

DATA MANIPULATION AND REPORTING WITH POWER BI

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Purpose of this Lab

After completing this lab, you should be able to install PowerBI desktop on your machine and then using PowerBI desktop learn how to connect and pull data from the following data sources.

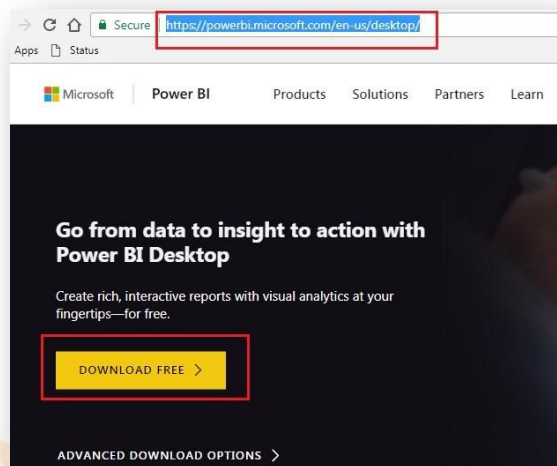
- 1) Excel file
- 2) Access database
- 3) Delimited flat files
- 4) Web URL
- 5) Google sheet (using public URL)
- 6) Google sheet (using R-Script)

Note: During this lab, you need to create two separate PowerBI reports (PowerBI files).

- 1) One with an intension to create a Healthcare dashboard. We'll import ONLY the following files in this report.
 - a. Lookup Tables – Excel file
 - b. Fact Tables – Access file
 - c. Patient Medications – Text file
 - d. Patient Procedures – Text file
 - e. Patient Tests – Text file
- 2) The other file would be created to do some addhoc practice where we'll import data from, a. A web URL
 - b. A Google sheet using a public URL
 - c. A Google sheet using an R-Script.

Download and Install PowerBI Desktop

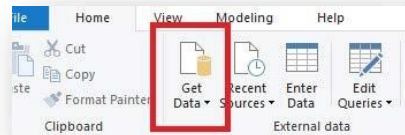
- 1) Navigate to the following URL.
<https://powerbi.microsoft.com/en-us/desktop/>
- 2) Click on “Download Free” button.



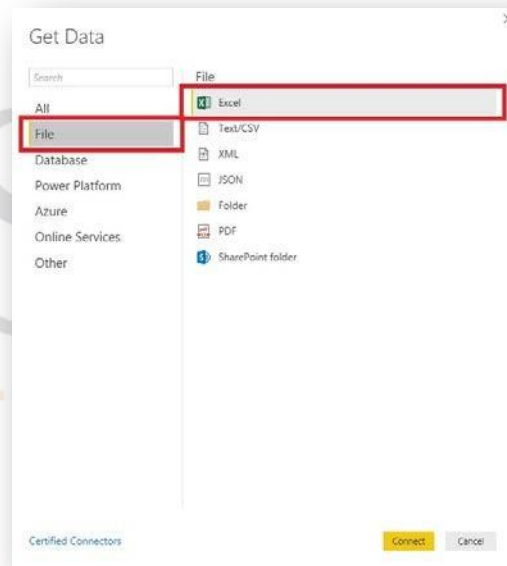
- 3) Once the download is complete, launch the installer (PBIDesktop_x64" file) you just downloaded and follow the simple wizard to install PowerBI desktop on your system.

Import data from Excel file

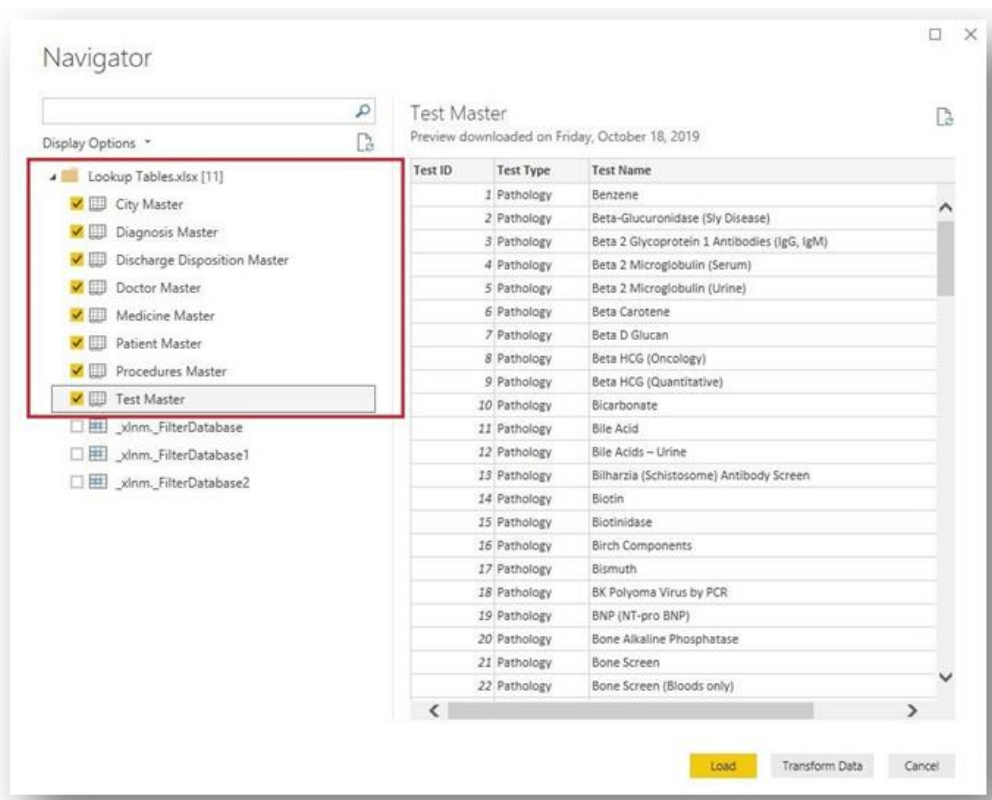
- 1) Launch PowerBI desktop.
- 2) On the landing page, click on “get data”.



- 3) On the “navigator window”,
 - a. Choose “file” from the list of file categories.
 - b. Choose “Excel” from the list of subcategories.
 - c. Click on “connect”

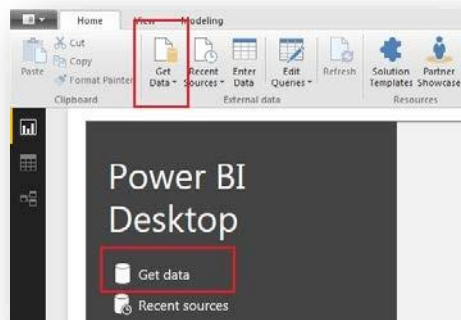


- 4) Locate the access file called “lookup tables” and click on “open”.
- 5) From the list of tables check all the master tables and click on “Load”.
- 6) The data from all the tables should get imported into PowerBI and the same should appear under the “fields” section.



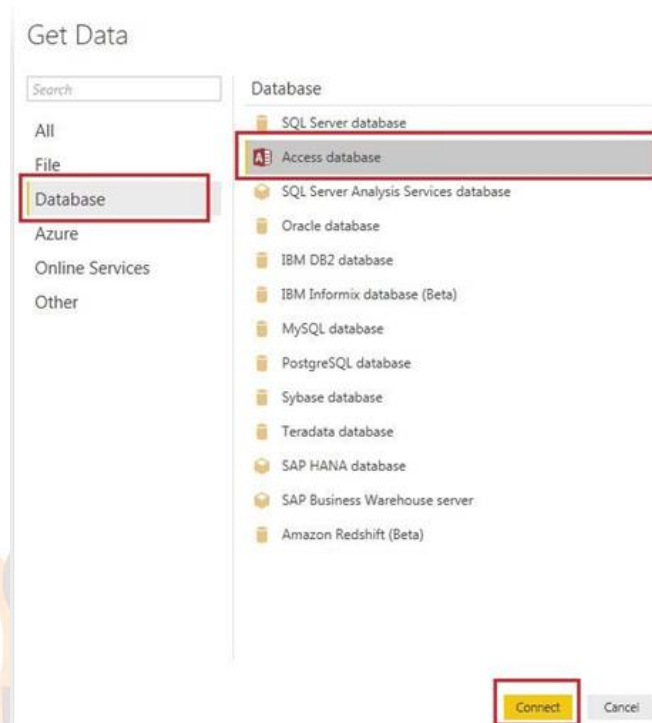
Import data from Access DB

- 1) Launch PowerBI desktop.
- 2) On the “welcome screen”, click on “get data”.



- 3) On the “navigator window”,
 - d. Choose “database” from the list of file categories

- e. Choose “access database” from the list of subcategories
- f. Click on “connect”



- 4) Locate the access file called “fact tables” and click on “open”.
- 5) From the list of tables check, “visits” table and “billing” table. This should display the table view on the right-side panel, showing only few records as sample.
- 6) Click on “load”. The data from both tables should get imported into PowerBI and the same should appear under the “fields” section.

Navigator

Display Options

- Fact Tables.accdb [2]
 - ☒ Billing
 - ☒ Visits

Visits

Preview downloaded on Wednesday, August 23, 2017

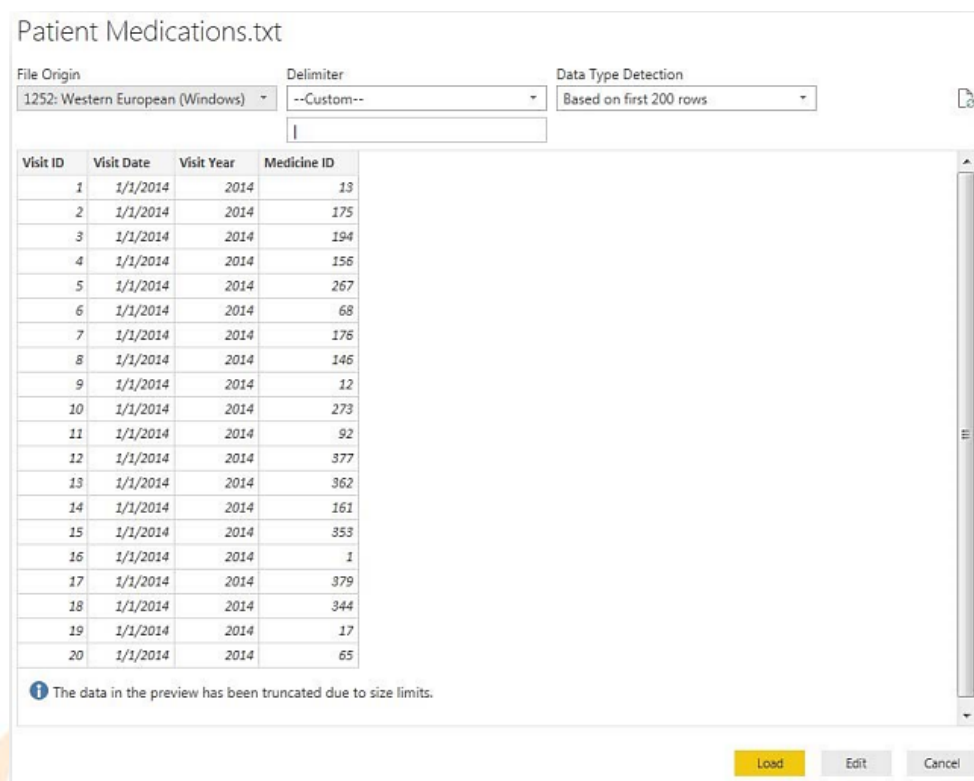
Visit ID	Visit Date	Center ID	Patient ID	Patient Age	Age Group
1	1/1/2014	11	356	73	61 - 90
2	1/1/2014	10	498	59	31 - 60
3	1/1/2014	22	719	36	31 - 60
4	1/1/2014	8	923	33	31 - 60
5	1/1/2014	21	993	89	61 - 90
6	1/1/2014	6	1375	60	31 - 60
7	1/1/2014	5	1482	7	0 - 10
8	1/1/2014	23	1901	16	11 - 30
9	1/1/2014	11	2493	7	0 - 10
10	1/1/2014	13	2515	21	11 - 30
11	1/1/2014	9	2587	24	11 - 30
12	1/1/2014	16	2686	24	11 - 30
13	1/1/2014	10	2889	62	61 - 90
14	1/1/2014	2	3085	90	61 - 90
15	1/1/2014	18	3213	65	61 - 90
16	1/1/2014	15	3360	69	61 - 90
17	1/1/2014	17	3584	12	11 - 30
18	1/1/2014	12	4134	89	61 - 90
19	1/1/2014	15	4376	46	31 - 60
20	1/1/2014	11	4555	28	11 - 30
21	1/1/2014	15	5233	34	31 - 60
22	1/1/2014	1	5289	26	11 - 30

Select Related Tables

Load Edit Cancel

Import data from delimited text file

- 1) From the "home" menu click on "get data".
- 2) On the "navigator window",
 - a. Choose "file" from the list of file categories.
 - b. Choose "text/csv" from the list of subcategories.
 - c. Click on "connect".
- 3) Locate the text file called "patient medications" and click on "open".
- 4) In the next screen, the system would automatically identify the delimiter as "|" which can be changed if need be.
- 5) You can also set the basis of "datatype detection" as,
 - a. The first 200 data rows
 - b. The entire dataset
 (the datatype automatically set by the system can be amended even after importing the data, using "edit queries" option).



- 6) Click on "load". The data should get imported into powerBI and the same should appear under the "fields" section.
- 7) Repeat the steps from 1 to 6 for "Patient Procedures" and "Patient Tests" as well.
- 8) Save the project as "Healthcare Performance Dashboard".

Import data from URL

- 1) From the "home" menu click on "get data".
- 2) On the "navigator window",
 - a. Choose "other" from the list of file categories
 - b. Choose "web" from the list of subcategories
 - c. Click on "connect"
 - d. In the next screen, choose "basic" and use the below mentioned URL.

<https://powerbi.microsoft.com/en-us/documentation/powerbi-refresh->

[data/#livehttps://powerbi.microsoft.com/en-us/documentation/powerbi-refresh-data/-live-connections-and-directquery-to-on-premises-data-sourcesconnections-and-directquery-to-on-premises-data-sources](https://powerbi.microsoft.com/en-us/documentation/powerbi-refresh-data/-live-connections-and-directquery-to-on-premises-data-sourcesconnections-and-directquery-to-on-premises-data-sources)

- e. Click on “ok”.
- f. On the “navigator” window, different sections of the web page that can be imported as a grid (the structural part of the data that contains HTML table tags) is listed on the leftside panel as different tables.
- g. The right-side panel is split into the following views,
 - i. Table view – shows content in tabular form.
 - ii. Web view – shows the original web page.
- h. From the left pane, check the “Table 0” and “Table 1” tables and click on “Load”.
- i. The data should get imported into PowerBI and the same should appear under the “fields” section.
- j. Close the project without saving the data imported from URL.



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Import data from Google Sheet

- 1) First you need to create a Google sheet which contains some data. If you don't have any Google sheet with you, please go ahead and use the URL mentioned in the screenshot below. In that case you can also skip the steps from a. to c. If you have a Google sheet of your own then you need to create a public link by performing the following steps.

- a. Open the Google sheet.
- b. Click on "File" menu and click on the "Share" option.
- c. From the "Share with others" window, copy the URL and paste it on a notepad. The original URL should look like the one mentioned below.

https://docs.google.com/spreadsheets/d/18EkvDCQWkuDsTBPYw9eRhJMs_nOve4NEotwCwqjKrOA/edit?usp=sharing

- d. Amend the last portion of the URL as shown in the screenshot below.

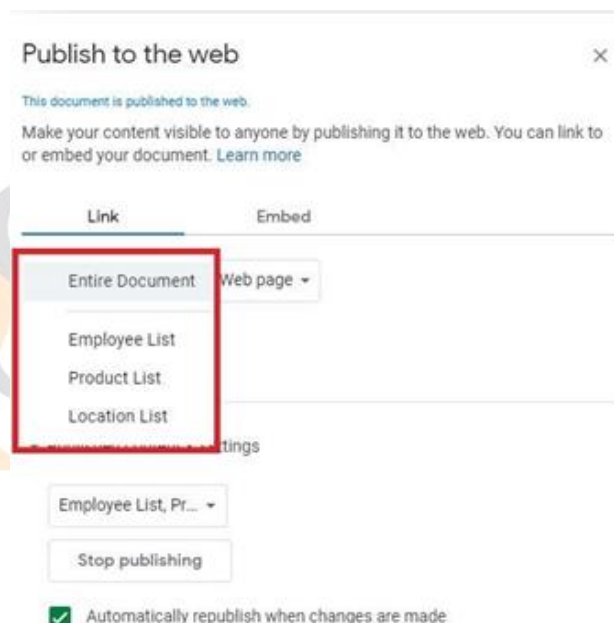
Original URL	-	https://docs.google.com/spreadsheets/d/18EkvDCQWkuDsTBPYw9eRhJMs_nOve4NEotwCwqjKrOA/edit?usp=sharing
Changed URL	-	https://docs.google.com/spreadsheets/d/18EkvDCQWkuDsTBPYw9eRhJMs_nOve4NEotwCwqjKrOA/export?format=xlsx

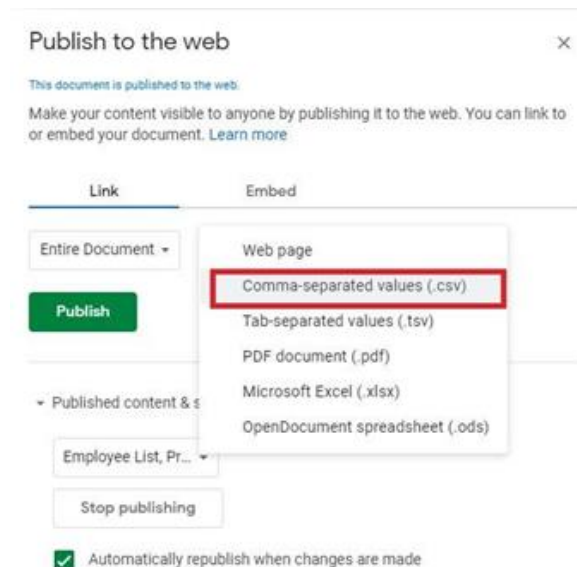
- e. Copy the amended URL from the notepad.

- 2) Open PowerBI desktop and click on "Get data" from "Home" menu.
- 3) On the "Get data" screen, search for "Web".
- 4) From the right-side panel, choose the "Web" connector and click on "Connect".
- 5) On the next screen, paste the amended URL you just created and click on Ok.
- 6) From the "Navigator" window, you should be able to view the worksheets of the Google sheet appearing as list of checkboxes.
- 7) You can check the checkboxes and click on "Load" to import the data into PowerBI desktop.

Import data from Google Sheet using R-Script

- 1) First you need to create a Google sheet which contains some data. You won't be able to complete this section of the lab if,
 - a. You don't have any Google sheet with you.
 - b. You don't have the R-Script component installed on your system.
- 2) If the prerequisites are in place, the next step is to create a public URL for the Google sheet by following the below mentioned steps.
 - a. Open the Google sheet.
 - b. Navigate to the "File" menu and click on "Publish to web".
 - c. Under the "Link" tab, there would be two drop down selections (shown in screenshot below).





- d. The first selection (left) is by default set as “Entire Document”. Change it to any one of the worksheets of the Google sheet. In this case, I’ll choose “Employee List”.
- e. The second selection (right) is by default set as “Web Page”. Change it to “Comma-separated values (.csv)”.
- f. Click on “Publish” to generate the URL.
- g. Copy the URL and use it in the below mentioned R-Script code.

https://docs.google.com/spreadsheets/d/e/2PACX-1vRjJDONIfajWqO4-QIVQbpxCb7g25Hwxv3iHyBTSzuTTPssM06pe67P5HL95Xo9_A2y3QL6ttKKq0zY/pub?output=csv

```
My_URL_Data<- read.csv(url(myurl))
```

Note: Please replace the part highlighted in yellow with the Google sheet URL, you just generated. The portion highlighted in green is the name of the table you wish to create in PowerBI desktop where the imported data would reside. You can change it to anything of your choice. Just make sure that the table name must not contain any spaces.

- h. Copy the final code and open PowerBI desktop.
- i. Under “Home” menu, click on “Get data”.
- j. On the “Get data” screen, search for R Script.
- k. From the list of connectors on the right, select R Script and click on “Connect”.

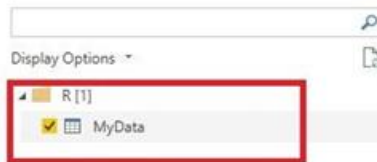


- l. The system would now come up with a window where you can type an R-Script code. Paste the final code you just created and click on Ok.



- m. Next, on the “Navigator” screen, you’ll see the defined table name on the left-side panel and the imported data from the Google sheet on the right-side panel.
- n. Check the checkbox to select the table to be imported and click on “Load” to load the data.

Navigator



MyData

Preview downloaded on Monday, September 30, 2019

Employee.ID	First.Name	Last.Name	Designation	Email
1001	Kassandra	Karle	Software Tester	kkarle@z
1002	Raymundo	Ropp	Software Developer	rropp@a
1003	Manda	Mathers	Software Tester	mmather
1004	Leana	Luiz	Production Support	lluiz@ab
1005	Guy	Garces	Software Developer	ggarces@
1006	Marcela	Mancuso	Implementation Engineer	mmancu
1007	Carman	Cheeseman	Software Developer	ccheesen
1008	Elsa	Edgington	Software Developer	eedgingt
1009	Bettina	Belote	Software Architect	bbelote@
1010	Augusta	Able	Software Tester	aable@a
1001	Hae	Helsley	Production Support	hhelsley
1002	Pia	Peeler	Software Developer	ppeeler@
1003	Raelene	Roney	Implementation Engineer	rroney@
1004	Eva	Eddleman	Implementation Engineer	eeddlem
1015	Kendall	Kinkade	Software Tester	kkinkade
1016	Sharia	Schiller	Production Support	sschiller
1017	Elenor	Ellington	Software Developer	eellington
1018	Aisha	Anwar	Software Developer	aanwar@
1019	Carmela	Cheshire	Implementation Engineer	ccheshire

Load

Transform Data

Cancel