STA 3180 Statistical Modelling: Model Selection

Topic: Model Selection

I. Introduction to Model Selection

A. Definition of Model Selection

B. Types of Models

C. Benefits of Model Selection

II. Model Selection Techniques

A. Stepwise Regression

1. Definition

2. Advantages and Disadvantages

3. Problem Solving Strategies:

    a. Understand the assumptions of the model

    b. Identify the best predictor variables

    c. Use the correct criteria for selection

B. Best Subset Regression

1. Definition

2. Advantages and Disadvantages

3. Problem Solving Strategies:

    a. Understand the assumptions of the model

    b. Identify the best predictor variables

    c. Use the correct criteria for selection

    d. Consider the trade-off between bias and variance

III. Model Selection in Practice

A. Data Preparation

1. Definition

2. Advantages and Disadvantages

3. Problem Solving Strategies:

    a. Understand the data structure

b. Identify the relevant variables

c. Transform the data if necessary

B. Model Evaluation

1. Definition

2. Advantages and Disadvantages

3. Problem Solving Strategies:

a. Understand the assumptions of the model

b. Use the correct criteria for evaluation

c. Consider the trade-off between bias and variance

IV. Conclusion

A. Summary of Model Selection

B. Benefits of Model Selection

C. Problem Solving Strategies