Practice Exercise: MS Excel Advanced

The following is a post-class exercise for practicing Excel functionalities.

Note: This is neither a graded assessment nor has any time restraints for completion.

Case Study Number & Title	1. Exploring the Boston Housing data and understanding the suburb qualities for potential residents
Background Information	The Boston housing data was collected in 1978 and each of the 506 entries represent aggregated data about 14 features for homes from various suburbs in Boston, Massachusetts.
Problem Statement/ Business objectives	Analyze the data to identify best suburbs in Boston for future residents and explore using Excel to extract relevant insights.
Data, Information for case analysis	Data is provided as an xlsx file. Below is the source and attribute information. Source link: https://www.kaggle.com/datasets/kyasar/boston-housing Data Description **crim:** Per capita crime rate by town **zn:** Proportion of residential land zoned for lots over 25,000 sq.ft. **indus:** Proportion of non-retail business acres per town **chas:** Charles River dummy variable (1 if tract bounds river; 0 otherwise) **nox:** Nitric oxides concentration (parts per 10 million) **rm:** Average number of rooms per dwelling **age:** Proportion of owner-occupied units built prior to 1940 **dis:** Weighted distances to five Boston employment centers **rad:** Index of accessibility to radial highways **tax:** Full-value property-tax rate per $10,000 **ptratio:** Pupil-teacher ratio by town **black:** $1000*(Bk - 0.63)^2$ where Bk is the proportion of blacks by town **lstat:** Percentage lower status of the population **medv:** Median value of owner-occupied homes in $1000's
Questions	1. What is the least median value of the residential properties which bound the Charles River? (Use array formula)

	2. Determine how many properties have tax rate lower than the average full value property tax rate in the Boston area suburbs. 3. Calculate the total rm for areas with crime rate less than 1 and index of accessibility to radial highways as 8. (Hint: SUMPRODUCT) 4. What is the median value of owner-occupied homes with a pupil-teacher ratio of 16.9? 5. Create a pivot table portraying the relationship between Charles River variable, distances to the Boston employment centers and the proportion of non-retail business acres per town.
Solution	A sample solution also provided with the dataset
Deliverables for Solution and Rubric	Non-graded assessment
Key Takeaways/Results	Analyzing data using MS Excel and deriving meaningful insights which aids in decision making.