**Data Science Case Study Framework**

*Source: Case Study Framework*

Data Science Case Study Framework:  
   
 1. PROBLEM DEFINITION  
 - Understand the business problem  
 - Define success metrics (KPIs)  
 - Identify stakeholders and constraints  
 - Clarify scope and timeline  
   
 2. DATA EXPLORATION  
 - Assess data availability and quality  
 - Understand data sources and collection methods  
 - Identify data limitations and biases  
 - Perform exploratory data analysis (EDA)  
   
 3. FEATURE ENGINEERING  
 - Identify relevant features  
 - Handle missing data and outliers  
 - Create new features from domain knowledge  
 - Scale and normalize features  
   
 4. MODEL DEVELOPMENT  
 - Choose appropriate algorithms  
 - Split data (train/validation/test)  
 - Train and validate models  
 - Optimize hyperparameters  
   
 5. EVALUATION  
 - Assess model performance on test set  
 - Compare against baseline models  
 - Validate business impact  
 - Check for bias and fairness  
   
 6. DEPLOYMENT  
 - Plan model deployment strategy  
 - Monitor model performance  
 - Implement feedback loops  
 - Document and maintain  
   
 Key Questions to Ask:  
 - What is the business objective?  
 - What data do we have available?  
 - How will we measure success?  
 - What are the constraints (time, budget, technical)?  
 - How will the solution be used?  
 - What are the risks and ethical considerations?