

Month/ Year		January	February	March	April	May	June	July	August	September	October	November	December
2013													
Starting		120,816.00	125,871	120,415	132,696	125,386	124,197	135,897	121,361	141,836	129,436	131,764	127,822
Shipped		26,203	33,738	18,977	40,057	33,429	18,070	47,283	1,852	42,170	30,419	32,223	22,894
Production		31,258	28,281	31,258	32,747	32,240	29,770	32,747	22,327	29,770	32,747	28,281	20,839
Ending		125,871	120,415	132,696	125,386	124,197	135,897	121,361	141,836	129,436	131,764	127,822	125,767
2014													
Starting		125,767	131,395	126,075	139,201	132,010	130,192	144,269	129,639	149,643	138,731	141,597	136,333
Shipped		27,135	34,962	19,637	41,514	34,581	18,685	48,953	1,838	43,675	31,457	33,346	23,677
Production		32,763	29,642	32,763	34,323	32,763	32,763	34,323	21,842	32,763	34,323	28,082	23,402
Ending		131,395	126,075	139,201	132,010	130,192	144,269	129,639	149,643	138,731	141,597	136,333	136,058
Month/ Year	Days/Month	2013	Starting	Shipped	Production	Ending							
January	31		120,816	26,203	31,258	125,871							
February	28		125,871	33,738	28,281	120,415							
March	31		120,415	18,977	31,258	132,696							
April	30		132,696	40,057	32,747	125,386							
May	31		125,386	33,429	32,240	124,197							
June	30		124,197	18,070	29,770	135,897							
July	31		135,897	47,283	32,747	121,361							
August	31		121,361	1,852	22,327	141,836							
September	30		141,836	42,170	29,770	129,436							
October	31		129,436	30,419	32,747	131,764							
November	30		131,764	32,223	28,281	127,822							
December	31		127,822	22,894	20,839	125,767							
	Days/Month	2014											
January	31		125,767	27,135	32,763	131,395							
February	28		131,395	34,962	29,642	126,075							
March	31		126,075	19,637	32,763	139,201							
April	30		139,201	41,514	34,323	132,010							
May	31		132,010	34,581	32,763	130,192							
June	30		130,192	18,685	32,763	144,269							
July	31		144,269	48,953	34,323	129,639							
August	31		129,639	1,838	21,842	149,643							
September	30		149,643	43,675	32,763	138,731							
October	31		138,731	31,457	34,323	141,597							
November	30		141,597	33,346	28,082	136,333							
December	31		136,333	23,677	23,402	136,058							

Month/Year	2013	Starting	Shipped	Production	Ending	Avg Inventory	Lead Time			Calculating Safety Stock	
January		120,816	26,203	31,258	125,871	123,343.68	4.71				
February		125,871	33,738	28,281	120,415	123,143.03	3.65			Average Demand (d)	29,449
March		120,415	18,977	31,258	132,696	126,555.39	6.67			Standard Deviation of Demand (sd)	12348.20
April		132,696	40,057	32,747	125,386	129,040.99	3.22			Average Lead Time (t)	10.25
May		125,386	33,429	32,240	124,197	124,791.51	3.73			Standard Deviation of Lead Time (st)	19.55
June		124,197	18,070	29,770	135,897	130,047.05	7.20			Service Level (Percentage)	95%
July		135,897	47,283	32,747	121,361	128,628.90	2.72			Service Level (k)	1.64
August		121,361	1,852	22,327	141,836	131,598.51	71.06			Combined Standard Deviation (Sc)	57697.17
September		141,836	42,170	29,770	129,436	135,636.14	3.22			Safety Stock (SS)	949,042.98
October		129,436	30,419	32,747	131,764	130,599.99	4.29				
November		131,764	32,223	28,281	127,822	129,793.09	4.03				
December		127,822	22,894	20,839	125,767	126,794.73	5.54				
January		125,767	27,135	32,763	131,395	128,581.04	4.74				
February		131,395	34,962	29,642	126,075	128,735.14	3.68				
March		126,075	19,637	32,763	139,201	132,638.24	6.75				
April		139,201	41,514	34,323	132,010	135,605.54	3.27	Avg Monthly Demand	29,449		
May		132,010	34,581	32,763	130,192	131,100.84	3.79	January	26669	Below Average	
June		130,192	18,685	32,763	144,269	137,230.57	7.34	February	34350	Above Average	
July		144,269	48,953	34,323	129,639	136,954.35	2.80	March	18307	Below Average	
August		129,639	1,838	21,842	149,643	139,641.20	75.97	April	40785.5	Above Average	
September		149,643	43,675	32,763	138,731	144,186.98	3.30	May	34005	Below Average	
October		138,731	31,457	34,323	141,597	140,163.78	4.46	June	18377.5	Below Average	
November		141,597	33,346	28,082	136,333	138,964.88	4.17	July	48118	Above Average	
December		136,333	23,677	23,402	136,058	136,195.52	5.75	August	1845	Below Average	
								September	42922.5	Above Average	
								October	30938	Below Average	
								November	32784.5	Above Average	
								December	23285.5	Below Average	
Month	Year	Demand									
January	2013	26,203									
February		33,738									
March		18,977									
April		40,057									
May		33,429									
June		18,070									
July		47,283									
August		1,852									
September		42,170									
October		30,419									
November		32,223									
December		22,894									
January	2014	27,135									
February		34,962									
March		19,637									
April		41,514									
May		34,581									
June		18,685									
July		48,953									
August		1,838									
September		43,675									
October		31,457									
November		33,346									
December		23,677									

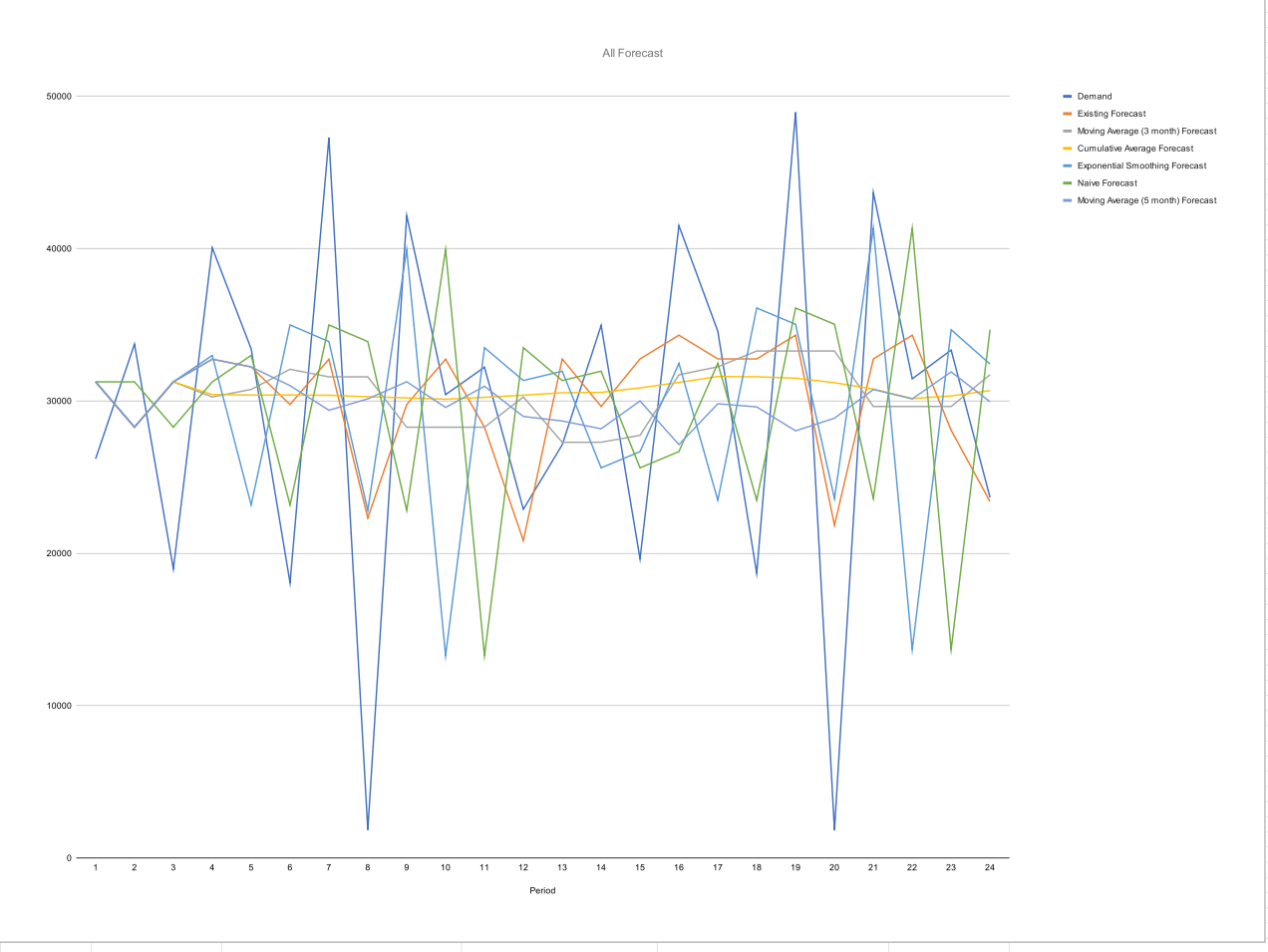
Histogram of Demand

Legend: Year (Blue line), Demand (Red line)

2013	Starting	Shipped	Production	Ending	Avg Inventory	Lead Time	Error	ABS % Error	Squared Error	Calculating Safety Stock	
January	120,816	26,203	31,258	125,871	123,343.68	4.71	-5,055	0.19	2556563.62		
February	125,871	33,738	28,281	120,415	123,143.03	3.65	5,457	0.16	29774873.32	Average Demand (d)	29.449
March	120,415	18,977	31,258	132,696	126,555.39	6.07	-12,281	0.65	150831557.8	Standard Deviation of Demand (sd)	12348.20
April	132,696	40,057	32,747	125,386	129,040.99	3.22	3,110	0.18	5343697.45	Average Lead Time (l)	10.25
May	125,386	33,429	32,240	124,197	124,791.51	3.73	1,189	0.04	1413219.36	Standard Deviation of Lead Time (st)	19.55
June	124,197	18,070	29,770	135,897	130,047.05	7.20	-11,700	0.65	13688687.16	Service Level (Percentage)	95%
July	135,897	47,283	32,827	121,381	120,620.90	2.12	14,536	0.31	21129944.48	Service Level (z)	1.64
August	121,381	1,852	22,327	141,836	131,598.51	71.06	-20,475	11.06	419241712.65	Combined Standard Deviation (Sc)	576977.17
September	141,836	42,170	29,770	129,436	135,636.14	3.22	12,400	0.29	153763542.88	Safety Stock (SS)	940,042.98
October	129,436	30,419	32,747	131,764	130,999.99	4.29	3,338	0.08	5418653.27		
November	131,764	32,223	28,281	127,822	129,793.09	4.03	3,842	0.12	15536462.10		
December	127,822	22,894	29,642	125,767	126,794.73	5.54	2,055	0.09	4223436.01		
January	125,767	27,135	32,763	131,366	128,681.04	4.74	-5,628	0.21	31671359.66		
February	131,366	34,962	29,642	126,075	128,735.14	3.68	5,320	0.15	28297386.85		
March	126,075	19,637	32,763	136,201	132,638.24	6.75	-13,126	0.67	17284622.33		
April	136,201	41,514	34,323	132,010	135,605.54	3.27	7,191	0.17	5172474.82		
May	132,010	34,581	32,763	130,192	131,100.84	3.79	1,818	0.05	3306101.04		
June	130,192	19,685	32,763	144,269	137,230.57	7.34	-14,078	0.75	198162518.74		
July	144,269	48,953	34,323	129,639	136,954.36	2.80	14,630	0.30	21440956.37		
August	129,639	1,838	21,842	149,643	139,641.20	75.97	-20,004	10.88	400152849.44		
September	149,643	43,675	32,763	138,731	144,186.98	3.30	10,912	0.25	119077638.04		
October	138,731	31,457	34,323	141,597	140,163.78	4.46	-2,866	0.09	8213161.38		
November	141,597	33,346	28,082	136,333	138,864.88	4.17	5,264	0.16	27706104.81		
December	136,333	23,677	23,402	138,068	136,195.52	5.75	275	0.01	79551.99		
Original		Moving Average (3)	Cumulative Average	Exponential Smoothing	Naive Forecast	Moving Average (5)					
Mean Error	-624	-630	72	-666	-513	-449					
Mean ABS % Error	138.39%	210.63%	180.66%	136.06%	308.46%	199.35%					
Mean Squared Error	115,646,923.85	236,613,651.11	178,638,843.40	237,862,317.53	591,225,730.84	199,160,734.47					
Moving Average (3)		Starting	Shipped	Production	Ending	Error	ABS % Error	Squared Error			
Month\Year	2013										
January		120,816	26,203	31,258	125,871	-5,055	0.19	2556563.62			
February		125,871	33,738	28,281	120,415	5,457	0.16	29774873.32			
March		120,415	18,977	31,258	132,696	-12,281	0.65	150831557.8			
April		132,696	40,057	28,306	118,945	13,751	0.34	189090001			
May		118,945	33,429	30,304	116,440	2,506	0.07	6275025			
June		116,440	18,070	30,821	129,191	-12,751	0.71	162588001			
July		129,191	47,283	30,519	112,427	16,764	0.35	281031696			
August		112,427	1,852	32,927	143,502	-31,075	16.78	96555625			
September		143,502	42,170	22,402	123,734	19,768	0.47	390773824			
October		123,734	30,419	30,435	123,750	-16	0.00	256			
November		123,750	32,223	24,814	116,341	7,409	0.23	54803281			
December		116,341	22,894	34,857	128,384	-12,043	0.53	140533849			
January		128,384	27,135	28,512	129,761	-1,377	0.05	1896129			
February		129,761	34,962	27,417	122,216	7,545	0.22	56927025			
March		122,216	19,637	28,330	130,909	-8,693	0.44	75562449			
April		130,909	41,514	27,245	116,640	14,269	0.34	203604361			
May		116,640	34,581	32,698	114,087	2,543	0.07	6468849			
June		114,087	18,685	31,911	127,323	-13,226	0.71	174827076			
July		127,323	48,953	31,593	109,963	17,380	0.35	301369600			
August		109,963	1,838	34,073	142,198	-32,236	17.54	103969225			
September		142,198	43,675	31,159	121,682	20,516	0.47	420965256			
October		121,682	31,457	31,489	121,714	-32	0.00	1024			
November		121,714	33,346	25,657	114,025	7,689	0.23	59120721			
December		114,025	23,677	36,199	126,507	-12,482	0.53	155860324			
Cumulative Average		Starting	Shipped	Production	Ending	Error	ABS % Error	Squared Error			
Month\Year	2013										
January		120,816	26,203	31,258	125,871	-5,055	0.19	2556563.62			
February		125,871	33,738	28,281	120,415	5,457	0.16	29774873.32			
March		120,415	18,977	31,258	132,696	-12,281	0.65	150831557.8			
April		132,696	40,057	28,306	118,945	13,751	0.34	189090001			
May		118,945	33,429	29,744	115,280	3,685	0.11	13579225			
June		115,280	18,070	30,481	127,671	-12,411	0.69	154032921			
July		127,671	47,283	31,282	108,800	18,871	0.40	355114641			
August		108,800	1,852	31,108	138,056	-29,256	15.80	855913536			
September		138,056	42,170	27,451	123,337	14,719	0.35	216648961			
October		123,337	33,419	29,087	122,005	1,332	0.04	1714229			
November		122,005	32,223	29,220	119,002	3,003	0.09	9018009			
December		119,002	22,894	29,493	125,601	-6,599	0.29	43546801			
January		125,601	27,135	29,943	127,459	-1,808	0.07	3268665			
February		127,459	34,962	28,804	121,251	6,158	0.18	37920964			
March		121,251	19,637	29,244	130,858	-9,607	0.49	92294449			
April		130,858	41,514	28,863	117,847	12,911	0.31	166659921			
May		117,847	34,581	29,410	112,776	5,171	0.15	26739241			
June		112,776	18,685	29,714	123,805	-11,029	0.59	121638841			
July		123,805	43,675	30,162	103,954	19,851	0.41	394052201			
August		103,954	1,838	30,146	132,262	-28,308	15.40	801342864			
September		132,262	43,675	28,731	117,318	14,844	0.34	223321316			
October		117,318	31,457	29,453	115,304	-2,014	0.06	4026786			
November		115,304	33,346	29,534	111,452	3,812	0.11	14531344			
December		111,452	23,677	29,700	117,515	-6,023	0.25	36276529			
Exponential Smoothing		Starting	Shipped	Production	Ending	Error	ABS % Error	Squared Error			
Month\Year	2013										
January		120,816	26,203	31,258	125,871	-5,055	0.19	2556563.62			
February		125,871	33,738	28,281	120,415	5,457	0.16	29774873.32			
March		120,415	18,977	31,258	132,696	-12,281	0.65	150831557.8			
April		132,696	40,057	33,738	126,377	6,319	0.16	39929761			
May		126,377	40,429	28,977	115,452	14,452	0.34	208860384			
June		115,452	18,070	40,057	133,912	-21,987	1.22	483428169			
July		133,912	47,283	33,429	120,058	13,854	0.29	191933316			
August		120,058	1,852	18,070	136,218	-16,218	8.76	253023524			
September		136,218	42,170	47,283	141,389	-5,113	0.12	26142769			
October		141,389	42,170	1,852	112,822	28,567	0.94	816073489			
November		112,822	32,223	42,170	122,769	-9,947	0.31	98942809			
December		122,769	22,894	30,244	120,294	7,525	0.06	5662565			
January		120,294	27,135	32,223	115,382	-12,088	0.19	25887744			
February		115,382	34,962	22,894	123,314	12,911	0.31	166659921			
March		123,314	19,637	30,337	130,812	-7,498	0.44	56220004			
April		130,812	41,514	34,962	124,260	6,552	0.16	42928704			
May		124,260	34,581	19,637	109,316	14,944	0.43	223231304			
June		109,316	18,685	31,914	145,145	-22,829	1.22	52116320			
July		145,145	48,953	34,581	117,773	14,372	0.29	206534384			
August		117,773	1,838	18,685	134,620	-16,847	0.17	283621409			
September		134,620	43,675	48,953	108,808	5,279	0.12	27827294			
October		108,808	31,457	1,838	110,279	29,619	0.34	877265161			
November		110,279	33,346	43,675	120,608	-10,329	0.31	106688241			
December		120,608	23,677	31,457	128,388	-7,780	0.33	60528400			
Naive Forecast		Starting	Shipped	Production	Ending	Error	ABS % Error	Squared Error			
Month\Year	2013										
January		120,816	26,203	31,258	125,871	-5,055	0.19	2556563.62			
February		125,871	33,738	28,281	120,415	5,457	0.16	29774873.32			
March		118,336	18,977	33,738	133,097	-14,761	0.78	217897121			
April		133,097	40,057	18,977	112,017	21,080	0.53	444366400			
May		112,017	40,057	40,057	124,645	-6,628	0.44	43930384			
June		116,645	18,070	33,429	134,004	-15,359	0.85	235896881			
July		134,004	47,283	18,070	104,791	29,213	0.62	83399369			
August		104,791	1,852	47,283	145,431	-24,641	2.43	260397571			
September		150,222	42,170	1,852	109,904	40,318	0.96	162554114			
October		109,904	30,419	42,170	121,655	-11,751	0.39	138086001			
November		121,655	32,2								

October		130,888	31,457	29,546	128,975			1,911	0.06	3651921		
November		128,975	33,346	28,922	124,951			4,424	0.13	19571776		
December		124,551	23,677	31,854	132,728			-8,177	0.35	66863329		

Period	Demand	Existing Forecast	Moving Average (3 month) Forecast	Cumulative Average Forecast	Exponential Smoothing Forecast	Naive Forecast	Moving Average (5 month) Forecast
1	26,203	31,258		31,258	31,258	31,258	31,258
2	33,738	28,281		28,281	28,281	31,258	28,281
3	18,977	31,258		31,258	31,258	28,281	31,258
4	40,057	32,747		30,266	30,429	32,994	32,747
5	33,429	32,240		30,762	30,390	23,182	32,240
6	18,070	29,770		32,082	30,396	34,995	23,182
7	47,283	32,747		31,586	30,377	33,899	34,995
8	1,852	22,327		31,586	30,282	22,819	33,899
9	42,170	29,770		28,281	30,205	39,944	22,819
10	30,419	32,747		28,281	30,119	13,280	39,944
11	32,223	28,281		28,281	30,242	33,503	13,280
12	22,894	20,839		30,266	30,382	31,344	33,503
13	27,135	32,763		27,289	30,543	31,959	31,344
14	34,962	29,642		27,294	30,566	25,614	31,959
15	19,637	32,763		27,748	30,864	26,679	25,614
16	41,514	34,323		31,723	31,221	32,477	26,679
17	34,581	32,763		32,243	31,607	23,489	32,477
18	18,685	32,763		33,283	31,593	36,107	23,489
19	48,953	34,323		33,283	31,500	35,039	36,107
20	1,838	21,842		33,283	31,203	23,591	35,039
21	43,675	32,763		29,642	30,786	41,344	23,591
22	31,457	34,323		29,642	30,162	13,690	41,344
23	33,346	28,082		29,642	30,336	34,680	13,690
24	23,677	23,402		31,723	30,683	32,424	34,680



Period	Demand	Existing Forecast	Cumulative Average Forecast
1	26,203	31,258	31,258
2	33,738	28,281	28,281
3	18,977	31,258	31,258
4	40,057	32,747	30,113
5	33,429	32,240	30,058
6	18,070	29,770	29,924
7	47,283	32,747	29,802
8	1,852	22,327	29,803
9	42,170	29,770	29,630
10	30,419	32,747	30,087
11	32,223	28,281	30,108
12	22,894	20,839	29,919
13	27,135	32,763	30,045
14	34,962	29,642	30,813
15	19,637	32,763	30,635
16	41,514	34,323	30,735
17	34,581	32,763	30,509
18	18,685	32,763	30,033
19	48,953	34,323	29,642
20	1,838	21,842	29,122
21	43,675	32,763	28,082
22	31,457	34,323	29,642
23	33,346	28,082	28,602
24	23,677	23,402	25,742

