

**Note:** This is just a suggestion for the outline of your project report. You can structure your report in any way you see fit.

## **Introduction**

(Briefly describe what you did in this project.)

## **Data Analysis**

(Analysis of the data. What features are available? What do they look like? What are the distributions of the features and labels? Figure(s) are encouraged.)

## **Data Preprocessing**

(Did you do any data preprocessing? In either case, explain why you did or did not do it.)

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## **Implementations**

### **Decision Trees**

(Description of your decision tree implementation.)

### **Random Forest**

(Description of your random forest implementation.)

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## **Model Selection and Evaluation**

### **Model Selection Process**

(Detailed description of model selection process. Which hyperparameters did you tune and which values did you consider? Which model selection technique did you use? Which scoring metric did you use? Explain your choices!)

### **Model Selection Results (Wine Dataset)**

#### **Decision Trees**

(Description of model selection results for your decision tree implementation. Which hyperparameters were picked for the final model?)

### **Random Forest**

(Description of model selection results for your random forest implementation. Which hyperparameters were picked for the final model?)

### **Comparing Decision Trees and Random Forests**

(Comparison of the two models. Which one performed better? Figure(s) are encouraged.)

### **Comparison to Existing Implementations**

(Comparison of my implementation to sklearn's implementation. How do they compare in terms of performance and speed?)

### **Results on the Coffee Dataset**

(How did your models perform on the coffee dataset? What were the results? Were the hyperparameters the same as for the wine dataset? Any interesting observations?)

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### **Conclusion**

(Conclusion of the project. What did you learn? What would you do differently next time? Did you encounter any problems?)