**CMIS2250 Forecasting Assignment (5%)**

**GROUP :\_\_\_\_\_\_\_\_\_**

**In this assignment, you will be using 3 different forecasting models to forecast the average house price of a single family home in Edmonton for February 2022.**

The calculations will all be done in Excel. The results will be recorded in the space provided in this Word document. Each group will submit one completed assignment (this Word document), and their supporting Excel file showing all of the calculations. Marks will not be awarded without the supporting Excel calculations.

**VERY IMPORTANT: SHOW ALL DOLLAR AMOUNTS TO THE NEAREST DOLLAR AND SHOW ALL % TO TWO DECIMAL POINTS. For example, if you have a cell that reads $321,982.12 – leave this number as is in the cell. You can show it to the nearest dollar by using the Decrease Decimal point button in the top middle of the Excel Home menu. You can use the same approach for the %.**

**Do Not retype the number in the cell as $321,982. This will throw off the rest of your calculations.**

**PART I PREPARING THE DATA (10 MARKS)**

1. Go to The Canadian Real Estate Association website. <https://www.crea.ca/>
2. Click on CREA STATS in the blue area at the top of the website.
3. Scroll down until you see the following information:

The MLS® HPI data is now available to[download](https://www.crea.ca/hpi-tools-terms-of-use/) in Excel (.xlsx) format.

1. Click on the blue download link and Accept the Terms of Use.
2. A zip folder containing two Excel files will be downloaded to your computer. Open the zip folder.
3. Open the file called Seasonly Adjusted. This is the information you will be using for the assignment.
4. In the Excel file, scroll to the right until you see the Edmonton tab.
5. Copy the information from **January 2021 to January 2022** for the **Single\_Family\_Benchmark\_SA** column (Column I) to the space provided in the Excel Forecasting Assignment workbook. This is the information you will use to complete the required forecast.

**PART II FORECASTS (21 MARKS)**

Prepare a forecast for the average house price for a single family home in Edmonton for February 2022 using each of the three models below.

1. **3-Month Moving Average**
2. **3-Month Weighted Moving Average – use weights of .70, .20 and .10 with .70 being the most recent.**
3. **Exponential Smoothing (Alpha =.4) Initial Forecast = 395,000**

Once you have completed the above forecasts in Excel, indicate your results below for forecast of the average house price in **Edmonton – February 2022.**

|  |  |
| --- | --- |
| **FORECAST METHOD** | **FORECAST RESULTS** |
| 1. **3 – Month Moving Average** |  |
| 1. **3-Month Weighted Moving Average** |  |
| 1. **Exponential Smoothing** |  |

**PART III ERROR ANALYSIS (11 MARKS)**

Prepare a comparison summary of the errors by filling in the appropriate spaces below for each forecasting model with your error data from the Excel file. **The MAD, MSE, MAPE for the first two forecasting models have been provided.**

**Note: For the Exponential Smoothing Model, Use the Forecasts you calculated in PART II to calculate the MAD, MSE, and MAPE.**

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| |  |  |  |  | | --- | --- | --- | --- | | **FORECAST METHOD** | **MAD** | **MSE** | **MAPE** | | **3 Month Moving Average** | 3,603 | 20,603,222 | 0.90% | | **3 Month Weighted Moving Average** | 2,976 | 13,487,700 | 0.74% | | **Exponential Smoothing** |  |  |  | | |  | |  | | |  | |  |  | |
|  |  | |  | |  |  | |  | | |  | |

**PART IV RECOMMENDATION (4 MARKS)**

Determine which forecasting model you think is the most appropriate going forward. Your recommendation should be based on a comparison of the errors calculated in PART III. Provide details to support your decision. Why is it important for a forecast to be accurate?

**PART V QUALITATIVE FACTORS (4 MARKS)**

We have used historic house prices to forecast the house prices for February 2022. Discuss two qualitative (non-financial) factors that could be considered when forecasting future house prices.

**UPLOAD THIS COMPLETED WORD DOCUMENT AND YOUR EXCEL SPREADSHEET TO THE ASSIGNMENT DROPBOX**

**FORECASTING ASSIGNMENT:**

**GRADE**

|  |  |  |
| --- | --- | --- |
|  | **Marks Available** | **Marks Earned** |
| **PART I Data Preparation** | 10 |  |
| **PART II Forecast – results recorded in Word Doc** | 2 |  |
| 1. **3 Month Moving Average** | 2 |  |
| 1. **3 Month Weighted Moving Average** | 5 |  |
| 1. **Exponential Smoothing** | 12 |  |
| **PART III Error Analysis – results recorded in Word Doc** | 2 |  |
| 1. **3 Month Moving Average** | Given |  |
| 1. **3 Month Weighted Moving Average** | Given |  |
| 1. **Exponential Smoothing** | 9 |  |
| **PART IV Recommendation** | 4 |  |
| **PART V Qualitative Factors** | 4 |  |
| **Total** | 50 |  |