

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

- 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 \$" 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. *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".
36. *Monitoring the Situation (DD)*
N/A
37. *Make Slicers (PA)*
- a. Add a new page and rename it "Monitoring 3" 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.
38. *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 "Y-Axis".
 - 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".
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. *Load and Explore PBIX – 6 (PA)*
N/A
41. *Apply a Page Filter (PA)*
- a. Go to the "Report" screen.
 - b. Add a new page and rename it "Monitoring 4" page.
 - 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".

42. *Make and Format a Small Multiples Chart (PA)*

- a. In the “Visualizations” pane, click on “Clustered Bar Chart”.
- b. From the "Accounting Transactions" table, drag "Effective Date" onto the “Y-Axis” field. Deselect all but "Day".
- c. From the "Accounting Transactions" table, drag “Item Amount” onto the “X-Axis” field.
- d. Press the down arrow on "Item Amount" and select “Count”.
- e. From the “Project_Tombstone” table, drag “Director” onto the “Small Multiples” field.
- f. From the “Project_Tombstone” table, drag “Power” onto the “Legend” field.
- g. In “Format your visual”, change the small multiple layout to 2 rows and 4 columns.

43. *Make and Format a Bar Chart (ID)*

- 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".

V. Storybook

44. *Basic Data Storytelling Notions (BN)*

N/A

45. *Storytelling with Data (BN)*

N/A

46. *Annotate a Dashboard (BN)*

N/A

47. *Load and Explore PBIX – 7 (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