1. Removing outliers for BMI and Charges

Bmean	30.57
Bstd	5.99
Cmean	13031.25
Cstd	11676.82

1	age	sex	bmi	childre	smoker	region	charges		
118	58	male	49.06	0	no	southeast	11381.33	3.02	-0.16
849	23	male	50.38	1	no	southeast	2438.055	3.23	-0.89
1049	22	male	52.58	1	yes	southeast	44501.4	3.59	2.58
1319	18	male	53.13	0	no	southeast	1163.463	3.68	-1.00

1	age	sex	bmi	childre	smoker	region	charges		
36	28	male	36.4	1	yes	southwes	51194.56	0.94	3.13
544	54	female	47.41	0	yes	southeast	63770.43	2.75	4.17
578	31	female	38.095	1	yes	northeast	58571.07	1.22	3.74
820	33	female	35.53	0	yes	northwes	55135.4	0.80	3.46
1145	60	male	32.8	0	yes	southwes	52590.83	0.35	3.25
1229	52	male	34.485	3	yes	northwes	60021.4	0.63	3.86
1299	45	male	30.36	0	yes	southeast	62592.87	-0.05	4.07
1336									

2. There is a positive relationship between the BMI and charges.

Relationship Between BMI and Charges
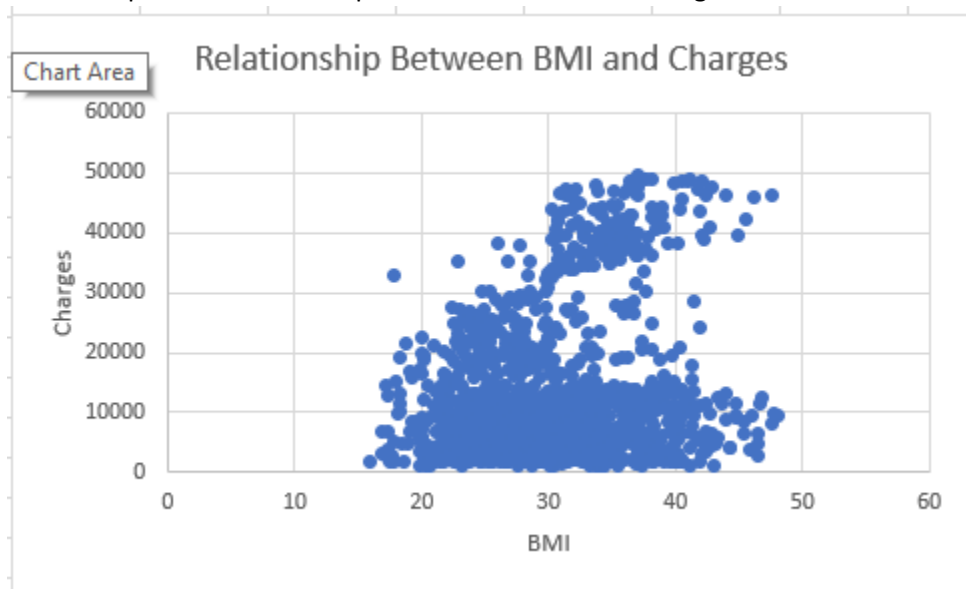
3. The regression equation is **y = 368.57x + 1763.70**

   Having a positive b1 indicates that as x1 increases, the y also increases. That **means there is a positive relationship between the BMI and charges** and b0 is the predicted value when x = 0.

Bmean	30.57	b0	368.57
Bstd	5.99	b1	1763.70
Cmean	13031.25		
Cstd	11676.82	y = 368.57x + 1763.70	

b0	368.57
b1	=M4-(P2*M2)

b0	=J1329/K1329
b1	1763.70

y = 368.57x + 1763.70

Sum of xy:

-71392.24	55.45
52589.50	22.76
-24177.37	2.25
=SUM(J2:J1328)	47585.02

Sum of x^2:

9.50	22.76
7.37	2.25
1.82	=SUM(K2:K1328)
	SUM(number1 [nu

Proof of Sxy:

	C	D	E	F	G	H	I	J	K	L	M
	bmi	children	smoker	region	charges			(x-xbar)(y-ybar)	(x-xbar)^2		
	27.9	0	yes	southwes	16884.92	-0.45	0.30	=(C2-M2)*(G2-M4)		Bmean	30.57
	33.77	1	no	southeast	1725.552	0.51	-0.95	-36169.66	10.24	Bstd	5.99
	33	3	no	southeast	4449.462	0.38	-0.73	-20847.24	5.90	Cmean	13031.25
	22.705	0	no	northwest	2 Chart Area	-1.30	0.72	-70423.89	61.87	Cstd	11676.82
	28.88	0	no	northwest	3866.855	-0.29	-0.78	15494.76	2.86		

Proof of Sx^2:

	C	D	E	F	G	H	I	J	K	L	M
	bmi	children	smoker	region	charges			(x-xbar)(y-ybar)	(x-xbar)^2		
	27.9	0	yes	southwes	16884.92	-0.45	0.30	-10292.24	=POWER(C2-M2,2)	Bmean	30.57
	33.77	1	no	southeast	1725.552	0.51	-0.95	-36169.66	POWER(number, power)	Bstd	5.99
	33	3	no	southeast	4449.462	0.38	-0.73	-20847.24		5.90 Cmean	13031.25

	J	K	
	(x-xbar)(y-ybar)	(x-xbar)^2	
)	-10292.24	7.13	Br
5	-36169.66	10.24	Bs
3	-20847.24	5.90	Cn
2	-70423.89	61.87	Cs
3	15494.76	2.86	
)	44803.46	23.34	
2	-13745.56	8.23	
)	16276.12	8.01	
7	4907.40	0.55	
)	-75180.68	22.38	
7	44855.99	18.93	
)	-63258.80	18.32	
4	-42904.38	14.66	
3	-17948.42	85.55	
3	307250.58	133.62	
4	66836.71	35.65	
)	-467.43	0.04	
)	71535.66	45.24	
2	-23630.98	94.66	
5	112585.39	22.37	
)	1073.81	29.53	
5	-16246.44	3.35	
)	-41977.64	12.46	
2	33286.67	1.82	
3	17380.76	6.48	
5	-2764.91	8.13	
)	-10634.18	56.04	
3	-1680.99	4.86	
7	135233.84	173.86	
)	147125.54	32.82	
4	113431.20	25.29	
L	46102.86	18.11	
L	16442.91	3.88	
4	-1670.36	5.11	
5	115720.61	102.94	
)	6179.41	5.73	
L	104829.93	95.47	
)	163112.23	27.20	

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