MM305M5 Competency Assessment – Part 2 Guidance

These responses are meant to be a guide on how to address the competency assessment and do not include all possible responses.

I will use the National Association of Realtors Website (http://www.realtor.org/topics/existinghome-sales). I downloaded the "Single-Family Existing Home Sales and Prices" spreadsheet for Database work.

1. I will look at the (not-seasonally adjusted) **median sale price for the West** column over the past year by month (May 2015 – May 2016). Here is the data:

Year		West
2015	May	325,800
2015	Jun	331,300
2015	Jul	329,300
2015	Aug	322,000
2015	Sep	322,200
2015	Oct	324,200
2015	Nov	321,700
2015	Dec	324,900
2016	Jan	313,400
2016	Feb	312,300
2016	Mar	322,500
2016	Apr	337,800
2016	May	348,100

2&3)

3-Month Moving Average – forecast is $336,133.33

Number of Periods	3

Analysis of Forecast Error		
MAD	MSE	MAPE
$ 8,490.00	$ 131,943,666.67	2.56%

Data								
Period	Data	Indicates which cells in column to the right need a formula	Moving average forecast	error	absolute value of error	squared error	percentage error
1	$ 325,800						
2	$ 331,300						
3	$ 329,300						
4	$ 322,000	Formula Needed -->	$ 328,800.00	$ (6,800.00)	$ 6,800.00	$ 46,240,000.00	2.11%
5	$ 322,200	Formula Needed -->	$ 327,533.33	$ (5,333.33)	$ 5,333.33	$ 28,444,444.44	1.66%
6	$ 324,200	Formula Needed -->	$ 324,500.00	$ (300.00)	$ 300.00	$ 90,000.00	0.09%
7	$ 321,700	Formula Needed -->	$ 322,800.00	$ (1,100.00)	$ 1,100.00	$ 1,210,000.00	0.34%
8	$ 324,900	Formula Needed -->	$ 322,700.00	$ 2,200.00	$ 2,200.00	$ 4,840,000.00	0.68%
9	$ 313,400	Formula Needed -->	$ 323,600.00	########	$10,200.00	$ 104,040,000.00	3.25%
10	$ 312,300	Formula Needed -->	$ 320,000.00	$ (7,700.00)	$ 7,700.00	$ 59,290,000.00	2.47%
11	$ 322,500	Formula Needed -->	$ 316,866.67	$ 5,633.33	$ 5,633.33	$ 31,734,444.44	1.75%
12	$ 337,800	Formula Needed -->	$ 316,066.67	$21,733.33	$21,733.33	$ 472,337,777.78	6.43%
13	$ 348,100	Formula Needed -->	[illegible]	[illegible]3,900.00	$23,900.00	$ 571,210,000.00	6.87%
14		Formula Needed -->	$ 336,133.33				

3-Month Weighted Moving Average – forecast is $340,400

Weights are 3 = most recent month, 2 = 1-month prior, 1 = 2-months prior

Number of Periods	3

Analysis of Forecast Error		
MAD	MSE	MAPE
$ 8,003.33	$ 107,794,666.67	2.42%

Data								
Period	data	weight	Indicates which cells in column to the right need a formula	Weighted moving average forecast	error	absolute value of error	squared error	percentage error
1	$ 325,800	1						
2	$ 331,300	2						
3	$ 329,300	3						
4	$ 322,000		Formula Needed -->	$ 329,383.33	$ (7,383.33)	$ 7,383.33	$ 54,513,611.11	2.29%
5	$ 322,200		Formula Needed -->	$ 325,983.33	$ (3,783.33)	$ 3,783.33	$ 14,313,611.11	1.17%
6	$ 324,200		Formula Needed -->	$ 323,316.67	$ 883.33	$ 883.33	$ 780,277.78	0.27%
7	$ 321,700		Formula Needed -->	$ 323,166.67	$ (1,466.67)	$ 1,466.67	$ 2,151,111.11	0.46%
8	$ 324,900		Formula Needed -->	$ 322,616.67	$ 2,283.33	$ 2,283.33	$ 5,213,611.11	0.70%
9	$ 313,400		Formula Needed -->	$ 323,716.67	$ (10,316.67)	$ 10,316.67	$ 106,433,611.11	3.29%
10	$ 312,300		Formula Needed -->	$ 318,616.67	$ (6,316.67)	$ 6,316.67	$ 39,900,277.78	2.02%
11	$ 322,500		Formula Needed -->	$ 314,766.67	$ 7,733.33	$ 7,733.33	$ 59,804,444.44	2.40%
12	$ 337,800		Formula Needed -->	$ 317,583.33	$ 20,216.67	$ 20,216.67	$ 408,713,611.11	5.98%
13	$ 348,100		Formula Needed -->	$ 328,450.00	$ [illegible]9,650.00	$ 19,650.00	$ 386,122,500.00	5.64%
14			Formula Needed -->	$ 340,400.00				
15								

Exponential Smoothing, alpha = 0.25 – forecast is $330,412.95

Weight	
alpha	0.25

Analysis of Forecast Error		
MAD	MSE	MAPE
$ 6,713.04	$ 91,027,266.92	2.03%

Data						
Period	Data	Exponential forecast	error	absolute value of error	squared error	absolute percentage error
1	$325,800	$ 325,800.00	$ -	$ -	$ -	0.00%
2	$331,300	$ 325,800.00	$ 5,500.00	$ 5,500.00	$ 30,250,000.00	1.66%
3	$329,300	$ 327,175.00	$ 2,125.00	$ 2,125.00	$ 4,515,625.00	0.65%
4	$322,000	$ 327,706.25	$ (5,706.25)	$ 5,706.25	$ 32,561,289.06	1.77%
5	$322,200	$ 326,279.69	$ (4,079.69)	$ 4,079.69	$ 16,643,850.10	1.27%
6	$324,200	$ 325,259.77	$ (1,059.77)	$ 1,059.77	$ 1,123,103.18	0.33%
7	$321,700	$ 324,994.82	$ (3,294.82)	$ 3,294.82	$ 10,855,866.63	1.02%
8	$324,900	$ 324,171.12	$ 728.88	$ 728.88	$ 531,268.73	0.22%
9	$313,400	$ 324,353.34	$ (10,953.34)	$ 10,953.34	$ 119,975,626.99	3.50%
10	$312,300	$ 321,615.00	$ (9,315.00)	$ 9,315.00	$ 86,769,298.91	2.98%
11	$322,500	$ 319,286.25	$ 3,213.75	$ 3,213.75	$ 10,328,169.94	0.00997
12	$337,800	$ 320,089.69	$ 17,710.31	$ 17,710.31	$ 313,655,089.80	0.05243
13	$348,100	$ 324,517.27	$ 23,582.73	$ 23,582.73	$ 556,145,281.66	0.06775
14		$ 330,412.95				
15						
16						

Based on MAD values provided, it appears that the best forecast is …

7. Here is my ranking for the order of importance to improve the forecast:

1 _____ forecast

2. _____ forecast

3. _____ forecast

I have them ranked this way because … .