Power BI for Beginners | Detailed Instructions (PA, ID)

I. Power Query

1. *Load Data (PA)*
    a. Ensure datasets are saved in a known location (to which you can navigate).
    b. Open Power BI.
    c. Close the yellow "Hello" screen.
    d. Under Home tab, click "Get Data" button.
    e. Select Excel.
    f. Select "Data Set – Accounting.xlsx".
    g. Click on the first TABLE named "Accounting_Transactions" (**but don't select the checkmark yet**). A summary of the data appears.
    h. Click on the other options to get their summaries.
    i. Go back to "Accounting_Transactions" and select the checkbox (**don't click on "Load" yet**).
2. *Transform Data (PA)*
    a. We tweak the data by clicking on "Transform Data".
    b. Change the name of the table: double click (or right click) on the table name and edit to remove the underscore: this yields the "Accounting Transaction" table.
    c. Change the name of the "Accounting Effective Date" column to "Effective Date" and "Journal Voucher Item Amount" to "Item Amount" (note the new step in the query step box).
    d. Remove the dates from March 2018 in the Effective Date Column: click on the drop-down arrow by the column header, select "date filters", then "after", then select March 31, 2018, then "OK".
    e. Click on "Close and Apply".
    f. Remember to save the PBIX file!
    g. Repeat the same steps for "Data Set – Projects.xlsx" to retrieve the "Project_Tombstone" table (note that we did not remove the underscore for this one).

II. Preparation

3. *Change Data Types (ID)*
    a. In the "Accounting Transaction" table, click on "Item Amount".
    b. Under "Column Tools", click on "$" to change to currency.
    c. In the "Auto" field, type in "2" to change to 2 decimal places.
    d. In the "Accounting Transaction" table, click on "Effective Date".
    e. Under "Column Tools", drop down the format menu and select "Short Date".
    f. Save the PBIX file.
4. *Link Fields with Data Models (ID)*
    a. In the "Model" screen, remove the link between the "Accounting Transactions" and the "Project_Tombstone" tables (if there is one).
    b. Click on the "Add, edit, or remove relationships between tables".
    c. In the "Manage relationship" window, click on "Autodetect…".
    d. The "Project Identifier" column links both tables. Press the "Close" button.
    e. Click on the link to open the "Edit the relationship" window. Do not modify anything in this window. Click "Close" and return to the "Report" screen.
    f. Save the PBIX file.
5. *Create a Filter (BS)*

    Exercise

III. Exploration

6. *Basic Data Visualization Notions (BN)*

   N/A

7. *Load PBIX – 1 (PA)*
   a. Go to “Transform Data” in the “Home” Ribbon.
   b. Click on “Data Source Settings”.
   c. Highlight one of the data files.
   d. Click on “Change Source”.
   e. Click on “Browse” and navigate to the corresponding file’s location on your system.
   f. Repeat for the other file.
   g. Press “Close”.
   h. Apply changes from the yellow warning message (**this has to be done everytime a PBIX file is loaded with a absolute file structure; repeat as necessary**).

8. *Make and Format a Bar Chart (PA)*
   a. Go to the “Report” screen, on the “Exploration 1” page.
   b. Under “Visualizations”, click on “Stacked Bar Chart”.
   c. From the “Project_Tombstone” table drag “Project Name” column onto the “Y-Axis” field.
   d. From the "Accounting Transactions" table, drag "Item Amount" column onto the X-Axis (functionality alert: there are other statistics than “sum” for numerical columns).
   e. In the “Visualizations” pane, click on the “Format your report page” button (icon with a paintbrush).
   f. Click on the “Bars” dropdown menu and change the colour to grey.
   g. Save the PBIX file (**we will not repeat this instruction anymore, but this should be done frequently**).

9. *Make and Format a Donut Chart (ID)*
   a. Go to the “Report” screen, on the “Exploration 1” page.
   b. Under “Visualizations”, click on “Donut Chart”
   c. Drag "Item Amount" under "Accounting Transactions" onto "Values"
   d. Drag "Journal Voucher Type Code" under "Accounting Transactions" onto "Legend"

10. *Create a Table to Store Measures (ID)*
    a. In the “Home” ribbon, click on the “Enter Data” icon (in the “Data” section).
    b. Ignore everything except the “Name” field at the bottom (left).
    c. Override the name “Table” with “_Measures” (include the underscore “_”).
    d. Click on “Load” – the measure table appears at the top of the list in the “Fields” pane (because of the underscore).

11. *DAX vs. M. vs. GUI (BN)*

    N/A

12. *Create Calculated Measures (ID/PA)*
    a. Click on the “_Measures” table in the “Fields” pane, and on "New Measure" in the ribbon
    b. Type in the following at the prompt:
    ```
    Total Salary = CALCULATE(sum('Accounting Transactions'[Item Amount]),
              'Accounting Transactions'[Journal Voucher Type Code]=“SA”)
    ```
    c. Click on the “_Measures” table in the “Fields” pane, and on "New Measure"
    d. Type in the following at the prompt:
    ```
    Total Major Capital = CALCULATE(sum('Accounting Transactions'[Item Amount]),
              'Accounting Transactions'[Journal Voucher Type Code]=“MC”)
    ```

   e. Click on the “_Measures” table in the “Fields” pane, and on "New Measure"
   f. Type in the following at the prompt:
```
Total Minor Capital = CALCULATE(sum('Accounting Transactions'[Item Amount]),
         'Accounting Transactions'[Journal Voucher Type Code]=“MIC”)
```
   g. Click on the “_Measures” table in the “Fields” pane, and on "New Measure"
   h. Type in the following at the prompt:
```
Total Operations and Management = CALCULATE(sum('Accounting Transactions'[Item
Amount]), 'Accounting Transactions'[Journal Voucher Type Code]=“O&M”)
```
13. *Make and Format a Donut Chart (ID)*
   a. Delete the Donut Chart currently in the “Report” screen.
   b. In the “Visualizations” pane, click on “Donut Chart”.
   c. Drag all JVTC measures from the “_Measures” table onto the “Values” field.
14. *Make and Format a Treemap (BS)*

   Exercise
15. *Create a Calculated Measure (BS)*

   Exercise
16. *Load and Explore PBIX – 2 (PA)*

   N/A
17. *Create a Calculated Column (BS)*

   Exercise
18. *Format Decimal Places (BS)*

   Exercise
19. *Make and Format a Bar Chart (BS)*

   Exercise
20. *Make and Format a Line Chart (PA)*
   a. Chose the “Exploration 2” page.
   b. In the “Visualizations” pane, click on “Line Chart”.
   c. From the "Accounting Transactions" table, drag "Effective Date" onto the X-Axis.
   d. From the "_Measures" table, drag all JVTC measures onto the Y-Axis.
   e. Using the down arrows that look like double arrows (not the trident), drill down until you have months along the x-axis; if they are greyed out this means you are already at the bottom and you need to drill up using the up arrow.
21. *Create a Calculated Measure (ID)*
   a. Click on the “_Measures” table in the “Fields” pane, and on "New Measure"
   b. Type in the following at the prompt:
```
Major Minor Ratio = DIVIDE('_Measures'[Total Major Capital], '_Measures'[Total
Minor Capital])
```
22. Make and Format a Line Chart (ID)
   a. In the “Visualizations” pane, click on “Line Chart”.
   b. From the "Accounting Transactions" table, drag "Effective Date" onto the X-Axis.
   c. From the "_Measures" table, drag “Major Minor Ratio” onto the Y-Axis.
   d. Using the down arrows that look like a trident (not the double arrows), drill down until you display both quarters and months; if they are greyed out this means you are already at the bottom and you need to drill up using the up arrow.
   e. Click on the “Format your visual” paintbrush.
   f. Navigate to “Lines” and change the colour to red.
23. *Exploring the Data (DD)*

   N/A

IV. Situational Awareness

24. Basic Dashboard Notions (BN)

N/A

25. Measures vs. Columns (BN)

N/A

26. Load and Explore PBIX – 3 (PA)

N/A

27. Create a Calculated Column (ID)

a. Click on the “Accounting Transactions” table in the “Fields” pane.
b. Click on “Column Tools”, then “New Column”.
c. Type in the following formula:

```
Check amount = if('Accounting Transactions'[Item Amount] >= 100000,
                        “Check”, // value if true
                         blank()) // value if false"
```

28. Make and Format a Table (BS)

Exercise

29. Make and Format a Column Chart (BS)

Exercise

30. Load and Explore PBIX – 4 (PA)

N/A

31. Make and Format a Bar Chart (PA)

a. Chose the “Monitoring 1” page.
b. Go to the “Report” screen.
c. In the “Visualizations” pane, click on “Stacked Bar Chart”.
d. From the “Accounting Transactions” table, drag “Journal Voucher Type Code” onto the “Y-Axis” field.
e. From the "Accounting Transactions" table, drag "Item Amount $k" onto the “X-Axis” field.
f. From the "Accounting Transactions" table, drag "Check Amount" onto the “Legend” field.

32. Make Slicers (PA)

a. Add a new page and rename it “Monitoring 2” page.
b. On this page, click “Slicer” in the “Visualizations” pane.
c. From the “Project_Tombstone” table, drag “Director” onto the "Field” field.
d. Click “Slicer” again in the “Visualizations” pane.
e. From the "Accounting Transactions" table, drag "Journal Voucher Type Code" onto the "Field" field.

33. Load and Explore PBIX – 5 (PA)

N/A

34. Make and Format Column Charts (ID)

a. Go to the “Report” screen.
b. In the “Visualizations” pane, click on “Bar Chart”.
c. From the “Project_Tombstone” table, drag “Director” onto the “X-Axis” field.
d. From the "Accounting Transactions" table, drag "Item Amount" onto the “Y-Axis” field.
e. Press the down arrow on "Item Amount" and select “Count”.
f. In the “Visualizations” pane, click on “Bar Chart”.
g. From the “Project_Tombstone” table, drag “Director” onto the “X-Axis” field.
h. From the "Accounting Transactions" table, drag "Item Amount" onto the “Y-Axis” field.

i. Press the down arrow on "Item Amount" and select “Average”.
j. In the “Visualizations” pane, click on “Bar Chart”.
k. From the “Project_Tombstone” table, drag “Director” onto the “X-Axis” field.
l. From the "Accounting Transactions" table, drag "Item Amount" onto the “Y-Axis” field.
m. Press the down arrow on "Item Amount" and select “Standard Deviation”.

35. *Load and Explore PBIX – 6 (PA)*

    N/A

36. *Make and Format a Column Chart (PA)*
    a. Go to the “Report” screen.
    b. In the “Visualizations” pane, click on “Bar Chart”.
    c. From the “Project_Tombstone” table, drag “Director” onto the “X-Axis” field.
    d. From the "Accounting Transactions" table, drag "Item Amount" onto the “Y-Axis” field.
    e. Press the down arrow on "Item Amount" and select “Maximum”.

37. *Monitoring the Situation (DD)*

    N/A

V. Storybook

38. *Basic Data Storytelling Notions (BN)*

    N/A

39. *Create a Calculated Column (ID)*
    a. Click on the “Project_Tombstone” table in the “Fields” pane.
    b. Click on “Column Tools”, then “New Column”.
    c. Type in the following formula:

```
Power = if('Project_Tombstone'[Director] == "C. Power",
                          “Power”, // value if true
                          blank()) // value if false"
```

40. *Make and Format Small Multiples (ID)*
    a. Chose the “Storybook 1” page.
    b. Go to the “Report” screen.
    c. In the “Visualizations” pane, click on “Clustered Bar Chart”.
    d. From the "Accounting Transactions" table, drag "Effective Date" onto the “Y-Axis” field.
    e. Deselect all but "Day".
    f. From the "_Measures" table, drag “Total Minor Capital” onto the “X-Axis” field.
    g. From the “Project_Tombstone” table, drag “Director” onto the “Small Multiples” field.
    h. From the “Project_Tombstone” table, drag “Power” onto the “Legend” field.
    i. In “Format your visual”, change the small multiple layout to 2 rows and 4 columns.

41. *Make and Format a Bar Chart (ID)*
    a. Go to the “Report” screen.
    b. In the “Visualizations” pane, click on “Stacked Column Chart” and resize and overlay chart box in the empty small multiple space.
    c. From the "Accounting Transactions" table, drag "Item Amount" onto the “X-Axis” field.
    d. From the "Accounting Transactions" table, drag "Item Amount" onto the “Y-Axis” field.
    e. Press the down arrow on "Item Amount" and select “Count”.
    f. From the “Project_Tombstone” table, drag “Power” onto the “Legend” field.
    g. In the “Filters” pane, navigate to the “Item Amount” filter, in the “Filters on this visual” section.
    h. Select “Advanced Filtering” in the “Filter Type” dropdown.

i. Select "is less than" under "Show items when the value". Type in 10000.
j. Click “Apply filter”.
k. Go to “Format tab” and click "Bring Forward".

42. *Load and Explore PBIX – 7 (PA)*

N/A

43. *Apply a Page Filter (PA)*
    a. Chose the “Storybook 2” page.
    b. Go to the “Report” screen.
    c. From "Accounting Transactions", drag “Journal Voucher Type Code” to "Filters on this page" in the "Filters" pane.
    d. Select MIC., and then “Apply filter”.
    e. From "Accounting Transactions", drag “Item Amount” to "Filters on this page" in the "Filters" pane
    f. Select "Advanced Filtering" in the "Filter Type" dropdown.
    g. Select "is less than" under "Show items when the value" and type in 10000.
    h. Select “Apply filter”.
44. *Make and Format a Small Multiples Chart (PA)*
    a. Chose the “Storybook 2” page and go to the “Report” screen.
    b. In the “Visualizations” pane, click on “Clustered Bar Chart”.
    c. From the "Accounting Transactions" table, drag "Effective Date" onto the “Y-Axis” field. Deselect all but "Day".
    d. From the "Accounting Transactions" table, drag “Item Amount” onto the “X-Axis” field.
    e. Press the down arrow on "Item Amount" and select “Count”.
    f. From the “Project_Tombstone” table, drag “Director” onto the “Small Multiples” field.
    g. From the “Project_Tombstone” table, drag “Power” onto the “Legend” field.
    h. In “Format your visual”, change the small multiple layout to 2 rows and 4 columns.
45. *Make and Format a Bar Chart (PA)*
    a. Go to the “Report” screen.
    b. In the “Visualizations” pane, click on “Stacked Bar Chart” and resize and overlay chart box in the empty small multiple space.
    c. From the "Accounting Transactions" table, drag "Effective Date" onto the “Y-Axis” field.
    d. Deselect all but "Day".
    e. From the "Accounting Transactions" table, drag "Item Amount" onto the “X-Axis” field.
    f. Press the down arrow on "Item Amount" and select “Count”.
    g. From the “Project_Tombstone” table, drag “Power” onto the “Legend” field.
    h. Go to “Format tab” and click "Bring Forward".
46. *Annotate a Dashboard (BN)*

    N/A
47. *Load and Explore PBIX – 8 (PA)*

    N/A
48. *Convincing and Audience (DD)*

    N/A

VI. Miscellanea*

49. **Publish a Power BI Dashboard (ID)*

    N/A
50. **Integrate R and Python in Power BI (BN)*

    N/A