Answer question 1 and choose to answer either question 1, question 2 or question 3

Please follow the following instructions for your submission:

1. Type your homework.
2. Do not submit your code.
3. Do not copy-paste your software output; instead, make your tables.
4. Discuss your results. Tables provided without discussion will not be considered complete answers.
5. Answer Question 1 and choose one question among 1, 2, and 3. Indicate which question you want for extra credit if you answer more than two questions.

Question 1 (50 points)

The file *data.xlsx* provides data on the weekly consumption and prices for five yogurt brands in the Dallas metropolitan area. Use the data to answer the following questions:

(a) Provide a summary statistics of the data. Discuss any patterns or insights you get from these statistics.

(b) Estimate a double log demand for each product (separate regression for each product). Include the promotion variables and report the price, the promotion, and the expenditure elasticities. Software copy past tables will not be accepted. Discuss and interpret your results.

(c) Use the Linear Expenditure System (LES) to estimate the price and the expenditure elasticities. Make sure to include the theoretical restrictions. Then, discuss and interpret your results.

(d) Use the Rotterdam model to estimate the price and the expenditure elasticities. Make sure to include the theoretical restrictions. Then, discuss and interpret your results.

(e) Use the full AIDS model to estimate the price and the expenditure elasticities. Make sure to include the theoretical restrictions. Then, discuss and interpret your results.

(f) Use the quadratic AIDS to estimate the price and the expenditure elasticities. Make sure to include the theoretical restrictions. Then, discuss and interpret your results.

(g) Which model is more consistent with the theoretical restriction? Which model would you pick?

Question 2 (50 points)

The file $fishdata.xlsx$ provides data on ten fish category consumption in different Texas areas. In this exercise, you will use qi (the sales in pounds for category i), pi (the price per pound for category i), and $q1promo$ (quantity sold using any promotional activities). Pick one area (The column named 'Four-week CITY') and perform the following:

(a) Provide a summary statistics table for the consumption, price, market share (computed using total Texas consumption for the ten categories), and promo (calculated as the fraction of quantity sales, using any promotional activities). For the estimation, use the prices in other cities as instrumental variables for the price of the city you chose.

(b) Estimate a multinomial logit model and provide the substitution matrix. Discuss your findings.

(c) Estimate a random coefficients multinomial logit model and provide the substitution matrix. Discuss your findings and compare them to previous results. Use the file $agent.csv$ for the demographics.

Question 3 (50 points)

This question uses the 2008 Mexican household consumption survey from ENIGH (Encuesta Nacional de Ingresos y Gastos de los Hoares, National Survey of Household Income and Expenditure). Using the data in file $FOOD.xlsx$, estimate a demand system for Cereals, meat, fish, milk products, vegetables, and oils using the following approaches:

(a) Estimate the demand system, ignoring the household with $q_i = 0$.

(b) Estimate the demand system using the Tobit approach.

(c) Compare your results. What do you conclude?

Question 4 (50 points)

Use the same data as in question 3 but estimate the model using the EASI model with and without demographics. Discuss your findings. Ignore households with $q_i = 0$