Simple Linear Regression

	A	B	C	D	E	F	G	I	J	K	L	M	N	O
1	y	x	xy	xsq				ycap	e	yi_minus_	ycap_minu	yi_minus_	ycap_minu	e_sq
2	12.8013072	0.31578947	4.04252	0.09972		xbar	2.257894737	16.0401	3.23878	-13.0892	-9.85046	171.328	97.0316	10.4897
3	13.8108011	0.52631579	7.26884	0.27701		ybar	25.89054671	17.1079	3.29708	-12.0797	-8.78266	145.92	77.1351	10.8708
4	16.9795077	0.94736842	16.0858	0.89751		xybar	68.09910506	19.2435	2.26398	-8.91104	-6.64706	79.4066	44.1834	5.1256
5	18.0107777	0.73684211	13.2711	0.54294		xsqbar	6.998891967	18.1757	0.16491	-7.87977	-7.71486	62.0908	59.5191	0.02719
6	19.356509	1.15789474	22.4128	1.34072		a	5.07205337	20.3113	0.95478	-6.53404	-5.57926	42.6936	31.1281	0.9116
7	22.6906734	1	22.6907	1		b	14.4383841	19.5104	-3.18024	-3.19987	-6.38011	10.2392	40.7058	10.1139
8	22.9251446	2.73684211	62.7425	7.4903				28.3198	5.39465	-2.9654	2.42925	8.79361	5.90124	29.1022
9	22.9679562	1.52631579	35.0564	2.32964	sum_yi_minus_ybar_sq	SST	1185.221564	22.1799	-0.78802	-2.92259	-3.71061	8.54154	13.7686	0.62097
10	23.5565477	2.78947368	65.7104	7.78116	sum_ycap_minus_ybar_sq	SSR	977.9908868	28.5867	5.0302	-2.334	2.6962	5.44755	7.26948	25.3029
11	23.5689617	1.94736842	45.8975	3.79224	sum_ei_sq	SSE	207.2306769	24.3155	0.74658	-2.32159	-1.57501	5.38976	2.48064	0.55738
12	24.0133008	1.26315789	30.3326	1.59557				20.8452	-3.16811	-1.87725	-5.04536	3.52405	25.4556	10.0369
13	25.1030464	1.89473684	47.5637	3.59003				24.0486	-1.05446	-0.7875	-1.84196	0.62016	3.3928	1.11188
14	27.3127334	2.05263158	56.063	4.2133				24.8494	-2.46329	1.42219	-1.04111	2.02262	1.0839	6.06781
15	30.3651784	2	60.7304	4				24.5825	-5.78269	4.47463	-1.30806	20.0223	1.71101	33.4395
16	30.8497319	2.84210526	87.6782	8.07756				28.8537	-1.99604	4.95919	2.96315	24.5935	8.78024	3.98417
17	33.8716948	4.73684211	160.445	22.4377				38.4639	4.59221	7.98115	12.5734	63.6987	158.089	21.0883
18	37.0711099	4.57894737	169.747	20.9668				37.663	0.59194	11.1806	11.7725	125.005	138.592	0.35039
19	37.200879	3.52631579	131.182	12.4349				32.324	-4.87683	11.3103	6.4335	127.924	41.3899	23.7835
20	37.4605321	4.68421053	175.473	21.9418				38.1969	0.73642	11.57	12.3064	133.865	151.448	0.54231
21	37.8945412	3.89473684	147.589	15.169				34.1927	-3.70184	12.004	8.30215	144.096	68.9257	13.7036

SUMMARY OUTPUT

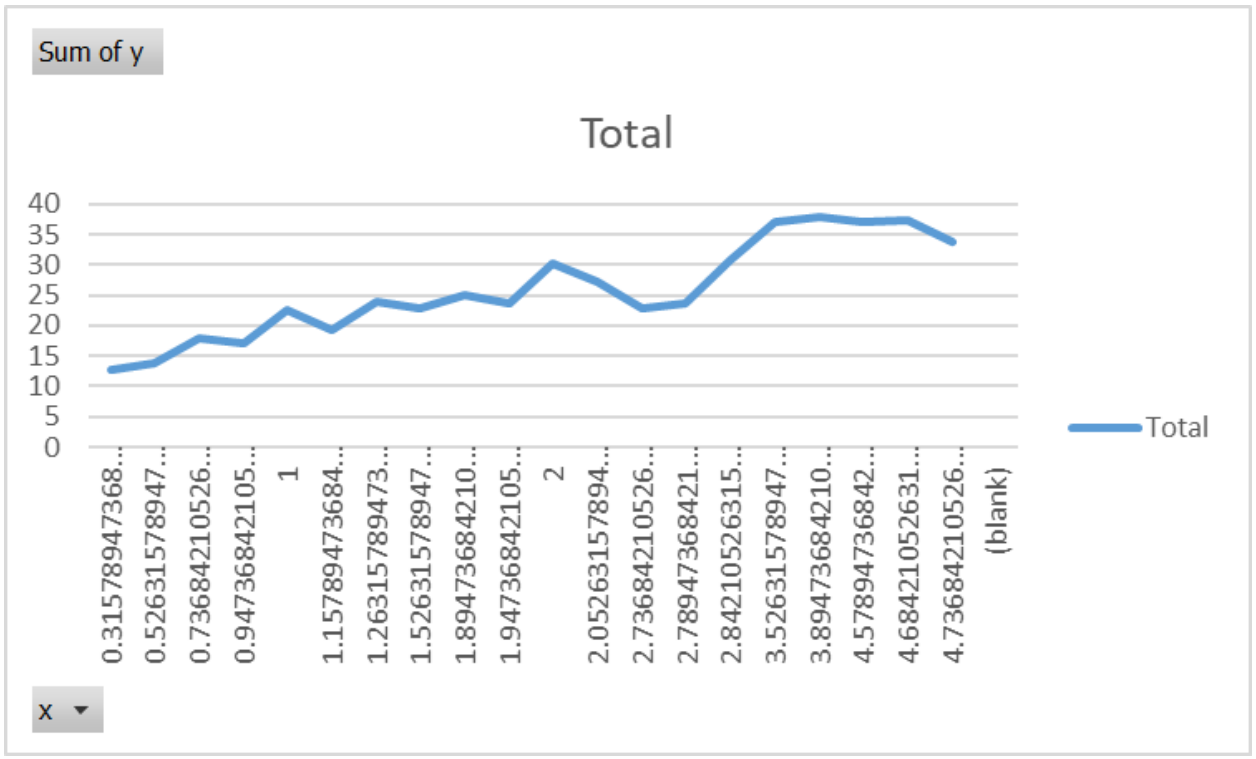
Regression Statistics	
Multiple R	0.8978
R Square	0.80604
Adjusted F	0.79464
Standard E	3.38597
Observatic	19

ANOVA

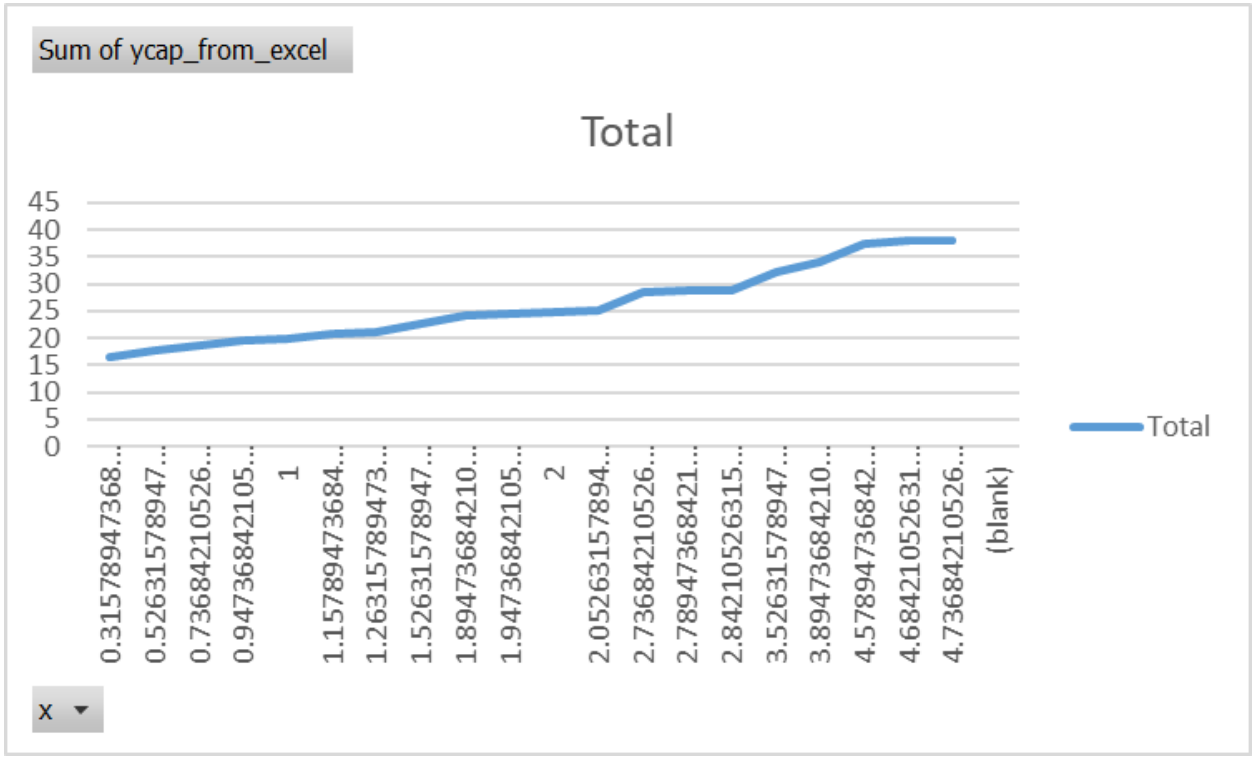
	df	*SS*	*MS*	*F*	*gnificance F*
Regressior	1	809.975	809.975	70.649	1.9E-07
Residual	17	194.901	11.4648		
Total	18	1004.88			

	Coefficients	*ndard Err*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*ower 95.0%*	*pper 95.0%*
b	15.0678	1.57452	9.56977	2.9E-08	11.7459	18.3898	11.7459	18.3898
a	4.87758	0.5803	8.40529	1.9E-07	3.65325	6.1019	3.65325	6.1019

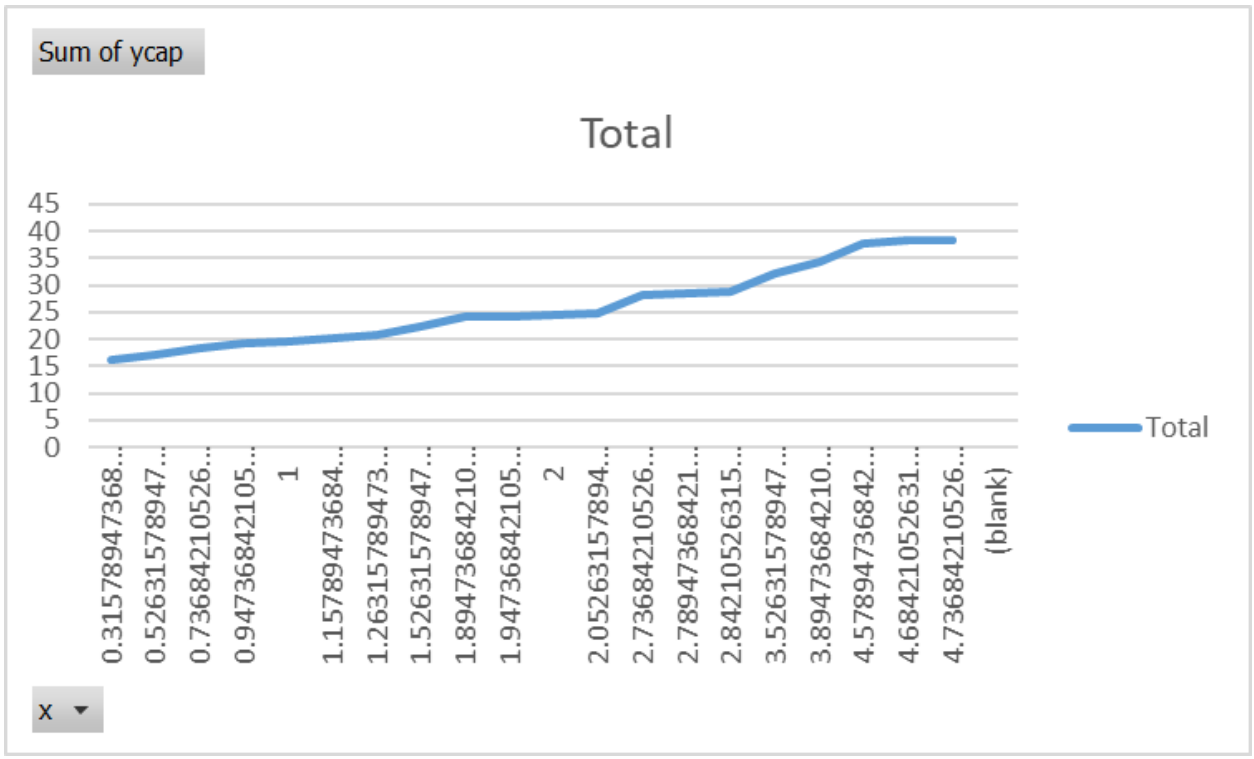
Line chart of y vs x



Line chart formed by regression using excel

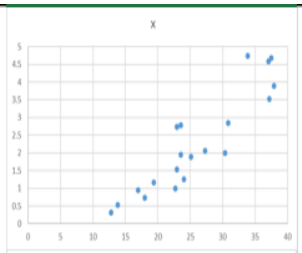


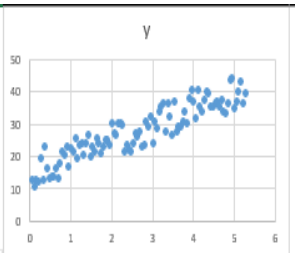
Line chart formed by manually calculated values of a and b

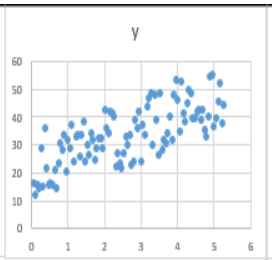


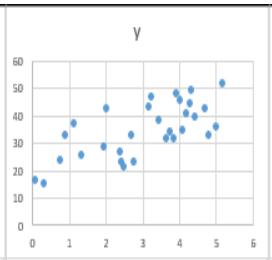
2)

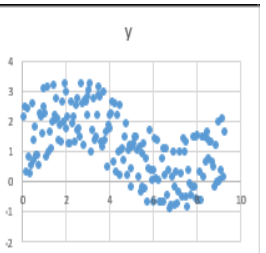
yi w/s xi



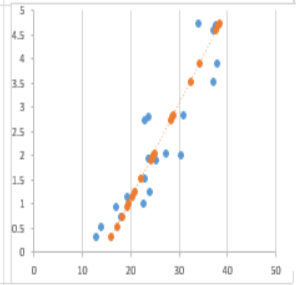


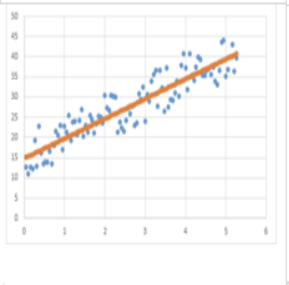


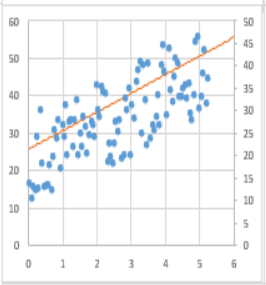


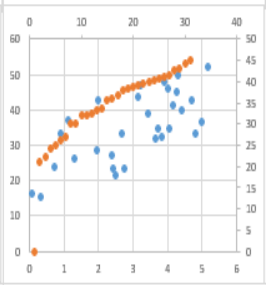


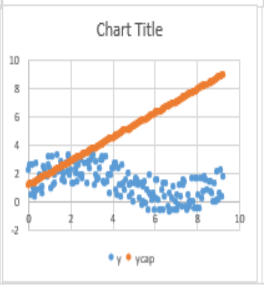
Scatter Plot
1)yi w/s xi
2)yi^ w/s xi



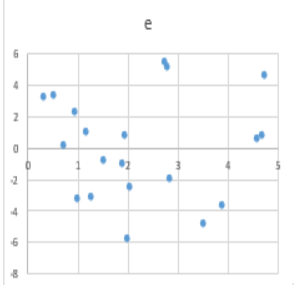


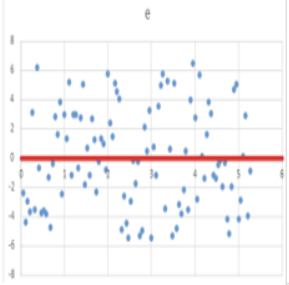


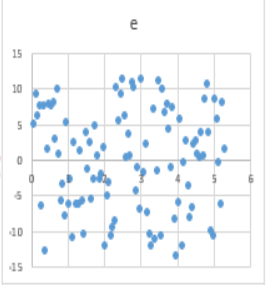


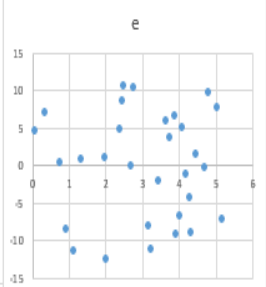


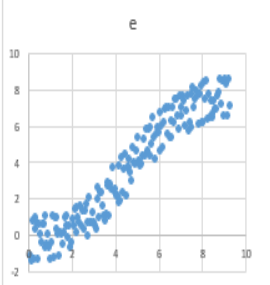
Error plot
ei w/s xi











Data Size(n	20	100	100	30	180
Variance(y)	1185.221564	66.8291	99.2896	2715.007123	22.63963903
stdev	34.42704698	8.174906727	9.964416691	52.10573023	4.758119275
Corr(x,y)	0.90838	0.911263	0.7206	0.689041	-0.55084
Coeff 'a'	4.8775769	4.90335	4.741228313	4.673142223	0.846496
Coeff 'b'	15.06783212	14.8103	21.30832091	20.87638852	1.029023
p-value 'a'	1.85E-07	2.30E-39	1.42E-16	6.87518E-05	0.026746
p-value 'b'	2.94E-08	4.31E-39	3.34E-26	1.36E-06	4.76E-03
R^2	0.80604	0.8304	0.507	0.44968	0.168969
1-R^2	0.350239518	0.1696	0.742951	0.797787898	0.97145
F-value	70.64896632	480.804	99.77451888	22.0624054	5.489745774
Significanc	1.85E-07	2.30E-39	1.42E-16	6.87518E-05	0.026746188
SSE	194.9012565	1133.41	4894.481066	1494.12145	18.81430154
MSE(SSE/r	11.4647738	11.3341	50.45856769	55.33783149	0.696825983