the cell address is **C10**. Note that a cell's column and row **headings** become **darker** when the cell is selected.

Cell Basics

f_x | 5/6/2012

	A	B
1		
	Date	Sales
2	5/6/2012	100
3	5/7/2012	121
4	5/8/2012	86
5	5/9/2012	$25.00
6	5/10/2012	154
7	5/11/2012	110
8	5/12/2012	80

You can also select multiple cells at the same time. A group of cells is known as a **cell range**. Rather than a single cell address, you'll refer to a cell range using the cell address of the **first** and **last** cells in the cell range, separated by a **colon**.
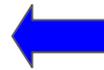
For example, a cell range that included cells A2, A3, A4, A5, A6, A7 and A8 would be written as **A2:A8** (highlighted blue)

To select a cell - left-click on a cell in the spreadsheet grid *or* use arrow keys to navigate the cell

To select a cell range -

1. Click, hold, and drag the mouse until all of the cells you wish to select are **highlighted**.
2. Release the mouse to select the desired cell range.

Cell Basics

Any information you enter into a spreadsheet will be stored in a cell. Each cell can contain several different kinds of content, including **text**, **formatting**, **formulas**, and **functions**.

Containing **text:** letters, numbers and dates

	A	B	C
1	Date	Sales	Percentage of Total
2	5/6/2012	100	0.4
3	5/7/2012	121	0.75
4	5/8/2012	86	0.21
5	5/9/2012	25	0.15
6	5/10/2012	154	0.88
7	5/11/2012	110	0.68
8	5/12/2012	80	0.45
9			

formatting attributes that change the way letters, numbers, and dates are displayed, e.g. percentages can appear as 0.15 or 15% and currencies as $. You can even change a cell's background color.

	A	B	C
1	Date	Sales	Percentage of Total
2	May 6	$100.00	40%
3	May 7	$121.00	75%
4	May 8	$86.00	21%
5	May 9	$25.30	15%
6	May 10	$154.00	88%
7	May 11	$110.00	68%
8	May 12	$80.00	45%

Cells can contain **formulas** and **functions** that calculate cell values. In our example, SUM(B2:B8) adds the value of each cell in cell range B2:B8 and displays the total in cell B9.

fx =SUM(B2:B8)

	A	B	C
1	Date	Sales	Percentage of Total
2	May 6	$100.00	40%
3	May 7	$121.00	75%
4	May 8	$86.00	21%
5	May 9	$25.30	15%
6	May 10	$154.00	88%
7	May 11	$110.00	68%
8	May 12	$80.00	45%
9	Total Sales	$676.30	
10			

Inserting Cell Content

1. Select a desired cell

2. Type **content** into the selected cell, then press Enter. The content will appear in the **cell** and the **formula bar**. You can also input and edit cell content in the formula bar.

3. (Press the **Delete** or **Backspace** key on your keyboard if you need to delete content.)

Copy (Cut) & Paste Cell Content

1. Select the cells you wish to copy.

2. Press **Ctrl+C** (Windows) or **Command+C** (Mac) on your keyboard to **copy** the cells.

3. Select the cell or cells where you wish to **paste** the cells. The copied cells will now have a box around them.

4. Press **Ctrl+V** (Windows) or **Command+V** (Mac) on your keyboard to **paste** the cells.

Unlike copying and pasting, which **duplicates** cell content, **cutting and pasting moves** content between cells.

1. Select the cells you wish to **cut**.

2. Press **Ctrl+X** (Windows) or **Command+X** (Mac) on your keyboard to cut the cells. The cell content will remain in its original location until the cells are pasted.

Excel Exercise Sheat: Exercise 0 – Add content

1. Open the Excel Exercise sheat and open the Sheat „Add content"

2. Write and organise the following datas:
Name Ranges: My Favourite Food, Country, Vegetarian
Datas: Italy, U.S.A., Currywurst, Tomato Mozzarella, Beef Burger & Chips, Münchner Schnitzel, India, Great Britain, Germany, yes , no, Fisch and Chips

3. Create a new data table in the same spreadsheet
   - Enter a new Name Range "englisch-speaking countries
   - Copy the data from the column with Name Range "Country" from the previous table and paste it into a column of the new data table with the same name range
   - Enter the missing data; Use Yes or No to specify if the country's mother tongue is English or not.

Improving the look of your spreadsheet

By default, the cells and rows of every new spreadsheet are always the same size.

Once you begin entering information into your spreadsheet, it's easy to **customize** rows and columns to better fit your data into cells and rows and to make your spreadsheet better and easy to read.

You can:

- change the **height** and **width** of rows and colu

- **insert**, **move**, **delete**, and **freeze** rows and colu

- **wrap** and **merge** cells

Going forward or backward
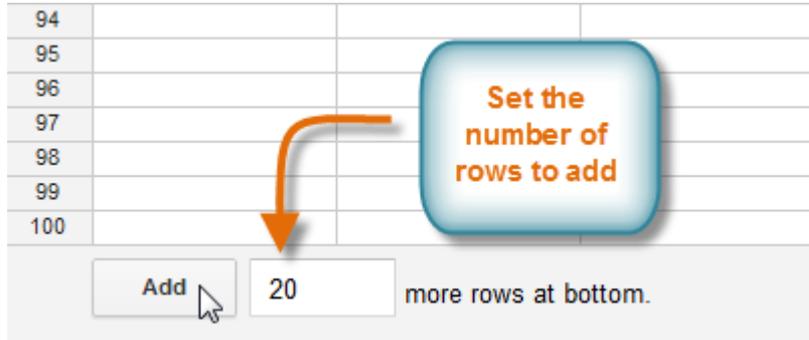
If you need to add more than one row at a time, you can scroll to the bottom of the spreadsheet and click the **Add** button. By default, this will add 20 new rows to your spreadsheet, but you can also set the number of rows to add in the text box.
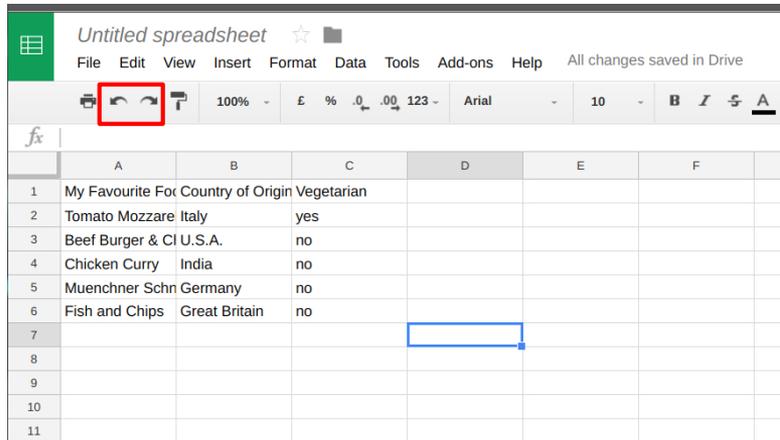
To **undo the changes**, click on **the reverse arrow** in your spreadsheet toolbar

You can also choose **the forward arrow** to re-apply the changes you've made to your spreadsheet again

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Delete data

There's a difference between **deleting** a row or column and simply **clearing its contents**. If you want to remove the content of a row or column without causing the others to shift, right-click a heading, then select **Clear row** or **Clear column**.

Position data in the cell

3. Use vertical align tools to position your data in the cell: *1) from the top; 2) in the centre or 3) from the bottom of the cell*

Position data in the cell

Use horizontal align tools to position your data in the cell: *1) from the left; 2) in the centre or 3) from the right*

Formatting Cells

After you've added a lot of content to a spreadsheet, it can sometimes be difficult to view and read all of your information easily. **Formatting** allows you to customize the **look and feel** of your spreadsheet, making it easier to view and understand.

- modify the **size**, **style**, and **color** of text in your cells.

- set **text alignments**

- add **borders** and **background colors** to your cells

- and more...

Formatting Tools
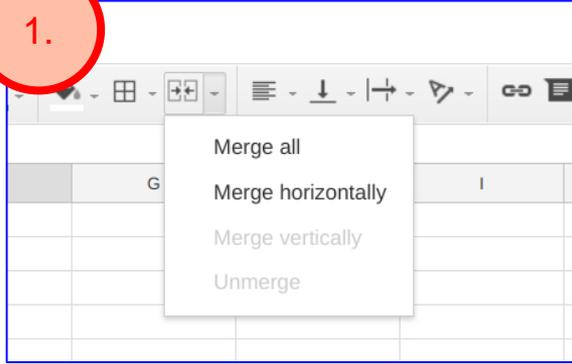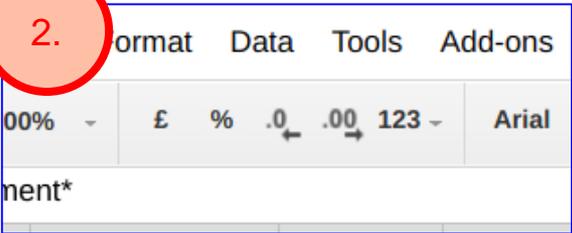
1. **Merging cells**
2. **Number Formatting Tools** - *Currency, Percentage, Decimals, Date/Time etc*
3. **Text formatting tools**
4. **Border tools**
5. **Adding other data** - *WordArt, links, Comments, Charts, Filters & Functions*

1.

2.

3.

4.

5.

Merge all
Merge horizontally
Merge vertically
Unmerge

ormat   Data   Tools   Add-ons

00%   £   %   .0   .00   123   Arial

Arial   10   B   I   S   A
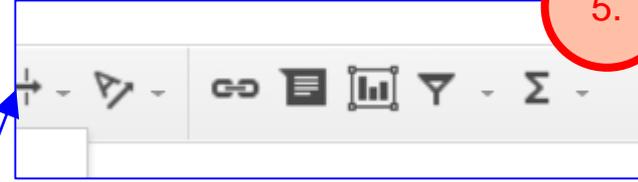
Ribbons

* Toolbar is a quick access menu to spreadsheet formatting tools. Many other options you can find in each context menu - *Ribbons*

Excel Exercise sheat: Exercise 1 to 6 „Formatting"

Sorting and Rearranging Data

SORTING RANGE: sorts the data in a selected range of cells. When working with a sheet that contains several tables, you may wish to sort the data of a singl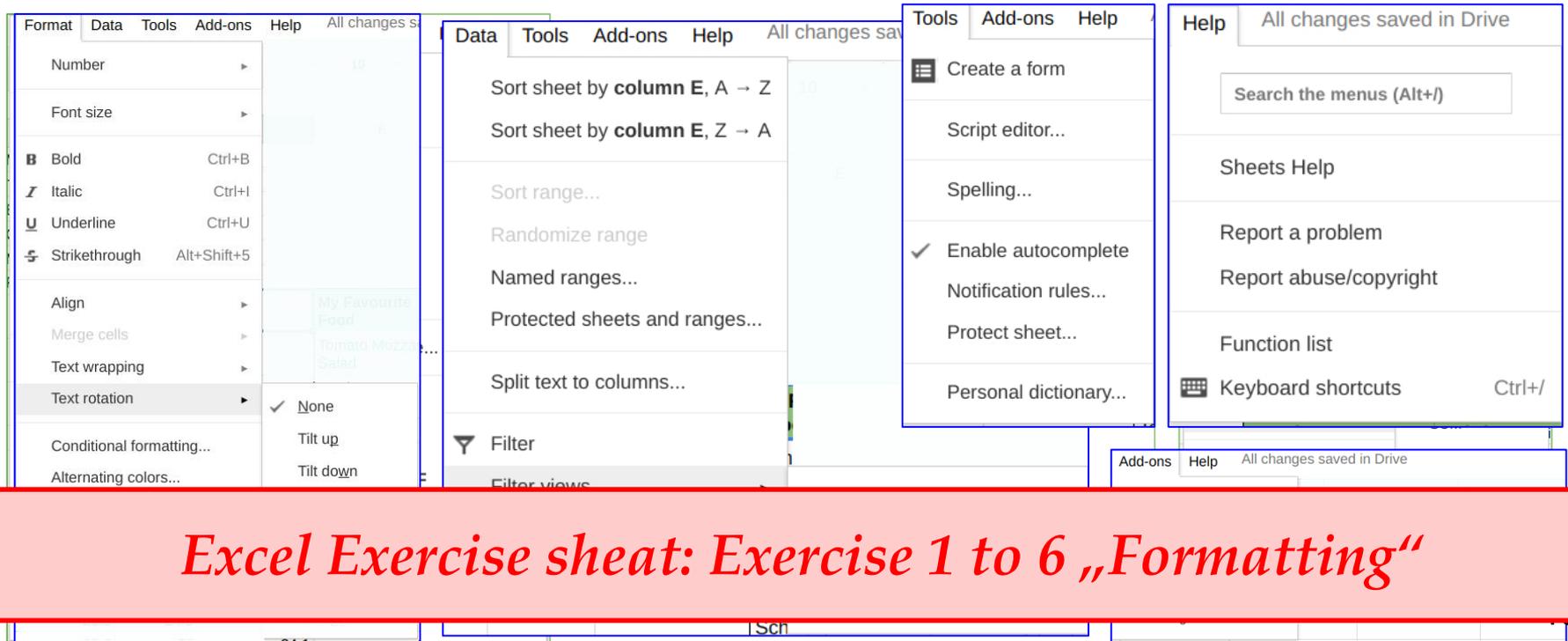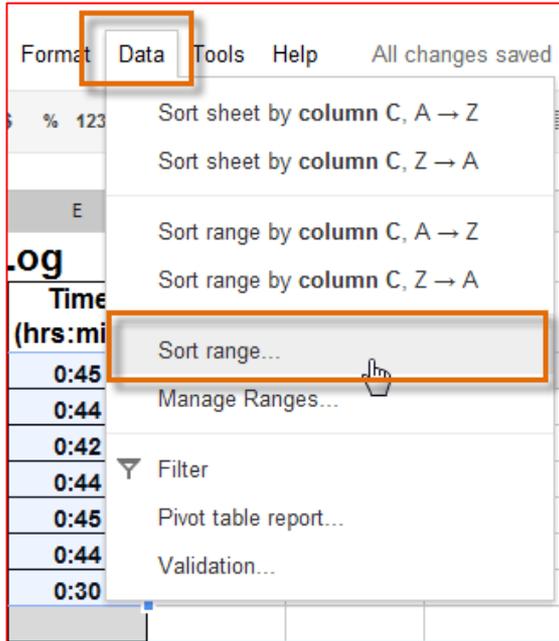e table. Sorting a range will not affect the data on the rest of the sheet, and it will keep related information across the row together.

1. Select a cell range containing data you'd like to sort

2. Click **Data** and choose **Sort range** option from the menu

3. (*image on the right*)

Select the column you wish to sort the data by

Select ascending or descending
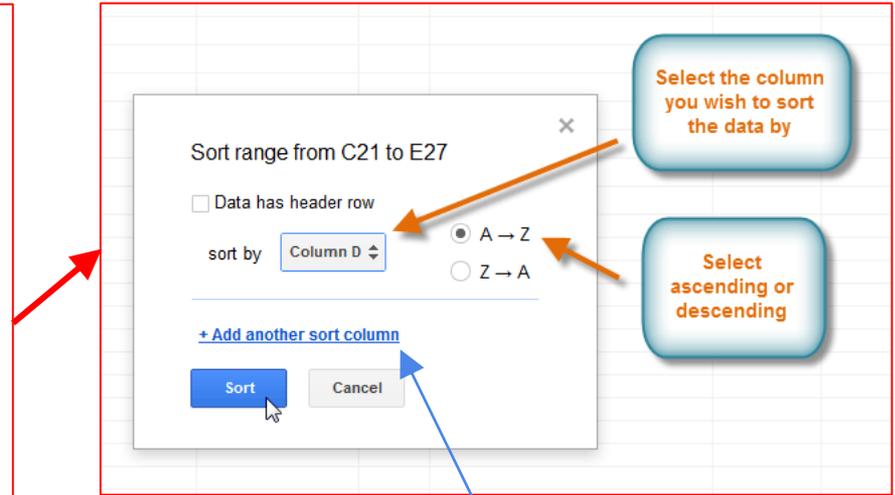
***You can sort multiple columns at the same time

Filter Data
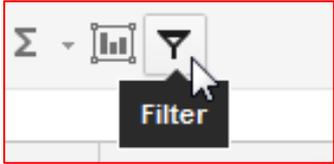
1. Select a cell containing any data and then click on the **Filter button** in your toolbar
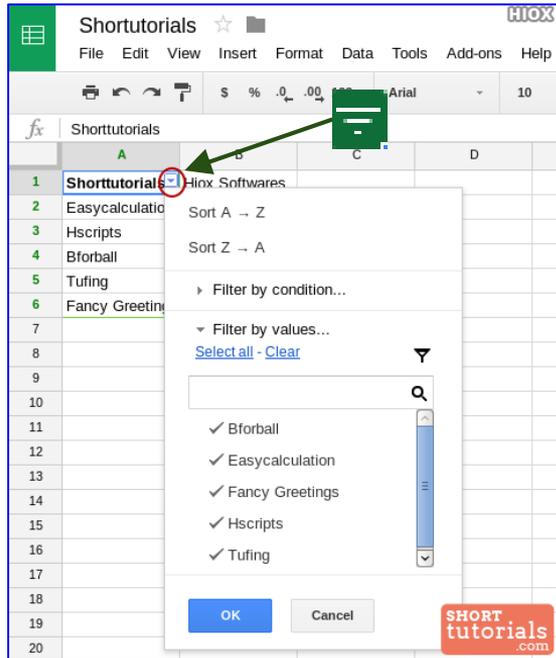
2. Click on the **drop-down menu** next to the **column** with data you want to filter

3. Select the **values** from the **checklist** as filtering options for your filter **- you can choose more than one**
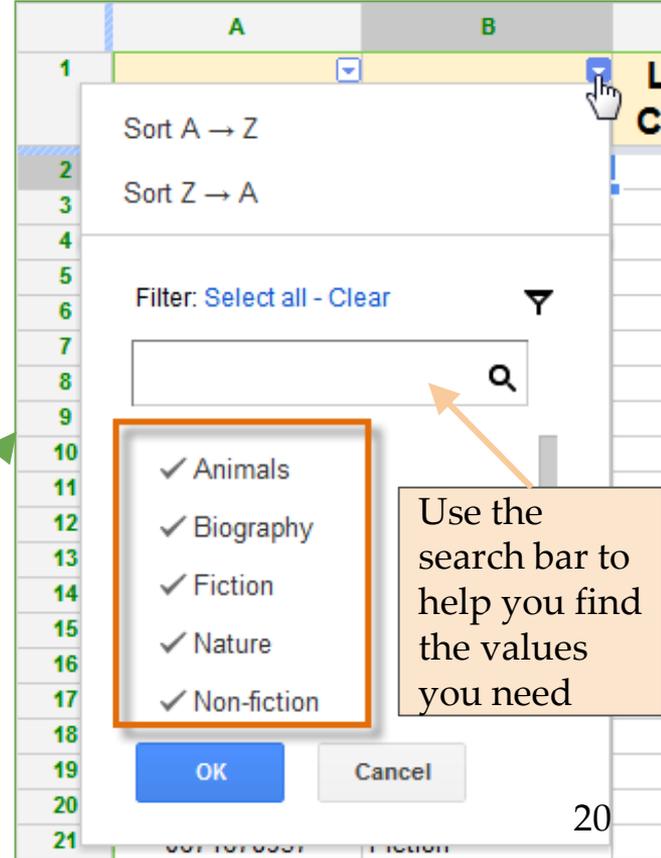
Use the search bar to help you find the values you need

Sorting and Rearranging Data
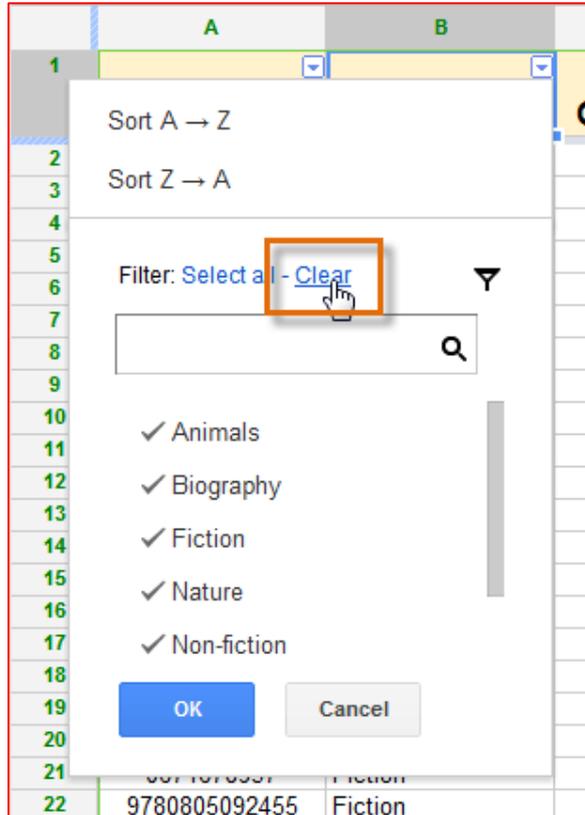
1. Clear the values first from the checklist to make sure you select only the values you need

2. Click **OK** to save your options. The sheet will be filtered according to your data selection. A filter symbol will appear in the right corner of the column header cell. *You are free to use as many filters as you need to narrow your data to the desired result.*

3. Turn off the filter if you need **to go back to the original data in your spreadsheet**
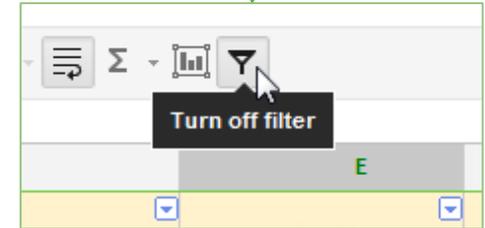
Exercise

- Open the Excel Exercise sheat

- Open an empty page

- Imagine you are the owner of a bookshop. You want to see how many books have sold online and directly from the shop for the past 12 months. Create a spreadsheet containing all relevant data:

List of books by genre: Fiction, Fantasy, Crime Fiction, Non-fiction, Drama Collections, Poetry Collections etc

Sold directly / Sold online / National Shipments / International Shipments. Add other fields you think can be relevant…

- Add how many books of each genre you have sold.

- Sort your data sheet/cell ranges alphabetically - find out which book genre was sold most and which genre didn't cell that well - then find out the best marketplace for your books (where did your books sell most?) and the preferred type of purchase. - Apply filters!

Formulas

When working with numerical information, Google Spreadsheets can be used to perform simple and complex calculations. This is achieved by **creating simple formulas** that will add, subtract, multiply, and divide values. It is important also to be aware of the basics of using **cell references** in formulas.

Most of the time, you will be using a **cell's address** in the formula. This is called using a **cell reference -** *see the next slide*. The advantage of using cell references is that you can change a value in a referenced cell and the formula will automatically recalculate. Using cell references in your formulas will make sure the values in your formulas are accurate.

Simple Formulas

The formula in cell A3 refers to the value in cell A1 plus the value in cell A2

Spreadsheets calculates and displays the answer for A1 plus A2

The formula automatically recalculates when the value of a referenced cell is changed

All formulas must begin with an **equals sign (=)**. This is because the cell contains, or is equal to, the formula and the value it calculates.

When a formula contains a cell address, it is using a **cell reference**. Creating a formula with cell references is useful because you can update the numerical values in cells without having to rewrite the formula.

Google Spreadsheets uses standard operators for formulas, such as a **plus sign** for addition (+), **minus sign** for subtraction (-), **asterisk** for multiplication (*), **forward slash** for division (/), and **caret** (^) for exponents (2^3).

Addition	+
Subtraction	-
Multiplication	*
Division	/
Exponents	^

Simple Formulas

Steps to add formula:

1. Select the **cell** that will display the calculated value
2. Type the **equals sign (=)**
3. **Add cells with mathematical operators** to create a formula, e.g. =A14+B14, =14*5 etc.
4. **Press Enter -** Excel program will automatically calculate the result

Try some simple calculations in your PaT Basic Excel Exercise spreadsheet. *Make sure to include different operators:*

* Google Spreadsheets **will not always tell you** *if your formula contains an Error, so it's up to you to check all of your formulas.*

Addition	+
Subtraction	-
Multiplication	*
Division	/
Exponents	^

Sorting and Rearranging Data

Google Spreadsheets allows you to analyze and work with a significant amount of data. As you add more content to your spreadsheet, _knowing how to locate specific information in it becomes important._ Spreadsheets allows you **reorganize** your data by **sorting** and **applying filters** to it. You can sort your data by arranging it alphabetically or numerically, or you can apply a filter to narrow down the data and hide some of it from view.

SORTING:

When working with Google Spreadsheets, sometimes you may wish to reorganize the data so you can easily find the information you're looking for.

- Sort sheet
- Sort range
  - Alphebetically
  - Numerically

FILTERING:

Filters are useful for displaying only the data that interests you. By applying filter, you'd narrow down the information in the spreadsheet to the one you need to see.

- **Checklist of the values in columns**
- **Multiple filters** - applying filters to as many columns as you need

Sorting and Rearranging Data

SORTING SHEET: to organize all of the data in your spreadsheet by one column. Related information across each row is kept together when the sort is applied.
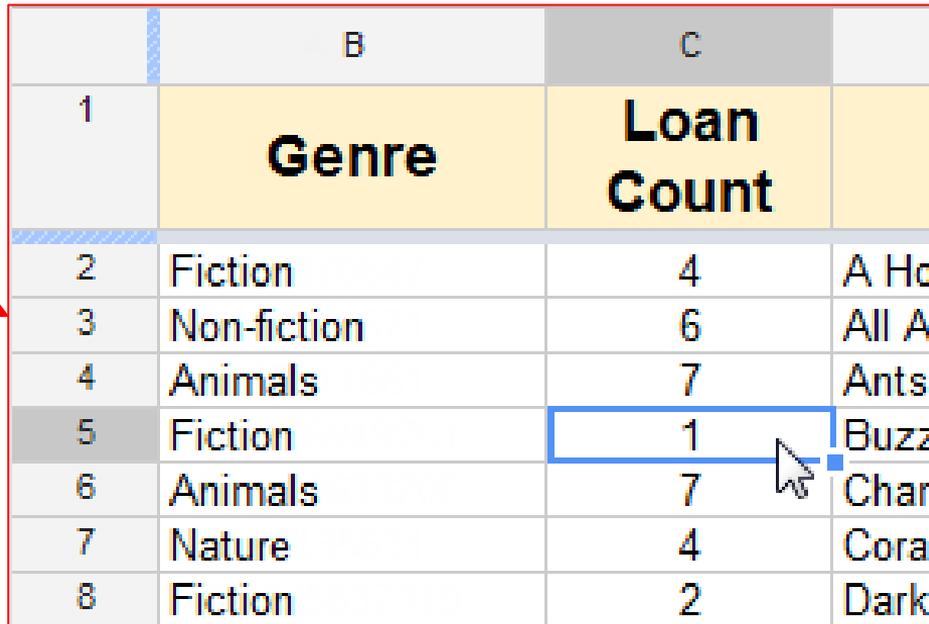

GDrive spreadsheets: Sorting and Rearranging Data
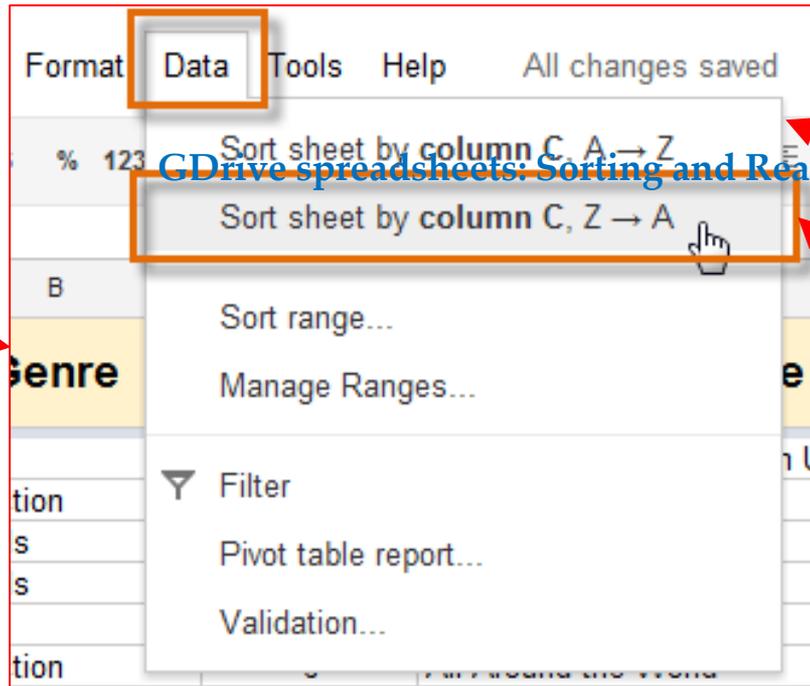
2. Sort data alphabetically

Sort Sheet by column, A-Z (ascending)

or **Sort Sheet by column, Z-A** (descending)

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Sorting and Rearranging Data

SORTING SHEET: organizes all of the data in your spreadsheet by one column. Related information across each row is kept together when the sort is applied.

3. Sort data numerically

	B	C	
1	**Genre**	**Loan Count**	
2	Fiction	4	A Ho
3	Non-fiction	6	All A
4	Animals	7	Ants
5	Fiction	1	Buzz
6	Animals	7	Chan
7	Nature	4	Coral
8	Fiction	2	Dark

1. Select a cell containing numerical data

2. Choose option "Sort Sheet by column, A-Z (ascending)" - to sort numerical data from the smallest to the biggest number

or

3. Choose option "Sort Sheet by column, Z-A (descending)" - to sort the numerical data from the biggest to the smallest number

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Charts and Images

In order to present your data more interactively, excel contains ways to visual representation of data - **Charts of different kinds:** *bar charts, column charts, pie charts, line charts, map charts, scatter charts, area charts and many other.*

You can also **insert images and your own drawings** to your tables and table cells: *product or companies brands, customer logos or other pictures you consider appropriate*
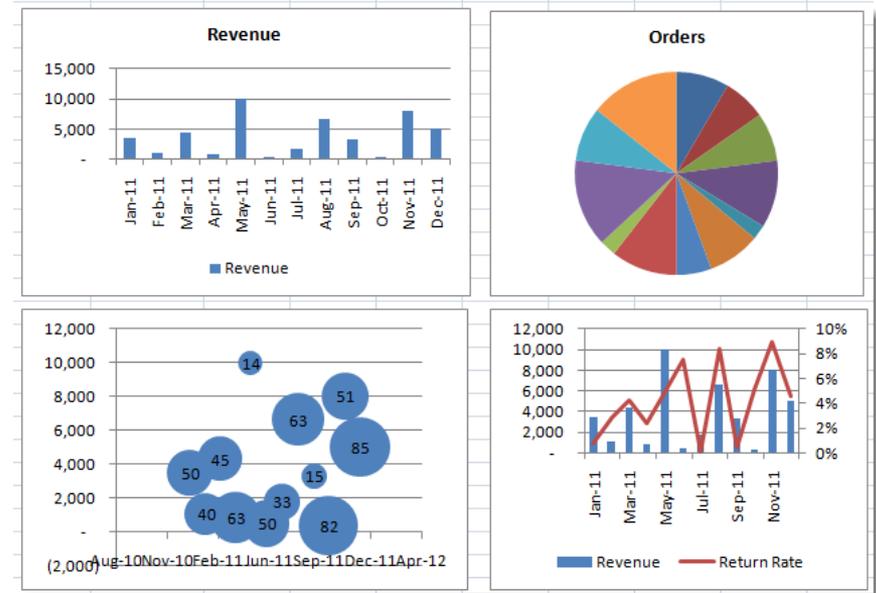
Charts and Images

Using charts can help *to structure and analyze data and number, to evaluate alternatives, understand trends or find-out if everything is normal* **more effectively.**

Presenting charts instead of simple tables or simple reciting of number helps **to perceive information more easily** by the audience.

To add chart to your spreadsheet, follow these steps:

1. *Find-out what you want to say?*
2. *(Re)arrange the data*
3. *Prepare the chart*
4. *Format the chart*

Creating charts:
Step 1 - Find-out what you want to say?

6 common reasons that we often have to make a chart:

1. **to Compare** - <u>*You want to compare values with another:*</u> *Performance of Product A vs. Product B in 5 regions, Interview performance of various candidates*
2. **to show the Distribution** - *Distribution of Call waiting times in a call center, Distribution of bugs found in 10 week software testing phase*
3. **to explain Parts of the Whole** - *Individual product sales as a percentage of whole revenue; Browser types of customers visiting our website*
4. **to tell the Trend over time** - *Customer footfalls on the last 365 days; Share price of MSFT in the last 100 trading sessions*
5. **to find out the Deviations** - <u>*You want to see which values deviate from the norm:*</u> *Failures (or bugs) in the context of Quality Control; Sales in Various Store*
6. **to understand the Relationship** - <u>*You want to establish (or show) relationship between 2 (or more) variables:*</u> *Relationship between Search Phrases and Product Purchases in your website; Relationship between in-store sales and holidays*
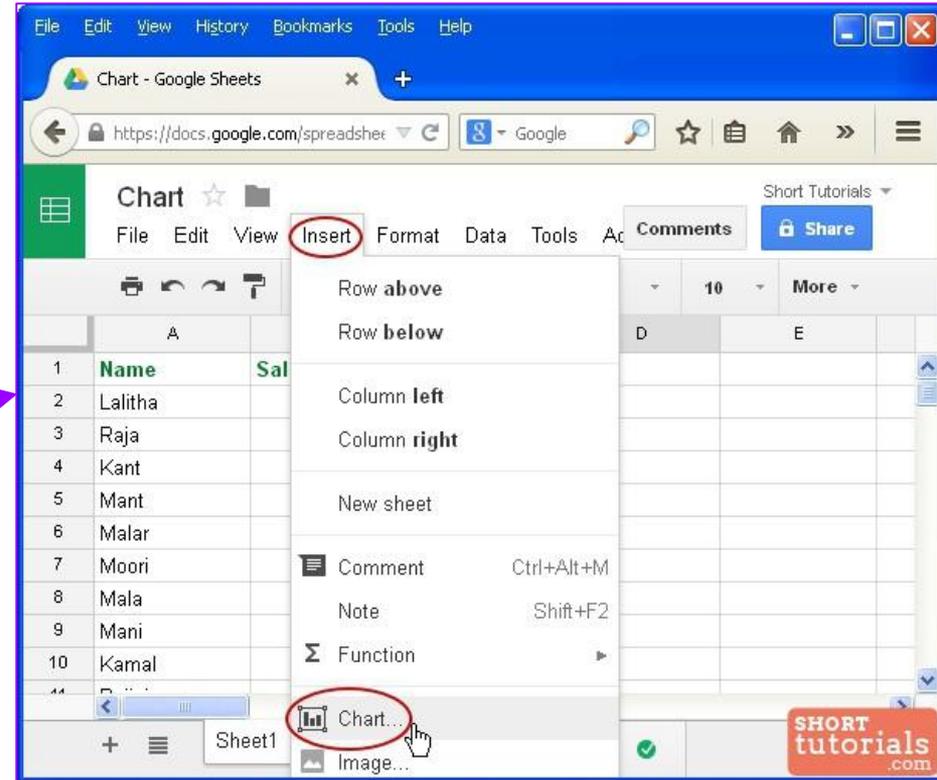
Creating charts: Step 2 + Step 3

2. (Re)arrange the data:

Even when we know the message and corresponding chart, sometimes, our data may not support us. We then have to rearrange the data. Using formulas, table and data cleaning tools. Once you have data in the correct format, you can proceed to step 3.
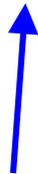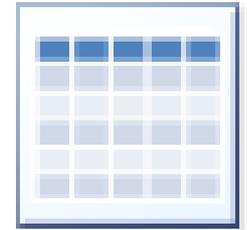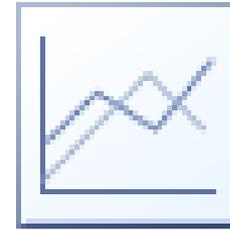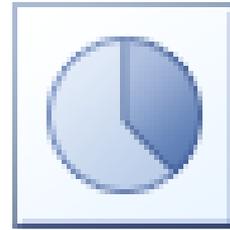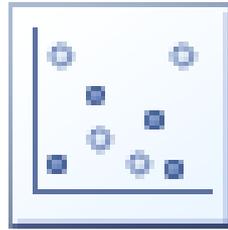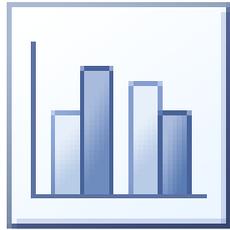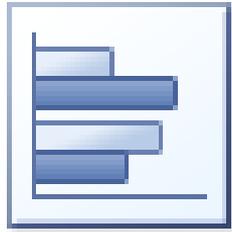
3. Prepare the chart:

Most of the regular charts are available in the spreadsheets chart list as default charts. You can **insert them with few clicks:**

But for some special chart types, you may have to prepare the chart *by formatting tools - Step 4.*

Charts and Images

Choose the appropriate chart type for visual presentation of your data:
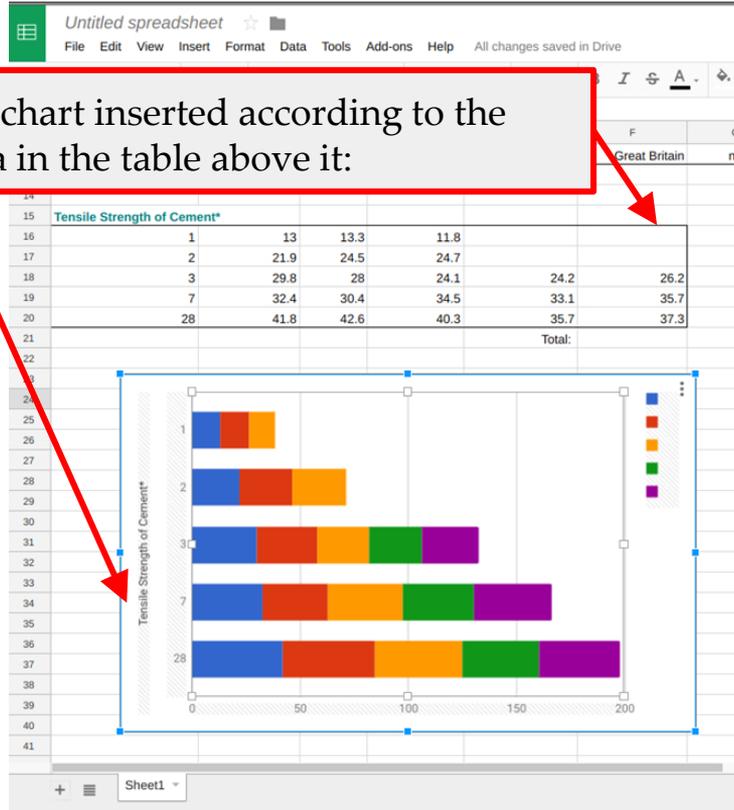
Bar Chart **Column Chart** **Scatter Plot** **Pie chart** **Line chart** **Data tables**

Creating charts
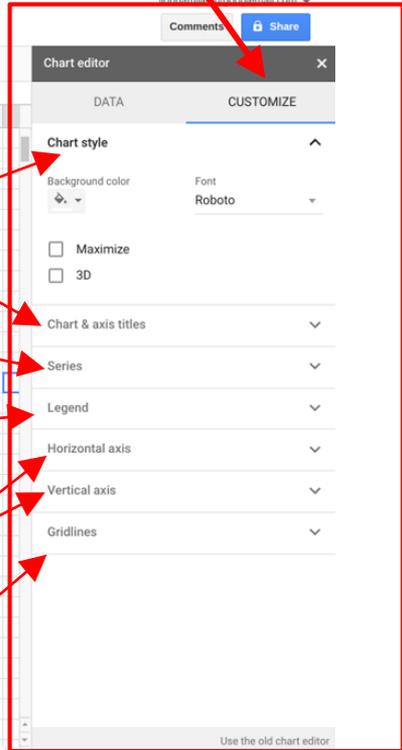## Step 4 - *Format the chart*

Bar chart inserted according to the data in the table above it:

1. Use simple, easy colors

2. No non-zero axis scale on bar charts

3. Add labels to important points

4. Add descriptive, bold titles

5. Position axis, scales at the right places (for eg. y-axis to the right on a large time series chart)

6. Make subtle grid-lines (or remove them)

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Excel Exercise sheat: Exercise 15 to 17 „charting“