That is correct! A *p* value of less than 0.05 and a confidence interval that does not contain 0 are equivalent.

Question 2 1 / 1 pts

Which is the correct confidence interval?

Dep. Variabl	able: sales			R-squared:			
0.890 Model:		(OLS Adi	Adj. R-squared:			
0.867							
Method: 38.68		Least Squar	es F-s	tatistic:			
Date:	Мо	n, 27 Jun 20	022 Pro	b (F-statisti	c):		
1.01e-10 Time:		17:18:	· 56 Loa	-Likelihood:			
-81.394		11.10	J				
No. Observat 174.8	ions:		30 AIC	:			
Df Residuals	:		24 BIC	:			
183.2 Of Model:			5				
Covariance T	ype:	nonrobu					
	coef	std err	t	P>Itl	[0.025		
0.975]							
const -52.236	-90.1059	18.349	-4.911	0.000	-127.976		
score	0.2059	0.029	7.041	0.000	0.146		
0.266	6 0000	0.020	6.482	0.000	4.150		
age 8.026	6.0880	0.939	0.462	0.000	4.130		
stress	0.3003	0.484	0.621	0.541	-0.698		
1.299 experience 1.742	0.0766	0.807	0.095	0.925	-1.589		
gpa 3.231	-0.4549	1.786	-0.255	0.801	-4.141		
======================================			207 Dun	====== bin-Watson:			
Omnibus: 1.613		0.2	zo <i>r</i> Dur	DIN-WATSON:			
Prob(Omnibus	s):	0.0	043 Jar	que-Bera (JB)	:		
4.723 Skew:		0 0	929 Pro	b(JB):			
0.0943							
Kurtosis: 1.42e+03		3.5	570 Con	d. No.			

Age	[4.150, 0.266]			
Stre	ss: [-0.697, 1.3]			
Sco	re [-4.150, 8.026]			
● GPA	: [-4.141, 3.231]			
That is	correct! The confide	nce interval fo	or GPA is [-4.141,	3.231].

Questi	on 3	1 / 1 pts
	es it mean when we say a variable is significant fo ce? Select all that apply.	or 95%
	are 95% confident that the confidence interval contains the lation parameter.	e true
П	he confidence interval includes a 0.	
✓ T	he confidence interval does not contain a 0.	
	are 95% confident that the confidence interval does not co population parameter.	ontain the

That is correct! A *p* value of less than 0.05 is associated with 95% confidence. This is equivalent to a confidence interval that does not cross 0. The difference is that the confidence interval provides more information by showing the range in which the true value will occur.

Question 4 1 / 1 pts

A college is seeking to model cafeteria sales based on several student predictor variables. How can you identify possible overfitting using the available information?

Please note the regression output and correlation table below.(Assume the correlation is moderate to strong at or above 0.65.)

===== Dep. Variabl	le:	sa	les R	-squa	ıred:	
0.890		,	O. C. A	42 F		
Model: 0.867		(OLS A	ај. к	R-squared:	
Method:		Least Squar	res F	-stat	istic:	
38.68 Date:	Mo	n, 27 Jun 20	722 P	rob (F-statisti	c):
1.01e-10		·				-,.
Time: -81.394		17:18	:56 L	og-Li	kelihood:	
No. Observat	cions:		30 A	IC:		
174.8 Df Residuals	S:		24 B	IC:		
183.2				10.		
Df Model: Covariance 1	Type:	nonrobi	5 ust			
	========	=========				
	coef	std err		t	P> t	Γ0.025
0.975]						L
const	-90.1059	18.349	-4.9	11	0.000	-127.976
-52.236 score	0.2059	0.029	7.0	41	0.000	0.146
0.266						
age 8.026	6.0880	0.939	6.4	82	0.000	4.150
stress	0.3003	0.484	0.6	21	0.541	-0.698
1.299						

1.742 gpa 3.231	-0.4549	1.786 -	C		
Omnibus:		6.287	Durbir	n-Watson:	
1.613 Prob(Omni	bus):	0.043	Jarque	e-Bera (JB):	
4.723 Skew: 0.0943		0.929	Prob(J	IB):	
Kurtosis: 1.42e+03		3.570	Cond.	No.	
Correlati experienc	on Matrix sales e gpa	score		age	stress
sales	1.000000 .549834		19	0.788887	-0.233
			00	0.216618	-0.147
age 808 0		0.2166 0.675425	18	1.000000	-0.286
stress	-0.233564 0.276569 -	-0.147	833	-0.286808	1.0000
experienc	e 0.549834 .000000 0	0.3435	15	0.541611	-0.276
gpa		0.3334	66	0.675425	-0.131

- O Look for a p value greater than 0.05.
- Look for two variables correlated above 0.65.
- Look for a p value of less than 0.05.
- Look for two variables correlated below 0.65.

That is correct! Multicollinearity is a high correlation between independent variables. Two highly correlated independent variables may be measuring the same thing, dramatically altering the coefficients and p values of each variable and making them unreliable. This adds to the complexity of the model, which can lead to overfitting.

Question 5 1 / 1 pts

Using the data in the OLS regression results, how would you address overfitting in this case?

			_	_		
Dep. Variable 0.890	e:	S	ales	R-squ	ared:	
Model:			OLS	Adi. F	R-squared:	
0.867			023	, w. j	t oqual cu.	
Method:		Least Squa	ares	F-stat	tistic:	
38.68 Date:	Мо	n. 27 lun 2	2022	Prob ((F-statistic):
1.01e-10	1-10	., Er 3an i	-022	1100 ((i Seacistic	<i>)</i> ·
Time:		17:18	3:56	Log-Li	ikelihood:	
-81.394 No. Observat	i ons :		30	AIC:		
174.8	LONS.		30	AIC.		
Df Residuals	•		24	BIC:		
183.2 Df Model:			5			
Covariance Ty	vpe:	nonrol				
	========					
======	2005	محم مسم		_	D. 1±1	FQ 02F
0.975]	соет	sta err		τ	P> t	[0.025
const	00 1050	19 2/0	1	011	0.000	127 076
-52.236	-90.1039	10.349	-4	.911	0.000	-127.970
score	0.2059	0.029	7	.041	0.000	0.146
0.266	6.0880	0.939	6	.482	0.000	4.150
age 8.026	0.0000	0.939	O	.402	0.000	4.130
stress	0.3003	0.484	0	.621	0.541	-0.698
1.299	0.0766	0 007	0	005	0.025	1 500
experience 1.742	0.0766	0.807	0	.095	0.925	-1.589
gpa	-0.4549	1.786	-0	. 255	0.801	-4.141
3.231						
				======		
Omnibus:		6.	.287	Durbir	n-Watson:	
1.613	_	_		_	- 4>	
Prob(Omnibus) 4.723):	0.	.043	Jarque	e-Bera (JB):	
Skew:		0.	.929	Prob(JB):	
0.0943						
Kurtosis:		3.	.570	Cond.	No.	
1.42e+03						
Correlation I	Ma±ni v					
corretation	watrix sales	Si	core		age	stress
experience	gpa	3.			~.g~	30,030
sales	1.00000	a a	67371	Q.	0.788887	-0.233

0.549834	0.621	L784		
0.6	73719	1.000000	0.216618	-0.147
0.343515	0.333	3466		
0.7	88887	0.216618	1.000000	-0.286
0.541611	0.675	5425		
-0.	233564	-0.147833	-0.286808	1.0000
-0.276569	-0.13	31167		
nce 0.5	49834	0.343515	0.541611	-0.276
1.000000	0.312	2129		
0.6	21784	0.333466	0.675425	-0.131
0.312129	1.000	0000		
	0.69 0.343515 0.78 0.541611 -0.276569 nce 0.54 1.000000 0.66	0.673719 0.343515 0.788887 0.541611 0.675 -0.233564 -0.276569 -0.13 0.621784	0.673719 1.000000 0.343515 0.333466 0.788887 0.216618 0.541611 0.675425 -0.233564 -0.147833 -0.276569 -0.131167 nce 0.549834 0.343515 1.000000 0.312129 0.621784 0.333466	0.673719 1.000000 0.216618 0.343515 0.333466 0.788887 0.216618 1.000000 0.541611 0.675425 -0.233564 -0.147833 -0.286808 -0.276569 -0.131167 nce 0.549834 0.343515 0.541611 1.000000 0.312129 0.621784 0.333466 0.675425



Drop one variable at a time and rerun the model each time until all of the coefficients are significant.

- Drop the one non-significant variable and rerun the model.
- Drop one variable at a time and rerun the model each time until most of the coefficients are significant.
- Orop the one non-significant variable, but do not rerun the model.

That is correct! To develop a final equation with which you can infer to the population and apply to unseen data, all of the coefficients must be significant (the p value is below 0.05 for a standard model). As all of the p values will change every time you drop a variable and rerun the model, this process must be repeated until all of the coefficients are significant.

Question 6 1 / 1 pts

A college is seeking to model cafeteria sales based on several student predictor variables. The following output from the latest run of a regression model has been handed to you for interpretation. Which of the variables is/are not statistically significant? Select all that apply.

OLS Regressi	======================================	========				.=======
===== Dep. Variabl	۵.	col	Δ¢	R-squ	ared:	
0.890	c.	Sut				
Model: 0.867					R-squared:	
Method: 38.68		Least Squar	es	F-sta	tistic:	
Date:	Мо	n, 27 Jun 20)22	Prob	(F-statistic	:):
1.01e-10 Time: -81.394		17:18:	56	Log-L	ikelihood:	
No. Observat 174.8	ions:		30	AIC:		
Of Residuals 183.2	:		24	BIC:		
Df Model: Covariance T	ype:	nonrobu	5 ist			
		========				
0.975]					P> t	_
const -52.236					0.000	-127.976
score 0.266	0.2059	0.029	7.	041	0.000	0.146
age 3.026	6.0880	0.939	6.	482	0.000	4.150
stress	0.3003	0.484	0.	621	0.541	-0.698
1.299 experience 1.742	0.0766	0.807	0.	095	0.925	-1.589
gpa 3.231	-0.4549	1.786	-0.	255	0.801	-4.141
Omnibus: 1.613		6.2	287	Durbi	n-Watson:	
Prob(Omnibus 4.723):	0.0)43	Jarqu	e-Bera (JB):	
Skew: 0.0943		0.9	29	Prob(JB):	
Kurtosis: 1.42e+03		3.5	570	Cond.	No.	
☑ GPA						
Age						
Experie	ence					

Stress

That is correct! Stress, experience, and GPA contain a p-value greater than 0.05.

Quiz Score: 6 out of 6

Top Questions	
	It's all empty here! If you have any questions ask one