Multiple Linear Regression Examples

Predicting Freshman GPAs.

Question: What variables can we use to predict a student's first-year GPA?

Variable List: GPA = freshman GPA
HSGPA = student's high school GPA
SATM = SAT Math score
SATVERB = SAT Verbal score
SATTOT = SAT Total score
LETTERS = quality of reference letters
GENDER = sex
MINORITY = Caucasian or minority
APCOURSE = Number of AP courses in high school
HEIGHT = Height in inches

Dependent variable: GPA

What is the best combination of variables to use to predict a student's GPA?

Order of Entry: _____ **Reasoning**:

_____

_____

_____

_____

Reduced Model: $\hat{Y} = b_0$

	SS
Total Variance in Y (SSY)	$\sum \left(Y - \overline{Y}\right)^2 = \sum (n-1) S_Y^2 =$

Source	SS	df	MS	F
Regression (b_1, b_2, b_3, b_4)				
$b_4 \mid b_1 b_2 b_3$				
Error				
$b_3 \mid b_1 b_2$				
Error				
$b_2 \mid b_1$				
Error				
b_1				
Error				
Total		N – 1 = 104		