Local Government Training Institute (LGTI) Short Course Data Curriculum

Data Fundamentals Course

Module 1: Introduction to Computer, Web and Spreadsheet Basics

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STUDENT WORKBOOK

This module introduces the learner to the basics of computers, the Web and spreadsheets which will service as fundamental tools for the data course. Anyone reading this today understands the value that computers place in our day-to-day work and it only makes sense that anyone working with data is comfortable with the basics of using a computer. Besides, most data you will interact with today is either collected, analysed or stored on a computer, which makes it a critical tool to master. There is a wide spectrum of knowledge and skills that can be learned when dealing with a computer. However, you only need to know the basics to start leveraging the powerful features it provides to work with data.

The World Wide Web (known more commonly as the Web) is another core tool necessary for effectively working with data. This will be one of the main mediums through which we will perform data steps such as finding data, getting the data, accessing data analysis and presentation software but also sharing our work with colleagues, organisations and the general public. The internet today is a vast repository of resources, tools and services. Understanding how it works and what it is capable of is a crucial skill for the modern data user. We will explore several features and tools on the internet that will increase your efficiency in working with data.

We will end this module by learning about spreadsheet software and the power they offer when using for data work. Most people know of Microsoft Excel and we will explore this and other free and open-source versions as well as the many powerful features they offer to anyone working with data.

And the end of this module, a learner should be able to:
- Identify and explain the key components of a computer and what they do.
- Identify common keys and keyboard commands, and their use.
- Follow instructions to perform common computer tasks including starting, saving and closing an application.
- Explain different data related terms and concepts used in the data ecosystem.
- Explain and provide examples of the value of data in a given context or sector.
- Identify the various stages of the Data Pipeline and how it can be used in data work.

Contents

Lesson 1: Introduction to Computers

This module provides an introduction to the computer basics skills that are needed to comfortably work with and through the data fundamentals course. It provides an exposure to basic computer components and lingo, as well as useful commands that a learner should be familiar with to speed up their learning and work in data.

Objectives
- Identify and describe the functions of the key components of a computer (desktop and laptop).
- Select an computer with appropriate specifications
- Identify all the keys on a regular keyboard in order to become more comfortable with any data commands.
- Learn the common keyboard commands and their functions for common data tools.

Outcomes
- Each learner can identify and describe the functions of the key components of the computer.
- Each learner can identify the keys on a keyboard.
- Each learner can use the common keyboard commands to perform an action.

Defining Computers

Computers today go beyond our tradition description of the the common desktop or laptop computer. One definition of a computer is: *a programmable usually electronic device that can store, retrieve, and process data*[1]. Technically, a reference to a computer then includes calculators, phones, watches or even a [1]cars today. Throughout this data fundamentals module, our references to the computer will mean the laptop or desktop co[2]mputers. However, learners should be aware of the existence new devices that can be used in achieve many of the data goals they will learn, particularly given the context they find themselves in. For instance, the advanced module on Data Collection will leverage on a combination of desktop/laptop computers and smartphones for data collection applications.

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[1] Merriam-Webster Online Dictionary defition: https://www.merriam-webster.com/dictionary/computer
[2] https://en.wikipedia.org/wiki/Central_processing_unit

Computer Components

Knowing the key components of a computer is not only valuable for understanding how the computer works but also allows users to better troubleshoot any challenges that could arrive as they work with with different applications used in data work. For instance, knowing the function and capacity of the *random access memory* (RAM) will allow users to understand what makes a 2GB RAM laptop slow in working with Tabula, a common data extraction tool.

Central Processing Unit (CPU)

The Central Processing Unit[2] also known as the CPU or processor is the brain of the computer. It is responsible for carrying out the operations that turn the inputs received or stored by the computer into the valuable outputs the user desires. For many personal computers today, Intel and Advanced Micro Devices (AMD) are the main processor manufacturers. When it comes to choosing processors, speed (usually measured in megahertz or MHz) matters. Intel usually simplifies these details usually its i3, i5 and i7 specifications, where a higher number means more speed.

Random Access Memory (RAM)
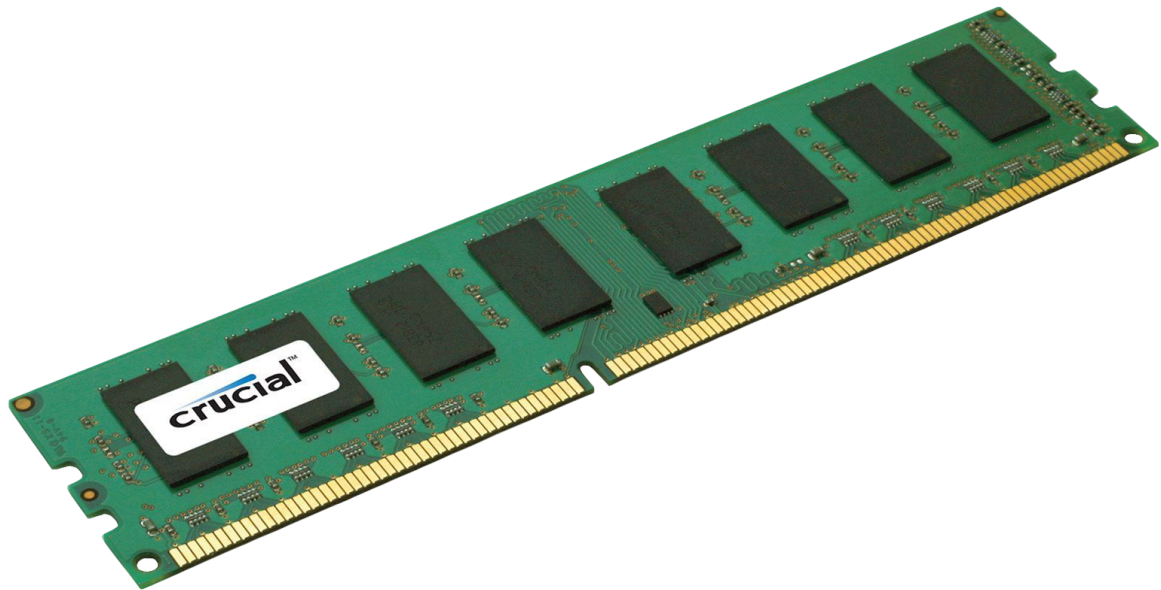
The represents the memory that the computer using for processing of its input. The RAM is extremely fast and keeps track of all the changes that a program actively makes to an input. However, despite being a fast memory stage, the RAM does not hold any data that left on it when there is not electricity. This makes the RAM volatile memory. This is why you lose any work you do on your computer if it is not saved.

Storage Disk

The storage disk of a computer is the non-volatile storage device. This is where all the files and programmes you have saved on your computer reside. Unlike the RAM which is volatile, the storage disk still retains data even when there is no power running through the computer (there is the reason for its non-volatile reference). The capacity of the storage disk is usually higher than that of the RAM since it is the "storage bank" for the component.

Currently, there are two main types of storage disk in common computers: the hard disk drive (HDD) and the solid-state drive (SSD). The HDD is the elder sibling of the SSD as it was developed first. It is made up of layers of magnetic disks which are read by a moving disk head when files need to be access or write to. Due to the movement of the disk head across layers, this means that the HDD is relatively slow in read and writing

files. The existence of disk layers on top of each other also makes HDDs very fragile and result in permanent damage and data loss when the computer is dropped.

The SSD is the younger sibling in the storage disk family and unlike the HDD boasts of faster read/write speeds as well as robustness compared to the HDD. This is because SSD are made up of just circuits and processing chips (similar to the RAM) unlike the combination of magnetic disks and a disk head of the HDD. This however makes the SSD significantly more expensive per gigabyte (GB) of storage compared to the HDD. However, the longevity that an SSD provides far outweighs the initial cost.

Keyboard

Keyboards have and continue to play a central role in the day-to-day use of a computer. Even with the proliferation of touchscreen devices, the keyboard's layout still serves as a crucial medium of interaction with computers. This makes it still important to be familiar with the common keys and functionality of the keyboard. The image above shows a picture of a keyboard with an English QWERTY layout. There are several layouts based on language and ergonomic preference such as the DVORAK layout, however the general function of most of the keys still remain the same. The learner should make it a point to become familiar with all the keys on the QWERTY keyboard as they will prove useful in future data work particularly when working with spreadsheets, statistical and programming software.

Special Keys and Keyboard Commands

Each key on the keyboard plays an important role in the day-to-day use of the computer. However there are a special keys and commands which tend to stand out more when working with data and data tools. Below is a list of keys a learner should be familiar with as she works with data. The goal is not to identify the potential use right away but to be familiar with their names and location for reference when they show up in a project or software package.

Special Keys

Name	Keyboard Image	Screen Appearance
Tilde	~	~
Backtick	~	`
At Key	@ 2	@
Hash or Pound	# 3	#
Caret	^ 6	^
Ampersand	& 7	&

Asterisk or Star	* 8	*
Hyphen, dash or minus	− -	−
Underscore	− -	—
Pipe	| \	|
Double Quotes	" '	" " or
Single Quotes or Apostrophe	" '	' ' or
Colon	: ;	:
Semi-colon	: ;	;
Left Parentheses	(9	(
Right Parentheses	) 0	)
Left Square Bracket	{ [	[

Right Square Bracket	}]	]
Left Curly Brace	{ [	{
Right Curly Brace	}]	}
Back slash	| \\	\\
Forward slash	? /	/
Control	Ctrl	None
Alt	Alt	None
Escape	Esc	None
Tab	Tab	None

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Important Key Combinations

Action	Windows or Linux Shortcut	Macintosh Shortcut
Copy	Ctrl + C	CMD + C
Cut	Ctrl + X	CMD + X
Paste	Ctrl + V	CMD + V
Undo	Ctrl + Z	CMD + Z
Redo	Ctrl + Y	CMD + SHIFT + Z
Select All	Ctrl + A	CMD + A
Save	Ctrl + S	CMD + S
Bold	Ctrl + B	CMD + B
Italicise	Ctrl + I	CMD + I
Print	Ctrl + P	CMD + P

Ports
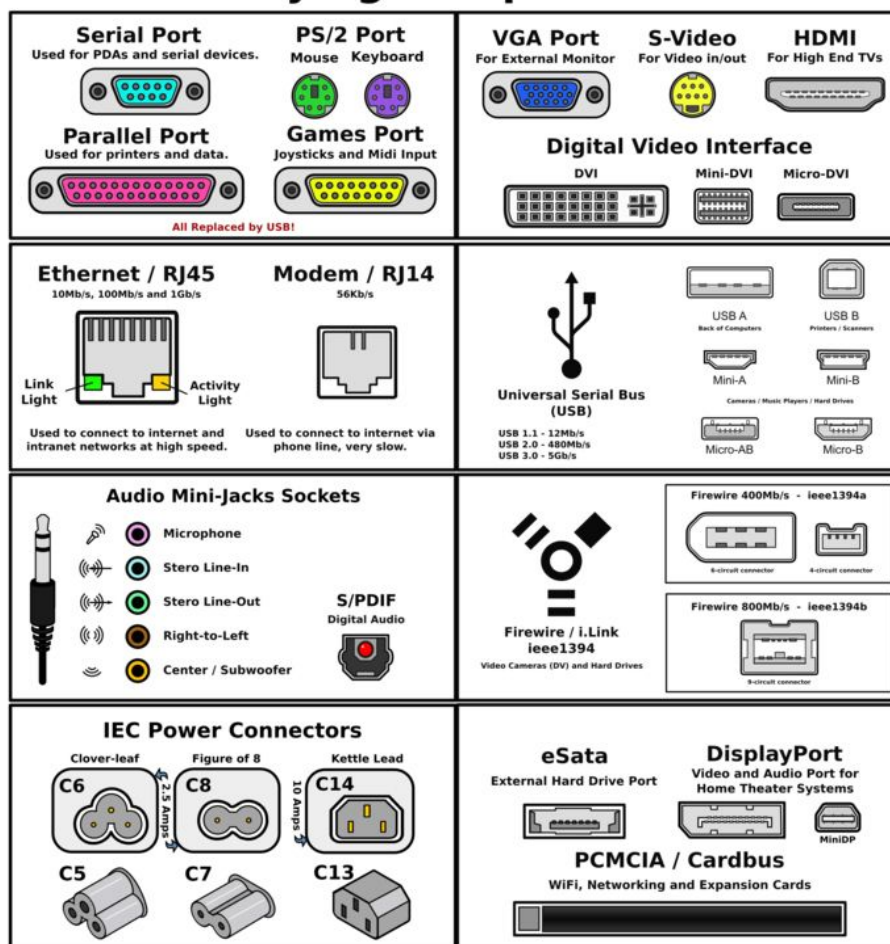
Different types of computer ports by SVA News

(https://svanews.com/2016/11/07/types-of-computer-ports-and-their-functions/)

Computer ports as their names suggest serve as a "gateway" to connect other electric devices to your computer for extended functionality. Ports come in various forms and sizes depending on the type of computer you possess. Knowing how to identify some of these common ports will allow you to easily work with some equipments and also

troubleshoot potential issues that may arise during your data work. The list below is not extensive but attempts to highlight some of the most common ports you will encounter.

- **Universal Serial Bus (or USB) Port:**
- **Video Graphics Array (VGA) Port:** this connects LCD/LED monitors to regular graphics cards for displaying that actions being performed on the computer.
- **Firewire Port**
- **Digital Video Interface (DVI):** these usually connect LCD/LED monitors to the computer's advanced graphic cards.
- **Ethernet Port:** these connected RJ45 cables from the computer to an Ethernet port that provides a connection to the Internet. It is usually used by computers that do not have wireless cards.
- **High Definition Media Interface (HDMI) port**

To know more about these ports and their specifications, visit the SVA News page (https://svanews.com/2016/11/07/types-of-computer-ports-and-their-functions/) for a well-done breakdown.

Operating System Software

All the components and ports mentioned above require something to coordinate their interaction to achieve a specific goal. For storage devices, this is the instructions to read and write data to a specific block of storage, whereas for the keyboard it is defining what specific key combinations produce on the screen. How a new application you have installed on your computer behaves also depends on the type of environment that exists on your computer. This is where the operating system (OS) software comes in. The job of the operating software is to provide the environment and tools to coordinate the

interaction of the different components and peripheral devices attached to the computer. Without an operating system, a computer will just be pieces of hardware attached together by wires and screws, and will not be useful. There are several types and manufacturers of operating systems today depending on the type of computer i.e laptop/desktop, mobile device, chromebook, wearable device etc. However for this course, we will only focus on the OS of laptops, computers and mobile devices.

For laptop and desktop computer, there are three main flavours of OSes:

- Microsoft Windows Operating System[3]

- Apple MacOS[4]

- Linux Operating System[5]

Each of these offers varying pros and cons. Windows for instance is the most common consumer OS which makes it very familiar to most people and inherently has the advantage of much more software applications being developed for that platform. However, Windows can be relatively slow for some users and prone to malicious software attacks. MacOS on the other hand is designed to be graphically intuitive with optimisations for high-end design and graphical editing. However, this comes at a relatively higher price and only limited to hardware devices produced by Apple, the manufacturer of the OS. Lastly is Linux which has the advantage of being a free, open-source software (FOSS) but also presents the challenge of not having some commonly-used software application available for its platform.

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[3] https://en.wikipedia.org/wiki/Microsoft_Windows
[4] https://en.wikipedia.org/wiki/MacOS
[5] https://en.wikipedia.org/wiki/Linux

No matter which OS you end up using, you can still perform the necessary task for your data work if you matter the environment and resources that each provides. The focus of this section is not to provide a preference for a specific operating system but to highlight what fundamental skills you should be aware of whichever you choose. Below are examples of the common interfaces you may be familiar with:

Windows 10
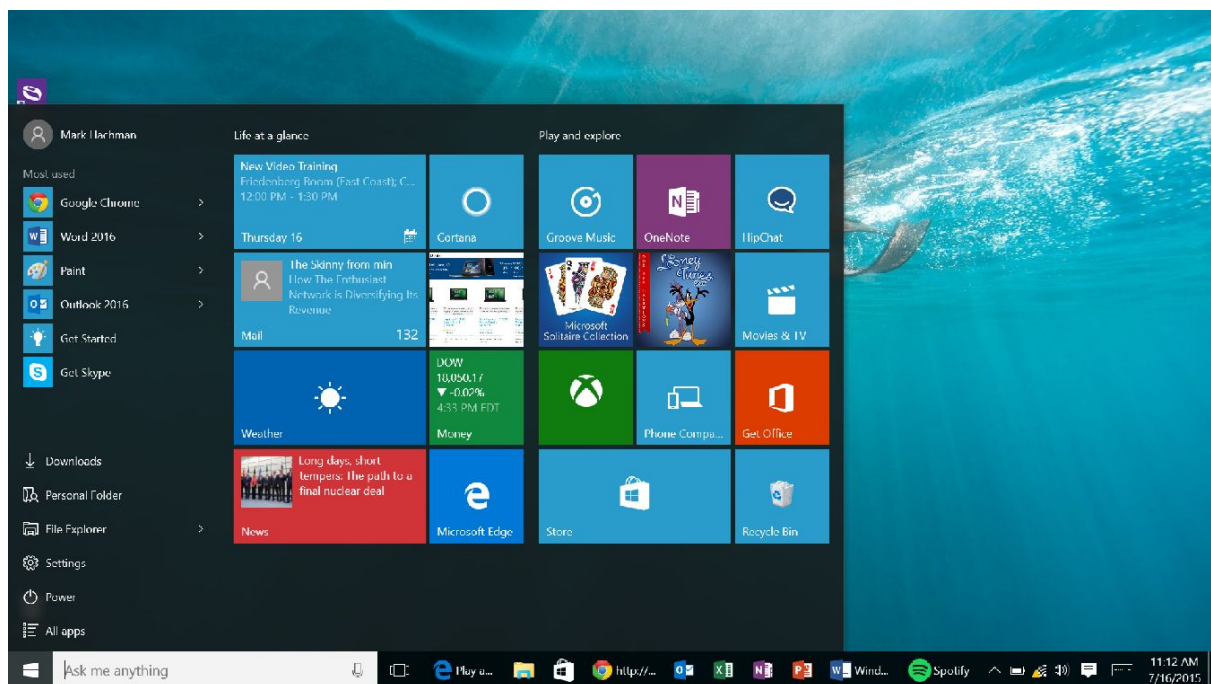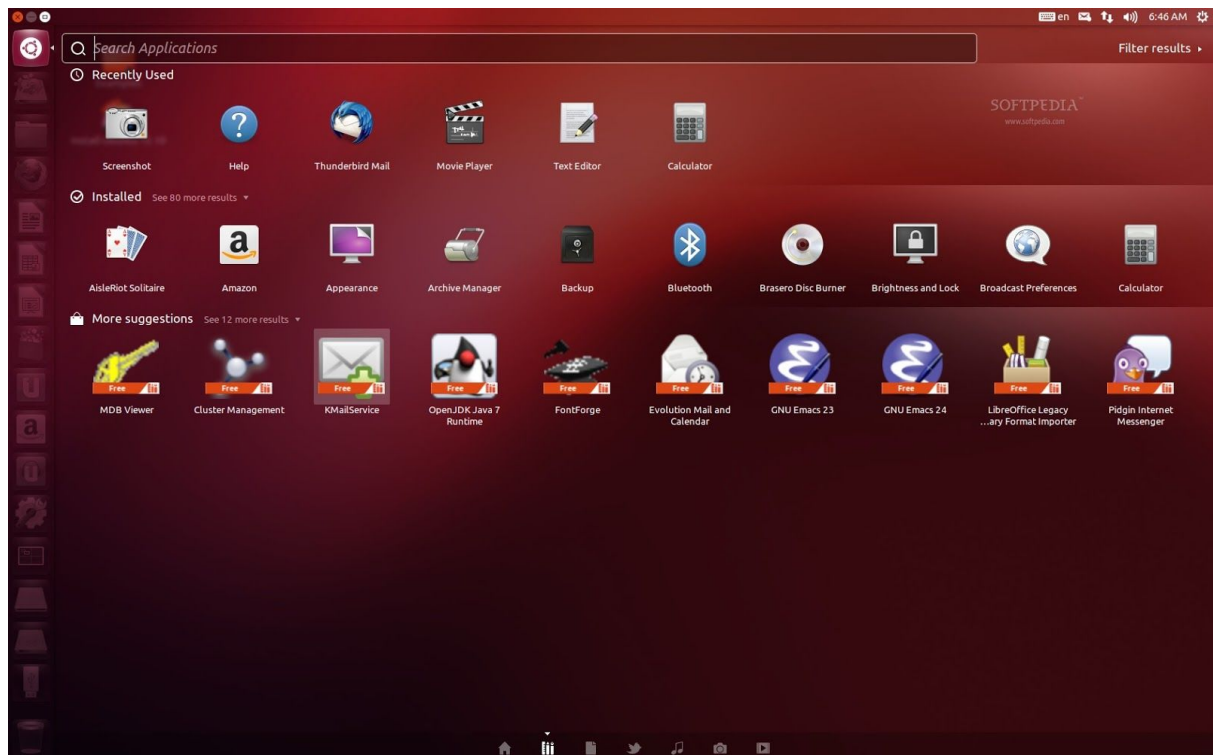

As of this writing (December 2017), Windows 10 remains the most recent version of the Windows operating system. Other previous version of Windows which may still be used include: Windows 8, Windows 7, Windows Vista or Windows XP. It is always recommended to use the more recent versions of an operating system since it contains improvements in user interaction, energy efficiency and security.

Mac OS

The most recent version of the MacOS (December 2017) is the Version 10.13 (High Sierra). The last few versions which may still be in use include: Version 10.12 (Sierra), Version 10.11 (El Capitan), Version 10.10 (Yosemite) and Version 10.09 (Mavericks).

Linux (Ubuntu)

The Linux operating system comes in varying shades called *distributions.* These distributions have varying strengths and are targeted at varying audiences. As Linux is also open-source, it means that various groups and organisations can build these different distributions to suit a need. The most common/popular Linux distribution is Ubuntu which is produced by Canonical[6]. However there are many more distributions including Fedora, Debian, Linux Mint, OpenSUSE, Red Hat Linux and more[7].

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[6] https://www.canonical.com/
[7] https://en.wikipedia.org/wiki/List_of_Linux_distributions

Lesson 2: Introduction to the Web

For anyone working with data today, it is impossible to ignore the pervasiveness of the the Web. Being able to understand the basics of what the Web is provides a great foundation to understand how several resources on the internet work or do not work.

It is common to find the Internet and the Web used interchangeably in discussions or explanations. However, their distinction is important to note. The Internet is the network of infrastructure that allows for communication between various computer networks across the world whereas the Web is a platform the leverages on the Internet and a specific language of the Internet for communication. If we use the example of a transportation network in Tanzania, the internet will be similar to the road infrastructure that is set up to allow movement of people, animals, car and any entity that needs to connect from one point to another. The Web on the other hand will be similar to a specific transportation service that leverages on the road infrastructure. This could be a public transport system, bike system etc.

Web Browsers

One prominent tool that is used to communicate and access resources on the Web is the Web Browser (commonly called a Browser). Wikipedia defines a web browser as "a [software application](#) for retrieving, presenting and traversing information resources on the [World Wide Web](#)."[8]. You can think of browsers as operating systems for the Web and therefore allow to perform several needed functions on the Web as you would on your computer.

There are several web browsers available today and which one you choose to use depends on your preference and operating system. Most OSes come with at least one browser installed. The great thing about most (if not all web browsers) is that they are free to download and work for several OSes. Some of the most commonly used web browsers include Microsoft Edge, Mozilla Firefox, Google Chrome, Opera, Apple Safari. One recommended best practice is to have more than one web browser on your computer to troubleshoot web issues.

Given the diversity in web browsers, it is impossible to cover all their features in detail. As you choose one or two to work with, you'll discover what features you need for a specific function. However, most web browsers have several features in common worth knowing:

Feature Name	Description
Address Bar	This is the section of the browser where the address for a website you want to access is entered. It is usually a large "bar" at the top of the browser page.

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[8] https://en.wikipedia.org/wiki/Web_browser

| Back Button	This is one of the navigation buttons on the browser that allows you to return to the previously accessed page. It is identified by an arrow pointing to the left.
Forward Button	This is another one of the navigation buttons on the browser that allows you to return to the previously accessed page. It is identified by an arrow pointing to the left.
Refresh Button	This feature reloads the website you have request. This is useful if you want to get the most updated version of the website or want to reload a website that did not properly load. This is usually represented by a circular clockwise arrow.
Stop Button	This feature stops the browser from continuing any communication with another site. This is usually applicable if you are in the process of requesting for a website and do not want that action to be completed. This is usually represented by an X

Optional: Using Google Services
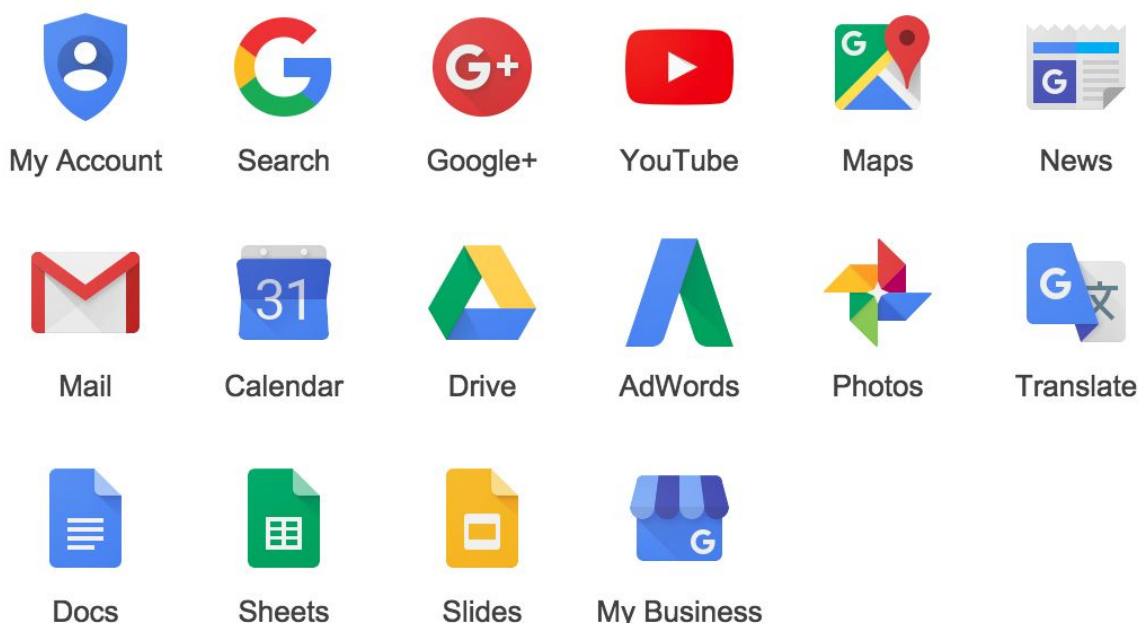
One you have a web browser available, you can access several internet services including news sites, entertainment, communication and productivity sites and applications. As you do more work with data, there are several services that can make your work more collaborative and efficient. Some of these services include the Microsoft Office 360 Suite, Google Suite, Dropbox, Amazon Web Services and more.

The rest of the section will focus on Google Services as they tend to provide a breadth of services that meet several needs on an ordinary internet user aiming for collaborative

and effective data work. However, other services such as Microsoft Office and Dropbox are worth exploring. We will encourage users to be constantly exploring improved services for their data workflow.

Creating a Google Account
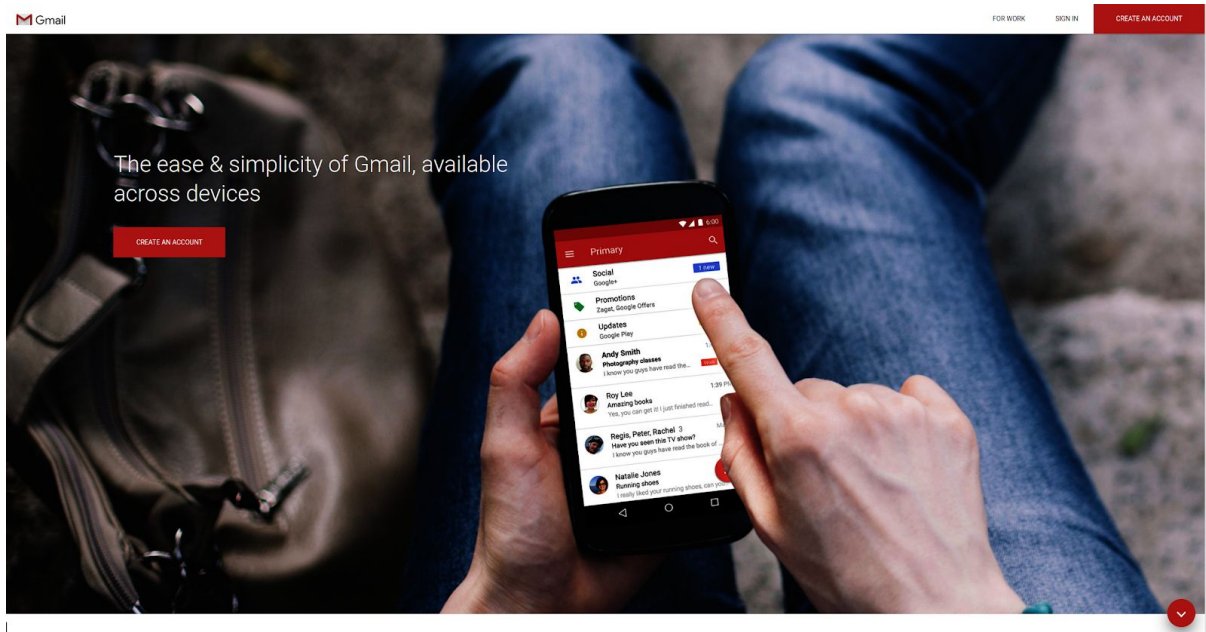
In order to tap into most of Google's Web Services, a user has to create a Google Account. Think of a Google Account, as a unique key to access Google's services. To create a Google Account, a user should visit: https://accounts.google.com/SignUp. This will bring up the page below or one similar to this:

Follow the instructions to create your Google Account in order to access your services. Once you have your account created. Google provides a look of learning resources through the GSuite Learning Center to get you started and become an expert Google Services user.

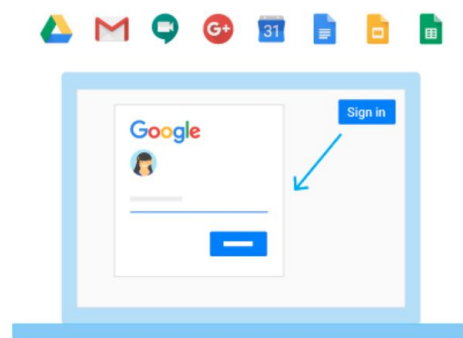# Getting Started With Google Services Using GSuite Learning Center

Learning to use new tools especially on the internet can seem a bit overwhelming if you are new to the internet. The best way to always master anything is to work with it continuously until you have figured out all its quirks. This will take time and will be worth it. However, most people will like to have some help get started.

Fortunately when it comes to using Google's many services, the team has created and organised a wealth of resources to help. The G Suite Learning Center

(https://gsuite.google.com/learning-center) is a great resource with step-by-step tutorials on services including Gmail, Google Drive, Google Docs and more to ease your learning. This is where you should start.

Learning to Use Gmail
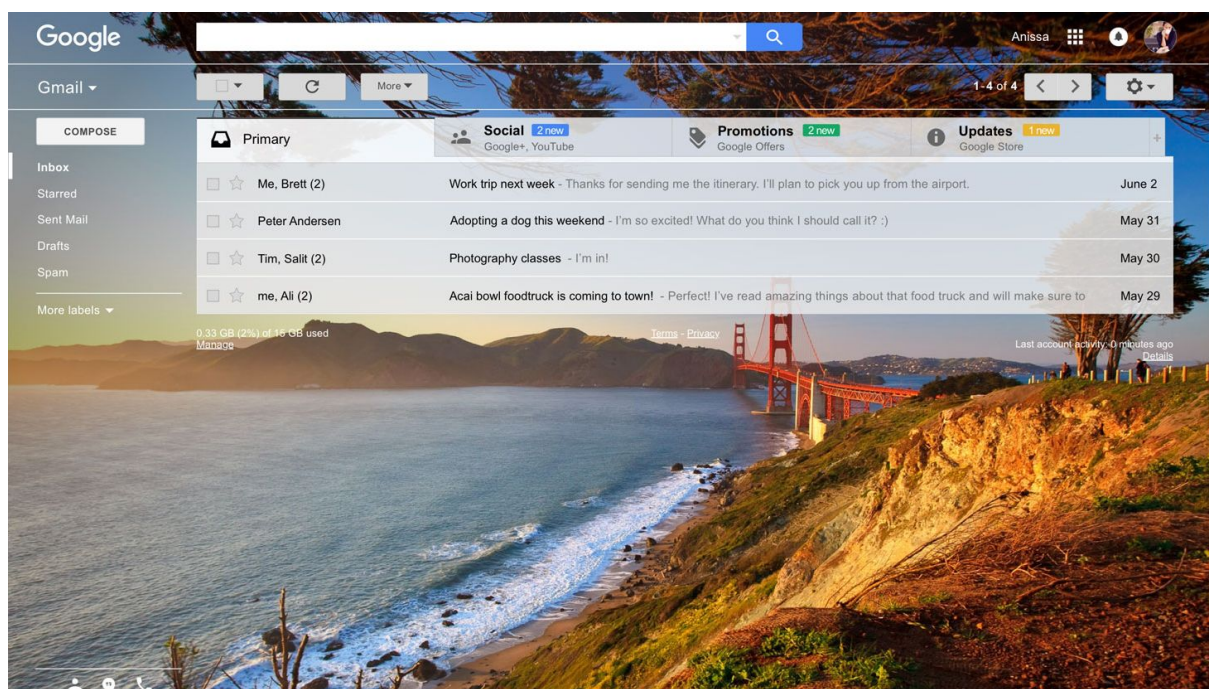
Gmail plays a crucial role in a lot of things that you will do on the internet and for your data work. Aside being one of the most popular email clients, having a Gmail account also provides you access to several services on the internet to make your work more efficient. Now that you have created your Gmail account, it is up to you to get familiar with it. To get a detailed tutorial on using Gmail, visit the following page on the GSuite Learning Center: https://gsuite.google.com/learning-center/products/gmail

GSuite Learning Center Gmail Tutorial Homepage

Getting Familiar with Google Drive

Upon creating a Google Account, each user is automatically given a Google Drive folder with 15GB of storage capacity. This online folder can be used for storage of files for easy access and sharing as well as the creation of word documents, spreadsheets, presentation slides and more. The table below provides a snapshot of some of the documents that can be created through Google Drive.

Editor	Description	Example uses
Google Docs	Text documents	Proposals, reports, shared meeting notes
Google Sheets	Spreadsheets	Project plans, budget sheets
Google Slides	Presentations	Pitch decks, training modules, team presentations
Google Forms	Surveys	Customer satisfaction surveys, group polls
Google Drawings	Shapes, charts, and diagrams	Flowcharts, organizational charts, website wireframes, mind maps
Google Sites	Websites	Team sites, project sites, resume sites

The GSuite Learning Center section on Google Drive provides detailed walkthrough instructions and answers for anyone with questions about specific features of Google Drive and its suite of services.
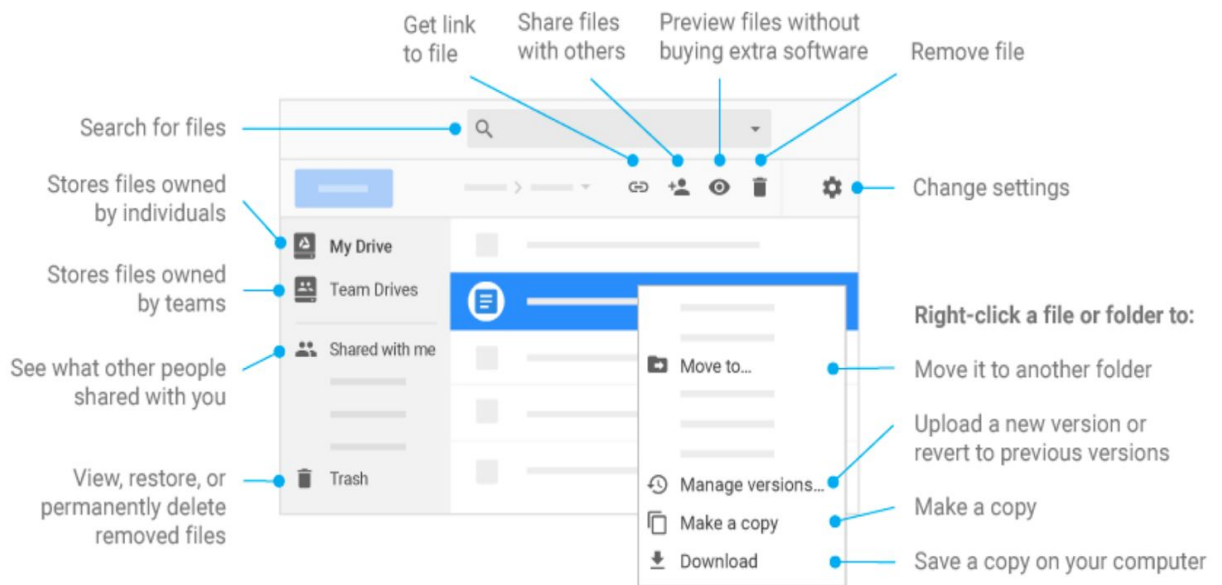
Lesson 3: Introduction to Spreadsheet Basics

The most basic tool used for data wrangling is a spreadsheet. Data contained in a spreadsheet is in a structured, machine-readable format and hence can quickly be sorted and filtered. In other recipes in the handbook, you'll learn how to use the humble spreadsheet as a power tool for carrying out simple sums (finding the total, the average etc.), applying bulk processes, or pulling out different graphs and charts.

By the end of this lesson, you will have learned how to download data, how to import it into a spreadsheet, and how to begin using basic features of spreadsheets such as sort, find and replace, filter and freeze to make your data work more efficient.

An overview

Nowadays spreadsheets are widespread so a lot of people are familiar with them already. A variety of spreadsheet programs and applications exist. For example Microsoft's Office package comes with Excel, the OpenOffice package comes with Calc and so on. Not surprisingly, Google decided to add spreadsheets to their documents package. Since it does not require you to purchase or install any additional software, we will be using Google Spreadsheets for this course.

Depending on what you want to do you might consider using different spreadsheet software. Here are some of the considerations you might make when picking your weapon of choice:

Spreadsheet	Google Sheets	Open (Libre) Office	Microsoft Excel
Usage	Free	Free	Commercial
Data Storage	Google Drive	Your hard disk	Your hard disk
Needs Internet	Yes	No	No
Installation required	No	Yes	Yes
Collaboration	Yes	No	No
Sharing results	Easy	Harder	Harder
Visualisations	Large range	Basic charts	Basic charts

Creating a spreadsheet and uploading data

In this course we will use Google docs for our data-wrangling – it allows you to start right away without need of installing software. Since the data we are working with is already public we also don't need to worry about the fact that it is not stored on our local drive.

Walkthrough: Creating a Spreadsheet and uploading data.

1. Head over to Google Drive (drive.google.com).

2. If you are not yet logged into Google Drive, you need to login.

3. The first step is going to be creating a new spreadsheet.

4. Do this by clicking the **New** button to the left and select **Google Sheets**.
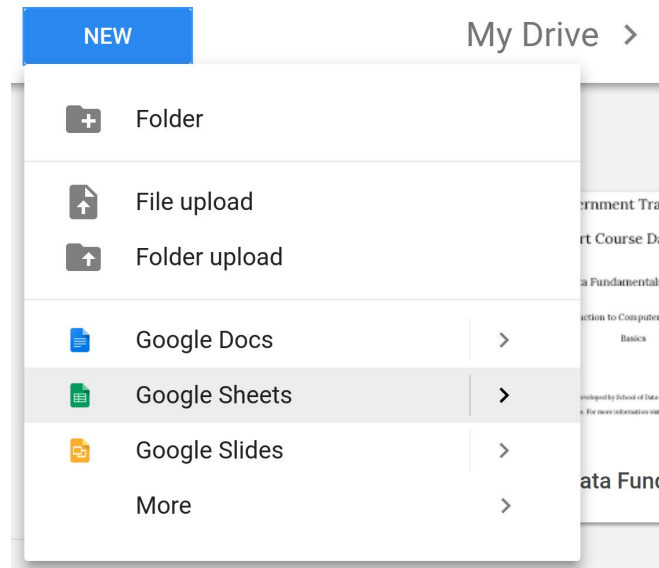
5. Doing so will create a new Google Sheet document for you.

6. Let's upload some data.

7. We will be uploading a GDP Health Expenditure and Life Expectancy dataset from World Bank called (wb-gdp-health-life.csv) You can download the file directly here or from your Module 1 Data folder .

8. In Google Sheets select import from the file menu. This will open a dialog for you.
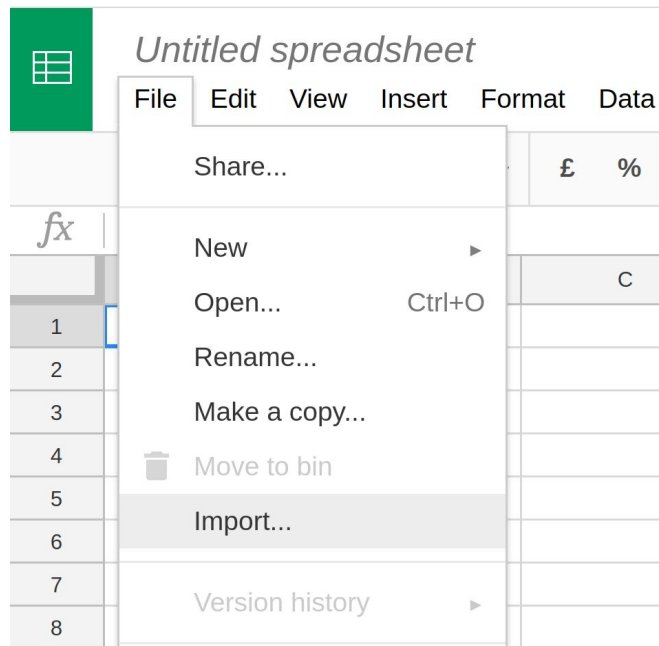
9. Choose the **Upload** option and click **Select a file from your computer** choose the file you downloaded.
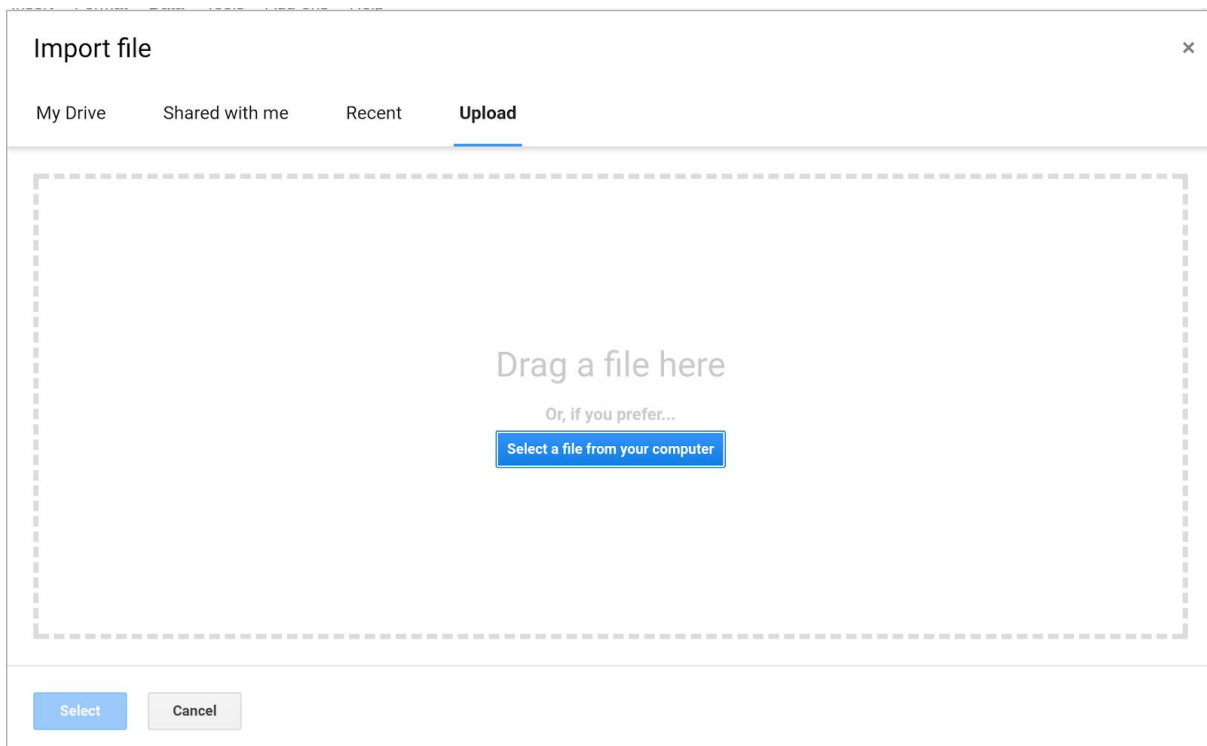
10. Under the **Import location** section, select **Insert new sheet(s)**, and click

Import data.

11. Google Sheets may take a few second to upload the file but should open a

document similar to the image below if everything is successful.

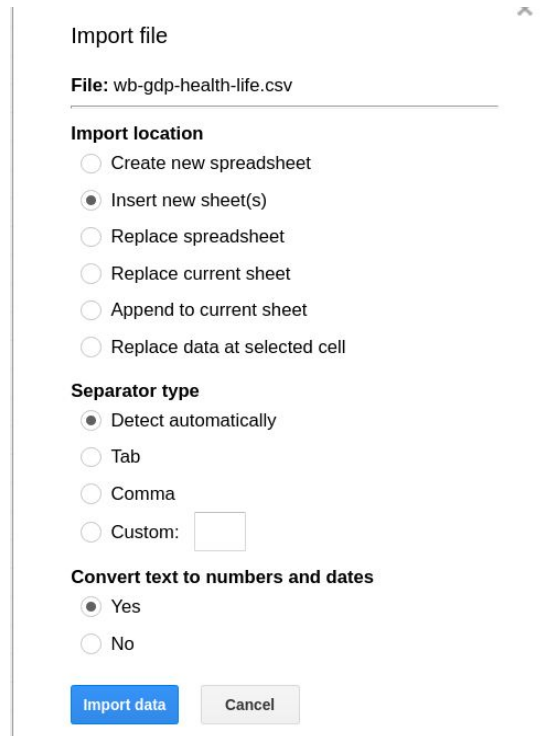|	A	B	C	D	E	F	G	H	I	J	K	L
1	Country Name	Country Code	Year	YearCode	GDP (current US	Population, total	Health expenditu	Health expenditu	Health expenditu	Life expectancy a	Life expectancy a	Life expectancy a
2	Afghanistan	AFG	2000	YR2000		25950816	6.009337744	2.285495357	8.2948331	45.362	45.227	45.29285366
3	Afghanistan	AFG	2001	YR2001	2461666315	26697430	6.009337744	3.026258899	9.035596642	45.64	45.498	45.56726829
4	Afghanistan	AFG	2002	YR2002	4338907579	27465525	6.009337744	1.463319943	7.472657687	45.911	45.759	45.83314634
5	Afghanistan	AFG	2003	YR2003	4766127272	28255719	6.816397841	1.630881658	8.447279499	46.179	46.01	46.09243902
6	Afghanistan	AFG	2004	YR2004	5704202651	29068646	6.660701726	2.032024786	8.692726513	46.448	46.259	46.35119512
7	Afghanistan	AFG	2005	YR2005	6814753581	29904962	6.635079954	2.121822023	8.756901978	46.725	46.513	46.61641463
8	Afghanistan	AFG	2006	YR2006	7721931671	30751661	5.774789488	2.063718102	6.769913961	47.021	46.783	46.89909756
9	Afghanistan	AFG	2007	YR2007	9707373721	31622333	5.774789488	1.783680069	7.30135515	47.339	47.078	47.20531707
10	Afghanistan	AFG	2008	YR2008	11940296131	32517656	5.774789488	1.581219651	6.979427213	47.683	47.401	47.53856098
11	Afghanistan	AFG	2009	YR2009	14213670485	33438329	5.774789488	1.581219651	7.579305624	48.052	47.753	47.89885366
12	Afghanistan	AFG	2010	YR2010	17243112604	34385068			7.584483384	48.442	48.13	48.28219512
13	Afghanistan	AFG	2011	YR2011	20343461030	35320445						
14	Albania	ALB	2000	YR2000	3686649387	3071856	4.057670259	2.292373501	6.35004376	77.358	71.268	74.23873171
15	Albania	ALB	2001	YR2001	4091020249	3077378	3.735549406	2.309304508	6.044853914	77.888	71.71	74.72365854
16	Albania	ALB	2002	YR2002	4449373456	3089778	3.996095391	2.263597997	6.259693388	78.365	72.11	75.16121951
17	Albania	ALB	2003	YR2003	5652325082	3106701	3.948793686	2.215021006	6.163814692	78.775	72.463	75.54202439
18	Albania	ALB	2004	YR2004	7464446950	3124861	4.148396819	2.735057625	6.883454444	79.109	72.764	75.85912195
19	Albania	ALB	2005	YR2005	8376483740	3141800	4.092640444	2.747891724	6.840532168	79.367	73.012	76.112
20	Albania	ALB	2006	YR2006	9132562332	3156607	4.079816652	2.923565579	6.731866827	79.559	73.215	76.30963415
21	Albania	ALB	2007	YR2007	10704660840	3169665	4.254147364	2.631942656	6.877241848	79.711	73.39	76.47341463
22	Albania	ALB	2008	YR2008	12968653525	3181397	4.12391543	2.676091287	6.748861009	79.844	73.551	76.6207561
23	Albania	ALB	2009	YR2009	12118583126	3192723	4.067583734	2.812293064	6.883064977	79.97	73.705	76.76109756
24	Albania	ALB	2010	YR2010	11858216877	3204284			6.547297762	80.095	73.859	76.90095122
25	Albania	ALB	2011	YR2011	12959563902	3215988						
26	Algeria	DZA	2000	YR2000	54790058957	30533827	0.930462859	2.558569928	3.489032788	71.298	68.811	70.02417073
27	Algeria	DZA	2001	YR2001	55180990396	30982214	0.866150363	2.971726597	3.837876961	71.657	69.166	70.38112195

Navigating and using the Spreadsheet

Now that we have loaded some data let's deal with the basics of spreadsheets. A spreadsheet is basically a table of "cells" in which you can input data. The cells are organized in "rows" and "columns". Typically rows are labeled by numbers, columns by letters. This also means cells can be addressed by their "column" and "row" coordinates. The cell A1 denotes the cell in the first row in the first column, A2 the one in the second row, B1 the one in the second column and so on.

To enter or change data in a cell click on it and start typing – this will change the contents of the cell. Basic navigation can be done this way or via keyboard. Find a list of keyboard shortcuts good to know below:

Key or Combination	What it does
Tab	End input on the current cell and jump to the cell right to the current one
Enter	End input and jump to the next row (This will try to be intelligent, so if you're entering multiple columns, it will jump to the first column you are entering
Up	Move to the cell one row up
Down	Move to the cell one row down
Left	Move to the cell left
Right	Move to the cell on the Right
Ctrl+<direction>	Move to the outermost cell in the direction given
Shift+<direction>	Select the current cell and the cell in <direction>
Ctrl+Shift+<direction>	Select all cells from the current to the outermost cell in <direction>
Ctrl+c	Copy – copies the selected cells into the clipboard
Ctrl+v	Paste – pastes the clipboard
Ctrl+x	Cut – copies the selected cells into the clipboard and removes them from their original position

| Ctrl+z	Undo – undoes the last change you made
Ctrl+y	Redo – undoes an undo

Tip: Practice a bit, and you will find that you will become a lot faster using the keyboard than the mouse!

Freezing Rows and Columns

The spreadsheet we are working on is quite large. You will notice, that while scrolling the column with the column labels will frequently disappear, leaving you quite lost. The same with the country names. To avoid this you can "freeze" rows and columns so they don't disappear.

Walkthrough: Freezing the top row

1. Go to the Spreadsheet with our data and scroll to the top.
2. On the top left, where the column and row labels are you'll see a small striped area.
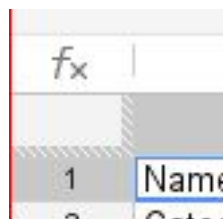
3. Hover over the striped bar on top of box showing row "1". A hand shaped cursor should appear, click and drag it down one row.

4. Your result should look like this:

5. Try scrolling – notice how the top row remains fixed?

Sorting Data

The first thing to do when looking at a new dataset is to orient yourself. This involves looking at maximum/minimum values and sorting the data so it makes sense. Let's look at the columns. We have data about the GDP, healthcare expenditure and life expectancy. Now let's explore the range of data by simply sorting.

Walkthrough: Sorting a dataset

1. Select the whole sheet you want to sort. Do this by clicking on the right upper grey field, between the row and column names.

2. Select "Sort Range..." from the "Data" menu – this will open an additional Selection

3. Check the "Data has header row" checkbox
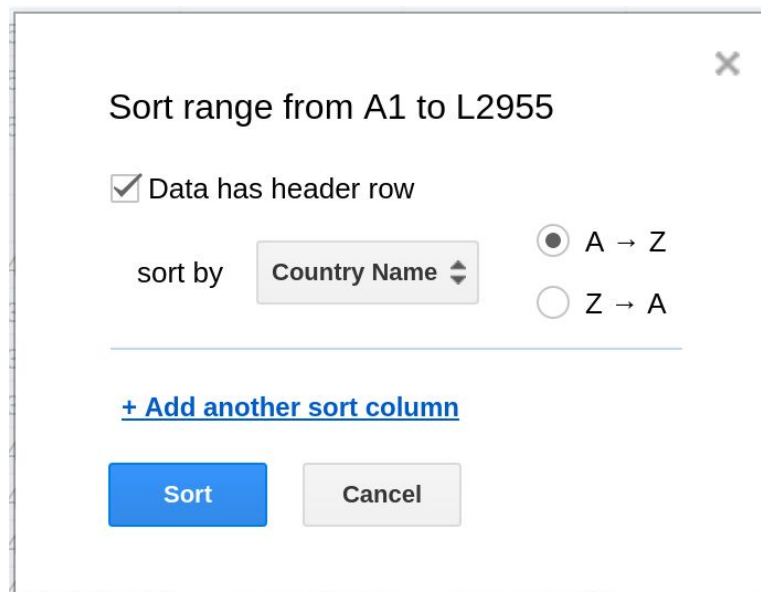
4. Select the column you want to sort by in the dropdown menu

5. Try to sort by GDP – Which country has the lowest?

6. Try again with different values, can you sort ascending and descending?

Tip: Be careful! A common mistake is to forget to select *all* the data. If you sort without selecting all the data, the rows will no longer match up.

Filtering Data

The next thing commonly done with datasets is to filter out the values you don't want to see. Did you notice that some "Country Names" are actually not countries? You'll find things like "World", "North America" and "Arab World". Let's filter them out.

Walkthrough: Filtering Data

1. Select the whole table.

2. Select "Filter" from the "Data" menu.

3. You now should see triangles next to the column names in the first row.

4. Click on the triangle next to country name.

5. You should see a long list of country names in the box.
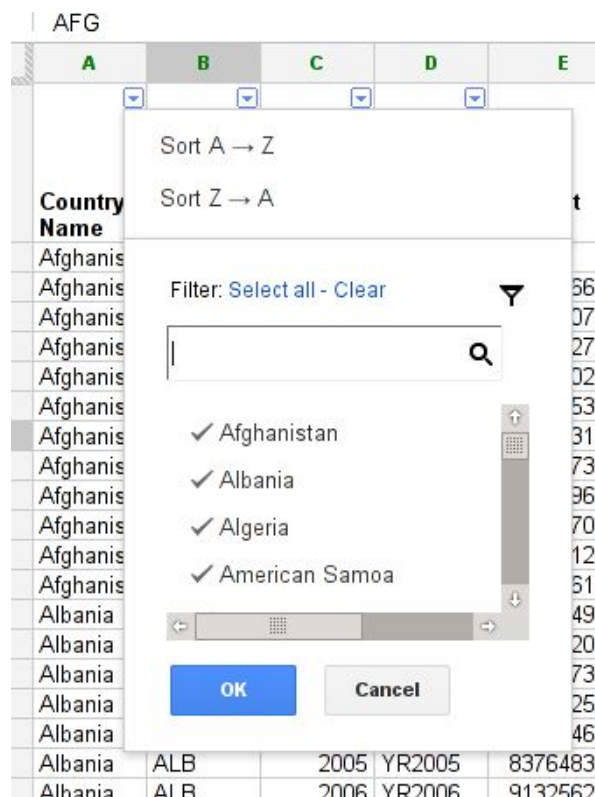
6. Find those that are not a country and click on them (the green checkmark will disappear).

7. Now you have successfully filtered your dataset.

8. Go ahead and play with it – the data will not be deleted, it's just not displayed.