Audrey Zuckerman - Gaby Lio - Kathleen Nguyen -
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Agenda

1. Company Background
2. Data & Questions
3. Techniques & Results
4. Limitations
5. Recommendations

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Company Background

- Real estate brokerage firm
- Est. October 2013
- Free services to customers
- Profit comes from referral fees
- Rated #1 by UT students
- Prime location on 24th Street
- Rely on social media & WOM
- Eager to share data

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Leasing and Sales Number Data

AVERAGE DATA COUNTS

(per month)

Office leads: 269

Agent leads: 65

Appointments: 153

Deals: 82

Invoice: $53,314

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Leasing and Sales Number Data

47.87%

Lead to Appointment Ratio

55.94%

Close Rate Ratio

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Social Media Analytics Data

AVERAGE DATA COUNTS

(per month)

Twitter Engagements: 282.6

Facebook Engagements: 162.4

Tweets: 46

FB Posts: 21.9

Twitter Impressions: 5,267.7

FB Impressions: 29,451.1

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Questions

What is the seasonality of sales?

What are the projected sales for Q4 of 2016?

What is the sales trend over time?

How well is each agent performing over time?

Are current social media efforts contributing to overall sales?

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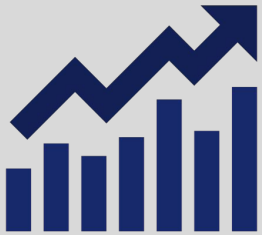
Analytics Techniques

MULTIPLICATIVE /ADDITIVE MODELS

MOVING AVERAGES



RANKED AVERAGES WITH SENSITIVITY ANALYSIS

MULTIPLE LINEAR REGRESSION

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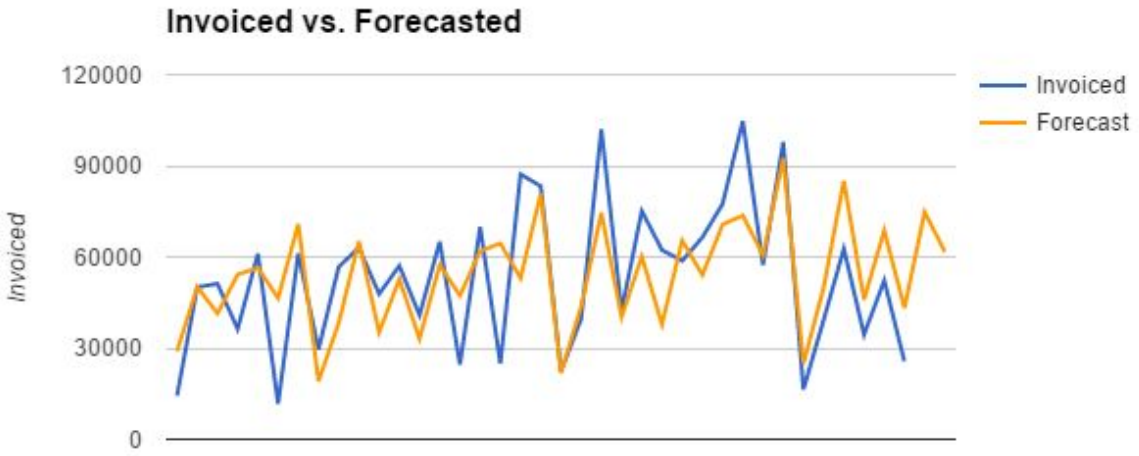
Results: Multiplicative/Additive Models

base	$	43,321.08
trend		1.01113837
seasonal index		
1		1.197130268
2		1.232782339
3		1.0031424
4		1.513319739
5		0.403489357
6		0.799131893
7		1.348005534
8		0.719467135
9		1.064542302
10		0.661713993
11		1.132513814
12		0.924761117
mean		0.999999991
SSE	$	10,285,397,935.39
Stdev errors	$	16,902.64



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Results: Multiplicative/Additive Models

FORECASTED INVOICE

($43,321.08) * (1.0111 ^ month #) * (seasonal index)

NOVEMBER
$74,738.65

DECEMBER
$61,708.06

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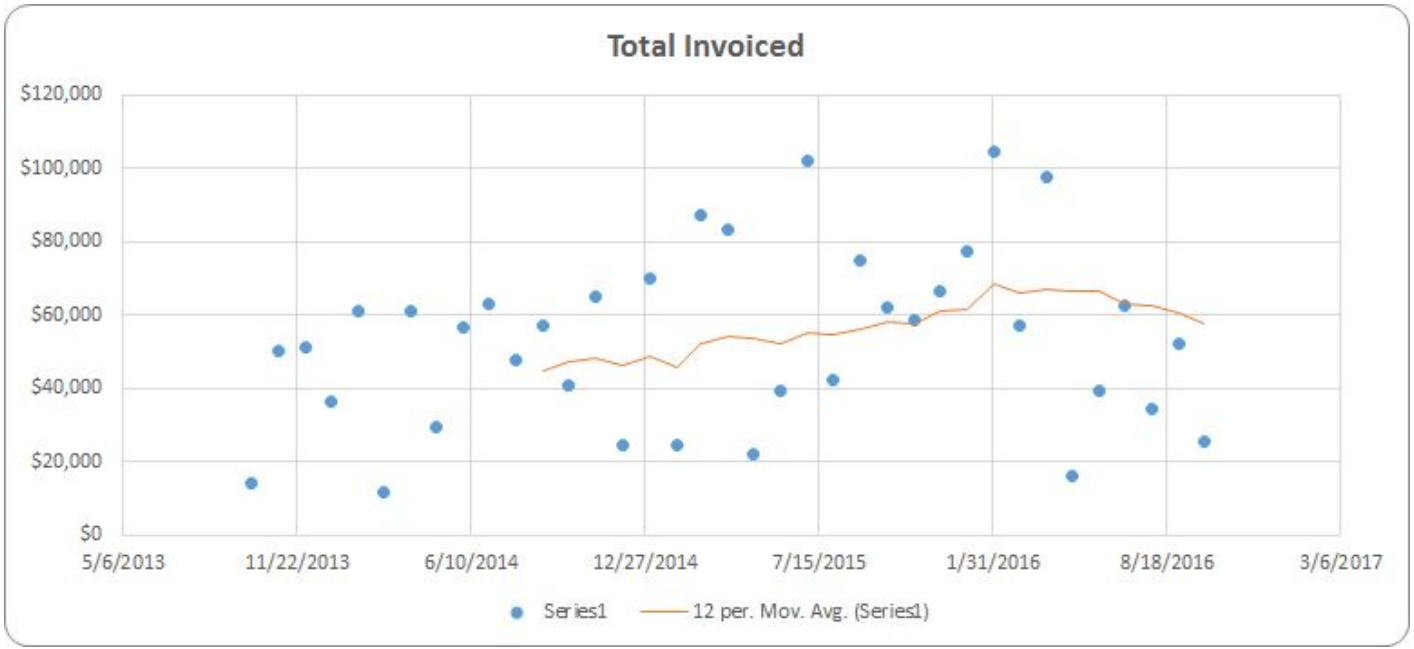
Results: Moving Averages



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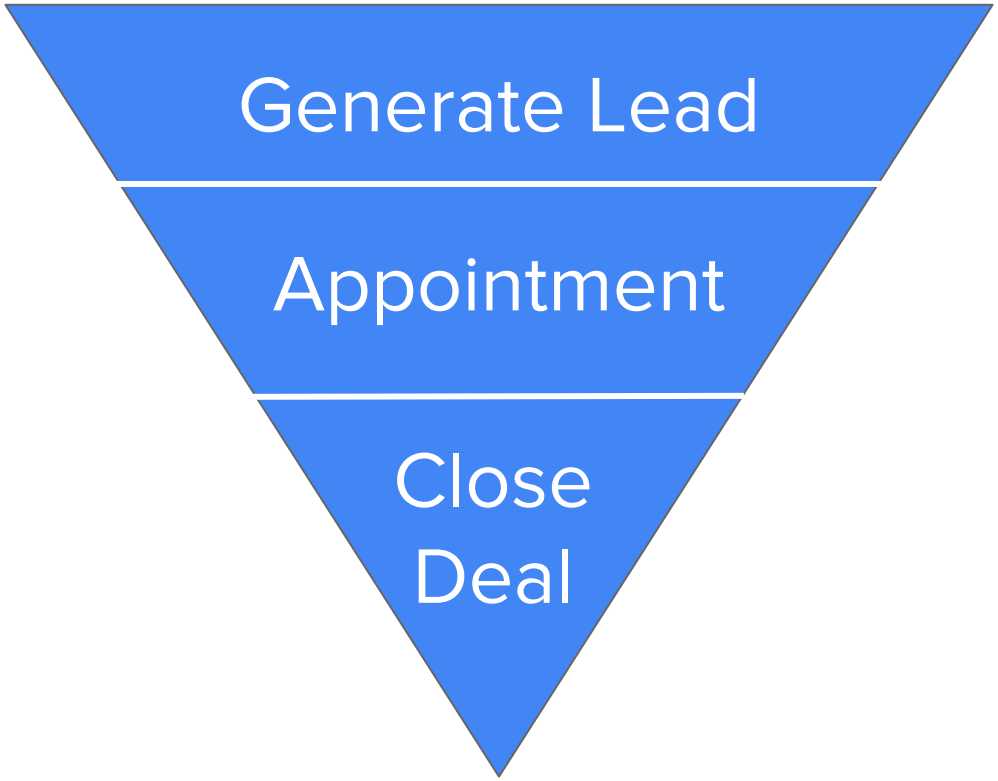
Agent Performance Comparison



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Results: Ranked Averages with a Sensitivity Analysis

Overall Ranking					
Column1	Self Generated Leads	Lead to Appt. Ratio	Close Rate	Average	Ranking
Agent S	2	4	4	3.33	1
Agent U	4	5	5	4.67	2
Agent D	7	7	3	5.67	3
Agent H	5	8	8	7.00	4
Agent G	6	14	2	7.33	5
Agent N	8	13	1	7.33	6
Agent L	13	1	9	7.67	7
Agent V	3	12	10	8.33	8
Agent B	12	6	11	9.67	9
Agent Q	1	18	13	10.67	10
Agent F	10	9	14	11.00	11
Agent C	9	3	23	11.67	12
Agent O	14	16	6	12.00	13
Agent T	19	10	7	12.00	14
Agent E	20	2	17	13.00	15
Agent R	16	11	16	14.33	16
Agent W	15	17	12	14.67	17
Agent K	11	19	15	15.00	18
Agent A	23	15	18	18.67	19
Agent J	18	21	21	20.00	20
Agent P	21	20	19	20.00	21
Agent M	17	22	22	20.33	22
Agent I	22	23	20	21.67	23

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Results: Ranked Averages with a Sensitivity Analysis

Self Generated Leads				
Agent	Sum	Count	Average	Rank
Agent Q	1048	34	30.82	
Agent S	98	20	4.90	
Agent V	34	7	4.86	
Agent U	107	30	3.57	
Agent H	112	34	3.29	
Agent G	108	33	3.27	
Agent D	99	33	3.00	
Agent N	93	34	2.74	
Agent C	10	4	2.50	
Agent F	27	11	2.45	
Agent K	37	16	2.31	
Agent B	49	22	2.23	
Agent L	54	25	2.16	
Agent O	23	14	1.64	
Agent W	11	7	1.57	
Agent R	29	22	1.32	
Agent M	13	10	1.30	
Agent J	11	9	1.22	
Agent T	9	11	0.82	
Agent E	8	11	0.73	
Agent P	16	28	0.57	
Agent I	8	28	0.29	
Agent A	1	4	0.25	

Lead to Appointment Ratio				
Agent	Sum	Count	Average	Rank
Agent L	16.90	25	68%	
Agent E	7.25	11	66%	
Agent C	2.42	4	61%	
Agent S	11.81	20	59%	
Agent U	17.20	30	57%	
Agent B	12.39	22	56%	
Agent D	18.36	33	56%	
Agent H	16.99	34	50%	
Agent F	5.39	11	49%	
Agent T	4.94	11	45%	
Agent R	9.32	22	42%	
Agent V	2.89	7	41%	
Agent N	13.21	34	39%	
Agent G	12.74	33	39%	
Agent A	1.49	4	37%	
Agent O	5.17	14	37%	
Agent W	2.48	7	35%	
Agent Q	11.88	34	35%	
Agent K	5.45	16	34%	
Agent P	9.15	28	33%	
Agent J	2.68	9	30%	
Agent M	2.94	10	29%	
Agent I	7.37	28	26%	

Close Rate				
Agent	Sum	Count	Average	Rank
Agent N	28.07	34	83%	1
Agent G	26.53	33	80%	2
Agent D	23.65	33	72%	3
Agent S	13.20	20	66%	4
Agent U	19.76	30	66%	5
Agent O	9.07	14	65%	6
Agent T	6.15	11	56%	7
Agent H	18.91	34	56%	8
Agent L	13.03	25	52%	9
Agent V	3.60	7	51%	10
Agent B	11.17	22	51%	11
Agent W	3.32	7	47%	12
Agent Q	15.37	34	45%	13
Agent F	4.83	11	44%	14
Agent K	6.91	16	43%	15
Agent R	9.05	22	41%	16
Agent E	4.11	11	37%	17
Agent A	1.47	4	37%	18
Agent P	9.15	28	33%	19
Agent I	5.72	28	20%	20
Agent J	1.42	9	16%	21
Agent M	1.15	10	12%	22
Agent C	0.20	4	5%	23

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Results: Multiple Linear Regression

OFFICE LEADS VS. SOCIAL MEDIA (ROUND 1)

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.999714259
R Square	0.9994286
Adjusted R Square	0.994857396
Standard Error	9.204927113
Observations	10

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	8	148201.2693	18525.15866	218.635776	0.052260095
Residual	1	84.73068316	84.73068316		
Total	9	148286			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-646.710287	75.79116156	-8.53279293	0.074269818	-1609.728304	316.3077285	-1609.7283	316.3077285
Lead/Appt Ratio	639.487914	57.3617469	11.14833401	0.056952057	-89.36218608	1368.338014	-89.3621861	1368.338014
Close Rate	-69.9461254	25.36659084	-2.75741135	0.221484794	-392.259222	252.3669713	-392.259222	252.3669713
Twitter Reach	0.000596367	7.20212E-05	8.280428906	0.076511934	-0.00031875	0.001511483	-0.00031875	0.001511483
Twitter Engagement	-0.73647177	0.051689016	-14.2481289	0.04460779	-1.393242992	-0.07970054	-1.39324299	-0.07970054
Number of Tweets	0.541273191	0.479485425	1.128862658	0.461511589	-5.551166783	6.633713165	-5.55116678	6.633713165
FB Reach	0.020764322	0.001407877	14.7486779	0.043098568	0.002875551	0.038653093	0.002875551	0.038653093
FB Engagement	-0.0586416	0.039759329	-1.47491416	0.379305432	-0.563831767	0.446548573	-0.56383177	0.446548573
FB Posts	35.74910143	2.251671174	15.8766972	0.040044847	7.138906497	64.35929636	7.138906497	64.35929636

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Results: Multiple Linear Regression

OFFICE LEADS VS. SOCIAL MEDIA (ROUND 3)

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.933182216
R Square	0.870829048
Adjusted R Square	0.806243572
Standard Error	56.50109709
Observations	10

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	3	129131.7562	43043.91872	13.48335724	0.004479965
Residual	6	19154.24383	3192.373972		
Total	9	148286			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	130.3892083	133.0586334	0.979937979	0.364961032	-195.1935386	455.9719553	-195.1935386	455.9719553
Twitter Engagement	-0.543434115	0.094228831	-5.767174533	0.001185921	-0.774003758	-0.312864471	-0.774003758	-0.312864471
FB Posts	9.872396234	6.954034583	1.419664529	0.205511932	-7.143513401	26.88830587	-7.143513401	26.88830587
FB Reach	0.027902082	0.007019197	3.975110371	0.007324046	0.010726726	0.045077437	0.010726726	0.045077437

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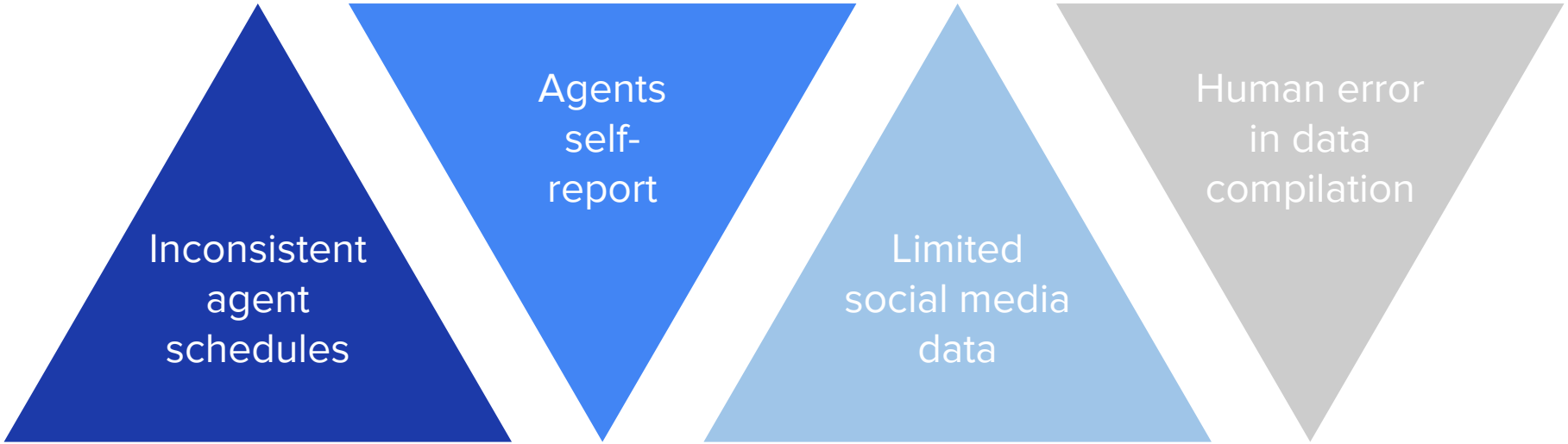
Limitations



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Recommendations

Hire enough agents to handle increases in demand

Increase promotion during off-season months

Create surveys to understand customer purchase decision

Utilize agents individual strengths; quality over quantity

Receive more impressions from FB posts

Post more relevant content on Facebook and Twitter

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Questions?

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