**Five Methods of building model :**

1. All -in
2. Backward Elimination
3. Forward Selection
4. Bi-directional Selection
5. Score Comparison

**Backward Elimination :**

* **Step 1 :** Select a significance level to stay in a model (most common SL = 0.05)
* **Step 2:** Fit the full model with all possible predictors
* **Step 3 :** Consider the predictor with the highest P-value. If P > SL, go to step 4, otherwise go to Final.
* **Step 4 :** remove the predictor
* **Step 5 :** fit the model without this variable. Go to step 3 until you achieve the best result

**Forward Selection :**

* **Step 1:** Select a significance level to stay in a model (most common SL/CI = 0.05)
* **Step 2:** Fit all possible simple regression models **y ~ xn** . Select the one with lowest P-value
* **Step 3 :** Keep this variable and fit all possible models with one extra predictor added to the one(s) you already have.
* **Step 4 :** Consider the predictor with the lowest P-value. If P<SL, go to step 3, otherwise go to Final

**Bi-Directional Selection :**

* **Step 1:** Select a significance level to stay in a model (most common SL/CI = 0.05)
* **Step 2 :** Perform the next step of forward selection (new variables must have P < SL ENTER to enter)
* **Step 3 :** Perform all steps of Backward Elimination (old variables must have P < SL STAY to stay)
* **Step 4 :** Stop and Finalize the model when no new variables can enter and no old variables can exit

**All Possible Model :**

* **Step 1:** Select a criteria of goodness of fit (e.g Akaike Criterion)
* **Step 2 :** Construct all possible regression models 2n-1 total combinations
* **Step 3 :** Select the one with the best criteria.