Power BI Portfolio Project

Answer 1:

Power BI:

Advantages

- Easy to connect with Excel/CSV files (fits your current setup without a data pipeline).

- Rich built-in visuals and features for comparison (YoY, YTD, indices).

- Auto-refresh and scheduled updates possible if connected to a proper data source later.

- Mobile-friendly dashboards out of the box.

- Non-technical users (like CEO Sumera) can interact with visuals easily.

Disadvantages

- Limited customization for very advanced analytics compared to coding frameworks.

- Requires Power BI Pro license for sharing links (small added cost).

- Refreshing from flat files can still be manual if not automated.

Streamlit:

Advantages

- Full customization (you can design exactly what you want).

- Can integrate advanced ML/AI analytics directly.

- Free to use and deploy (e.g., on Streamlit Cloud).

Disadvantages

- Requires coding knowledge (Python), so it is not friendly for non-technical users.

- No built-in drag-and-drop visuals like Power BI.

- Data refresh is manual unless you build automation pipelines.

- Mobile layout support is limited compared to Power BI.

Recommendation:

Since the business is a chain of departmental stores with weekly sales data and a nontechnical CEO who wants simple, mobile-friendly dashboards with quick refresh, Power BI is the better choice.
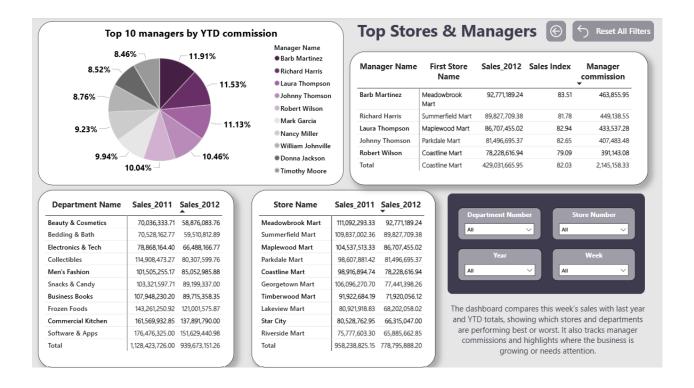
- It is easier to maintain, requires less technical effort, and provides fast, clear insights.

- Streamlit could be explored later if the company wants AI-driven forecasting, predictive analytics, or more customized dashboards.

Final Answer: Recommend Power BI to CEO Sumera for simplicity, reliability, and scalability with the growing business.

Answer 2:

Sales Of Departmental Store

1.95bn Pre Year YTD Sales	**2.00bn** YTD Sales	**2.45bn** Sales 2011	**2.00bn** Sales 2012

Top 5 weekly sales in years

Top 5 weekly sales by Department

Top 5 Sales by Stores

Store Name	YTD Sales Index	Sales Index
Astoria Mart	105.97	82.85
Aurora Mart	106.67	88.25
Bayside Mart	103.57	82.88
Bridgetown Mart	104.20	82.41
Brookfield Mart	99.45	79.12
Cedarville Mart	108.71	86.59
Clearwater Mart	99.84	80.74
Cliffside Mart	94.99	75.19
Coastline Mart	100.75	79.09
Total	102.57	81.70

Department Name	YTD Sales Index	Sales Index
Beverages	0.00	6,923.23
Gourmet Foods	197.97	125.36
Small Appliances	101.64	97.07
Natural & Organic	102.88	96.53
Office Supplies	116.68	93.59
Local Artisans	106.88	92.84
Gluten-Free Shop	115.53	90.97
Health & Pharmacy	107.44	89.14
Safety & Security	107.50	88.06
Total	102.57	81.70

Answer 3 & 4:

Top 10 managers by YTD commission

Manager Name
- Barb Martinez
- Richard Harris
- Laura Thompson
- Johnny Thomson
- Robert Wilson
- Mark Garcia
- Nancy Miller
- William Johnville
- Donna Jackson
- Timothy Moore

Pie chart percentages: 11.91%, 11.53%, 11.13%, 10.46%, 10.04%, 9.94%, 9.23%, 8.76%, 8.52%, 8.46%

Top Stores & Managers — Reset All Filters

Manager Name	First Store Name	Sales_2012	Sales Index	Manager commission
Barb Martinez	Meadowbrook Mart	92,771,189.24	83.51	463,855.95
Richard Harris	Summerfield Mart	89,827,709.38	81.78	449,138.55
Laura Thompson	Maplewood Mart	86,707,455.02	82.94	433,537.28
Johnny Thomson	Parkdale Mart	81,496,695.37	82.65	407,483.48
Robert Wilson	Coastline Mart	78,228,616.94	79.09	391,143.08
Total	Coastline Mart	429,031,665.95	82.03	2,145,158.33

Department Name	Sales_2011	Sales_2012
Beauty & Cosmetics	70,036,333.71	58,876,083.76
Bedding & Bath	70,528,162.77	59,510,812.89
Electronics & Tech	78,868,164.40	66,488,166.77
Collectibles	114,908,473.27	80,307,599.76
Men's Fashion	101,505,255.17	85,052,985.88
Snacks & Candy	103,321,597.71	89,199,337.00
Business Books	107,948,230.20	89,715,358.35
Frozen Foods	143,261,250.92	121,001,575.87
Commercial Kitchen	161,569,932.85	137,891,790.00
Software & Apps	176,476,325.00	151,629,440.98
Total	1,128,423,726.00	939,673,151.26

Store Name	Sales_2011	Sales_2012
Meadowbrook Mart	111,092,293.33	92,771,189.24
Summerfield Mart	109,837,002.36	89,827,709.38
Maplewood Mart	104,537,513.33	86,707,455.02
Parkdale Mart	98,607,881.42	81,496,695.37
Coastline Mart	98,916,894.74	78,228,616.94
Georgetown Mart	106,096,270.70	77,441,398.26
Timberwood Mart	91,922,684.19	71,920,056.12
Lakeview Mart	80,921,918.83	68,202,058.02
Star City	80,528,762.95	66,315,047.00
Riverside Mart	75,777,603.30	65,885,662.85
Total	958,238,825.15	778,795,888.20

Filters: Department Number — All; Store Number — All; Year — All; Week — All

The dashboard compares this week's sales with last year and YTD totals, showing which stores and departments are performing best or worst. It also tracks manager commissions and highlights where the business is growing or needs attention.

Answer 5:

Since the CEO values simplicity, clarity, and mobile availability, the dashboard design must follow these principles:

1. Simplistic Design with Big Numbers:
   - Use Card visuals to highlight the most important KPIs.
   - Each KPI should be a large, bold number on a clean background so she can grasp performance instantly.
   - Apply conditional formatting (e.g., green for growth >100).

2. No Clutter:
   - Avoid too many small charts or unnecessary visuals.
   - Provide drill-through filters (store, department, week, Year) so she can explore detail only when needed.

3. Light Theme:

- Since she dislikes dark themes, sticks to a clean white/light background with high-contrast fonts.

4. Mobile Layout:

- Power BI allows a dedicated mobile view.
- In mobile, keep only the big numbers (KPIs) and Top 5–10 summaries.
- Remove secondary visuals so the mobile version is fast, scrollable, and executive-friendly.

5. Overall Impact:

- This design will let her instantly see performance at a glance (big KPIs) and drill into store/department trends when required.
- It builds confidence because the layout is simple, uncluttered, and consistent across desktops and mobile.

Answer 6:

When I added the new data for the week of 26th October 2012 (from the "New Week" folder) and refreshed the dashboard, the update completed within a few minutes. Since the model only adds one week of data at a time, the refresh process is currently manageable and fairly quick.

However, as the business grows and more weekly data accumulates, refresh times will continue to increase. Manual handling of new files also introduces operational risk (missed updates, human error, file corruption). To ensure our dashboards remain reliable, consistent, and scalable, I recommend the following:

Recommendations for Sumera (CEO:)

1. Automate Data Ingestion

- Move from manual "New Week" file uploads to an automated pipeline (Power BI Dataflows or Fabric pipelines) that appends new weekly sales data into a central store.
- This ensures consistency and eliminates human error.

2. Enable Incremental Refresh:

   - Instead of reloading all historical data, configure incremental refresh by week in Power BI.
   - Only the new week's partition refreshes, reducing refresh time from minutes (or hours in the future) to just seconds.

3. Use a Governed Data Model

   - Keep all historical data in a single "All Data" store.

   - The dashboard should always read from this master model, so executives never worry about missing data.

4. Scheduled Refresh:

   - Set up an automatic refresh schedule (e.g., every Monday morning at 7 AM) so the CEO always sees updated numbers without asking IT/analysts.
   - Refresh notifications can be sent if a failure occurs.

5. Future-Proofing:

   - With sales already hitting ~2.0bn YTD in 2012, the business is at a scale where manual refreshes won't be sustainable as data volume doubles each year.
   - Investing in automated pipelines and incremental refresh ensures the dashboard remains fast, accurate, and executive-ready even as the data grows into tens of billions in the future.

Case to Convince Sumera:

- **Right now:** Refresh is quick but requires analyst intervention every week.

- **Soon:** Manual refresh will slow down decision-making, and mistakes may occur.

- **With automation + incremental refresh:**

  - Refresh time: from minutes → seconds

  - Errors: from possible → nearly zero

My recommendation:
Move to an automated, incremental refresh model in Power BI so the sales dashboards always stay up-to-date, fast, and reliable. This gives Sumera the confidence that her decisions are based on the latest numbers without delays or clutter behind the scenes.