(i) Create a heat map for Product Type, State, and Profit. Identify which state has the lowest profit for Espresso?

Ans. The lowest profit for Espresso is in Nevada (-392), as seen in the lightest cell.

(ii) Using boxplot, identify which of the Espresso product has the highest distribution of sales?

Ans. Among Espresso products, Regular Espresso shows the widest range and highest sales distribution (~815).

(iii) Create a bar chart with Product Type, Product, and Profit. Write your conclusion.

Ans. The Coffee and Espresso categories are the main profit drivers for the company, especially Colombian Coffee and Decaf Espresso. In contrast, Amaretto and Green Tea underperform and may require review of pricing, marketing, or supply strategy.

Overall, focusing more on high-performing Coffee and Espresso products can maximize profit margins.

(iv) Create a scatter plot with State, Sales, and Profit. Draw your conclusion.

Ans. States with higher sales generally show higher profit. New York and California are most profitable; New Mexico has the lowest profit (≈ 799).

(v) Identify the state with the highest and the lowest profit in the market.

Ans. Highest Profit: California (≈ 31,785)
 Lowest Profit: New Mexico (≈ 799)

(vi) What is the number of Sales in the state Nevada for the product Decaf Espresso?

Ans. Total Sales for Decaf Espresso in Nevada = 1,255.

(vii) What is the contribution of tea (in percentage) to the overall Profit?

Ans. Tea contributes 20.41% of the total company profit.

(viii) What is the average marketing in the area code 660 and 818?

Ans. The average marketing expense for Area Codes 660 and 818 is 32.89$.

(ix) In California, which is the product with highest and lowest profit?

Ans. In California, Columbian has the highest profit, while Decaf Irish Cream shows the lowest (negative) profit.

(x) Identify through side-by-side circles, the minimum marketing for the Coffee Beans Colombian product.

Ans. The minimum marketing expense for Coffee–Colombian is 8.0.

(xi) What is the contribution of sales in the East market for Decaf?

Ans. Decaf contributes 15.92% of total East Market sales.

(xii) In 2012, what is the contribution of sales in the East market for Decaf?

Ans. In 2012, Decaf contributed 15.92% of East Market sales (same ratio maintained year-to-year).

(xiii) What is the average profit for all the products starting with C?

Ans. The average profit for all products beginning with "C" (Caffe Latte, Caffe Mocha, Chamomile, Colombian) = 71.85.

(xiv) In the Central region, the Top 5 Products by sales contributed _____ % of the total sales.

Ans. Top 5 Central products (Chamomile, Caffe Mocha, Colombian, Decaf Espresso, Lemon) together contribute ~90% of Sales, with Chamomile leading.

(xv) In 2013, identify the state with the highest profit in the West market.

Ans. In 2013, the highest profit in the West Market is from California with 18.82k profit.

(xvi) Identify the total expenses to sales ratio of the state with the lowest profit.

Ans. New Mexico has an Expenses-to-Sales Ratio of 45.58%, showing high cost pressure on profits.

(xvii) What is the distinct count of area codes for the state with the lowest budget margin in small markets?

Ans. The lowest budget margin in the Small Market is from New Mexico, which has 8 distinct area codes.

(xviii) In 2013, what is the percentage of total profit for Caffe Mocha falling under Major Market?

Ans. Caffe Mocha in Major Market (2013) contributes 55% of total profit.

(xix) In which month and year did the sales cross $1,100 for Decaf in Colorado as well as Florida?

Ans. Decaf Sales exceed $1,100 in all months — highest in August (≈ 3,860).

(xx) Using tree maps, identify the market with its size having maximum budget sales.

Ans. Central Market has the highest Budget Sales, followed by East, West, and South markets.