

Market Forecasting

AHMAD OMAR BAHSHWAN

Robot Type User:

Coffee robot

Users of the robot:

Hotels

Average Demand:

	Demand								
Hotels	Year 1	Year 2	Year 3	Average Yearly Demand	Average Monthly Demand	Seasonal Index			
1	90	113	120	107.67	101.25	1.06			
2	93	115	123	110.33	101.25	1.09			
3	80	99	104	94.33	101.25	0.93			
4	94	103	112	103.00	101.25	1.02			
5	92	107	127	108.67	101.25	1.07			
6	88	106	121	105.00	101.25	1.04			
7	96	111	105	104.00	101.25	1.03			
8	78	92	101	90.33	101.25	0.89			
9	83	94	106	94.33	101.25	0.93			
10	79	101	109	96.33	101.25	0.95			
11	99	102	110	103.67	101.25	1.02			
12	87	97	108	97.33	101.25	0.96			
				$\Sigma = 1215$					

Hotels	Actual demand	Forecast with $\alpha = 0.5$	Mean Absolute Deviation (MAD)		Mean Squared Error (MSE)	Mean Absolute Percent Error (MAPE)	
1	177	119	58.00		3364.00	32.77	
2	185	148	37.00		1369.00	20.00	
3	197	166.5	30.50		930.25	15.48	
4	188	181.75	6.25		39.06	3.32	
5	200	184.88	15.13		228.77	7.56	
6	202	192.44	9.56		91.44	4.73	
7	208	197.22	10.78		116.24	5.18	
8	218	202.61	15.39		236.87	7.06	
9	212	210.30	1.70		2.87	0.80	
10	220	211.15	8.85		78.28	4.02	
11	225	215.58	9.42		88.81	4.19	
12	?	220.29	-		-	-	
Sum Σ		2249.71	202.6		6545.6	105.12	
			MAD =	16.88	MSE =	545.47	MAPE = 8.76 %

Forecast with $\alpha = 0.47$ and $\beta = 0.33$				
Hotels	Actual demand	Smoothed Forecast Average (FS)	Smoothed Trend (Tt)	Forecast Including Trend (FITt)
1	177	123	8	131
2	185	152.62	15.13	167.75
3	197	175.86	17.81	193.67
4	188	195.23	18.33	213.56
5	200	201.55	14.36	215.91
6	202	208.43	11.89	220.33
7	208	211.71	9.05	220.76
8	218	214.77	7.07	221.84
9	212	220.03	6.48	226.51
10	220	219.69	4.23	223.92
11	225	222.08	3.62	225.69
12	?	225.37	3.51	228.88

The number of pieces required:

50 thousand