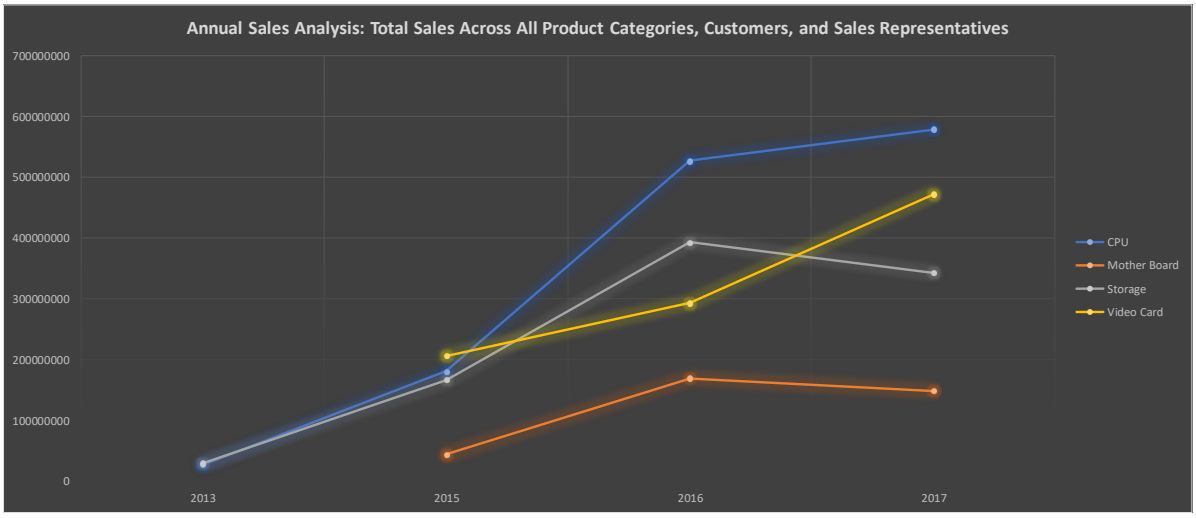
Task 1:

Line plot of all four product categories overall years with total sale by all customers and all salesmen. This will show the trend of sales over years for each product category.

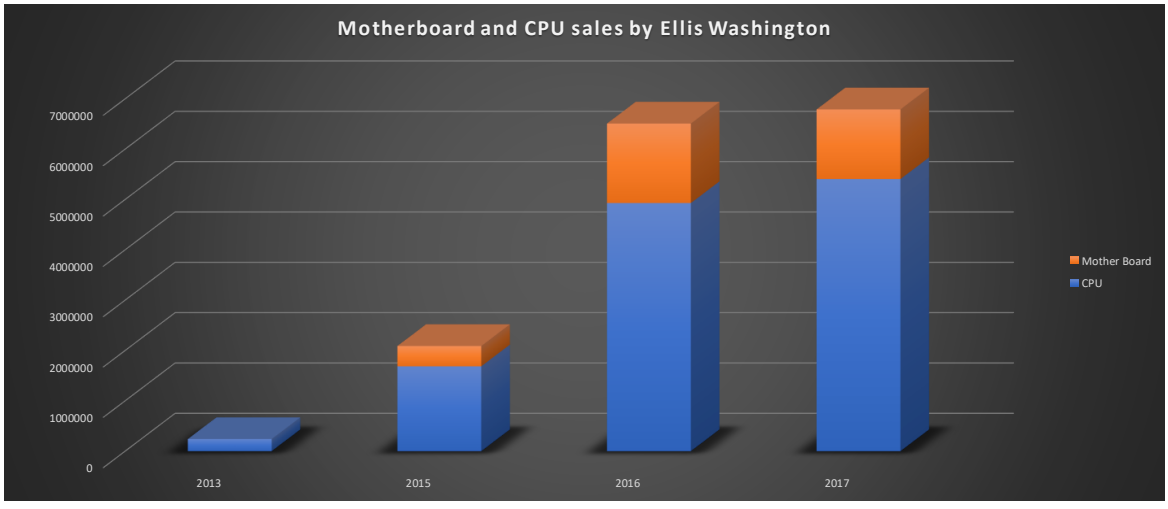
Graph



Task 2:

3-D Stacked Column plot of sales of Mother Board and CPU product categories by the salesman named “Ellis Washington” only.

Graph:



Task 3:

Choose any real-world business (e.g., Coles, Qantas, eBay, Facebook, Netflix, etc.). Those who are aiming for a 'C' or above and did the Mini-Project (Task 4.2C and 7.2C) can use the same company you selected for the project if you want. In 750-1000 words, discuss the importance of data and Business Intelligence (BI) for your chosen company. Your discussion must include: (i) what the company is; (ii) what is its main business; (iii) what data they collect about what; and (iv) how they use the collected data and BI tools to have competitive advantage in terms of revenue and/or productivity. Note that (iv) is the most important part in this additional task and it is expected that 75-80% of your word limit will be used to answer this part

Answer:

Choosing an airline for your database project can be an excellent decision, given the wealth of data they generate and utilize daily. Let's dive into discussing the importance of data and Business Intelligence (BI) for an airline, covering the specified points.

1. What is the company?

For this task lets consider an airline called "SkyLink Airlines."

2. What is its main business?

SkyLink Airlines operates as a commercial airline, providing passenger and cargo transportation services domestically and internationally. Their main business revolves around ensuring safe, comfortable, and efficient air travel for their customers.

3. What data do they collect?

SkyLink Airlines collects a diverse range of data to manage their operations effectively:

Passenger Data: This includes personal information such as name, age, gender, contact details, frequent flyer information, and travel history.

Flight Data: Information about flights, including departure and arrival times, flight duration, aircraft type, seat availability, and ticket prices.

Operational Data: Data related to aircraft maintenance schedules, crew rosters, fuel consumption, and weather conditions.

Financial Data: Revenue and cost data, including ticket sales, ancillary revenue, operational expenses, and profitability analysis.

Customer Feedback: Feedback from passengers through surveys, social media, and customer service interactions.

4. How do they use the collected data and BI tools?

SkyLink Airlines leverages data and BI tools in various ways to gain a competitive advantage:

Demand Forecasting: Analyzing historical booking data to predict future demand for routes and adjust pricing strategies accordingly, maximizing revenue.

Route Optimization: Using BI algorithms to analyze passenger traffic patterns and optimize flight routes, frequencies, and schedules to minimize costs and increase efficiency.

Customer Segmentation: Segmenting passengers based on demographics, travel behavior, and preferences to tailor marketing campaigns, loyalty programs, and in-flight services.

Operational Efficiency: Utilizing BI dashboards to monitor real-time flight statuses, crew availability, and aircraft maintenance schedules to ensure operational efficiency and on-time performance.

Personalized Marketing: Leveraging BI insights to offer personalized promotions, upgrades, and services to passengers, enhancing customer satisfaction and loyalty.

Risk Management: Analyzing safety and security data to identify potential risks and implement proactive measures to mitigate them, ensuring passenger safety and regulatory compliance.

By harnessing the power of data and BI, SkyLink Airlines gains valuable insights that enable them to make informed decisions, optimize operations, enhance customer experiences, and maintain a competitive edge in the aviation industry.