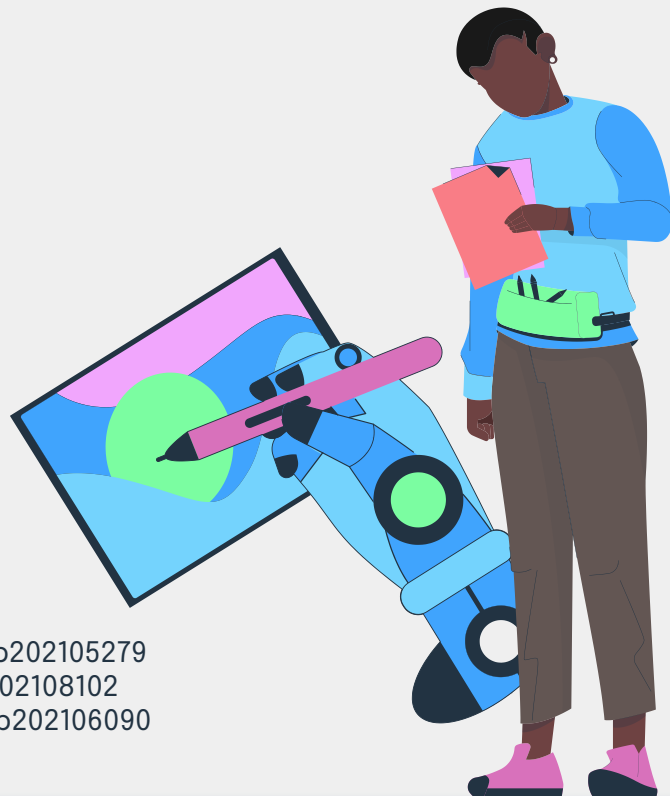
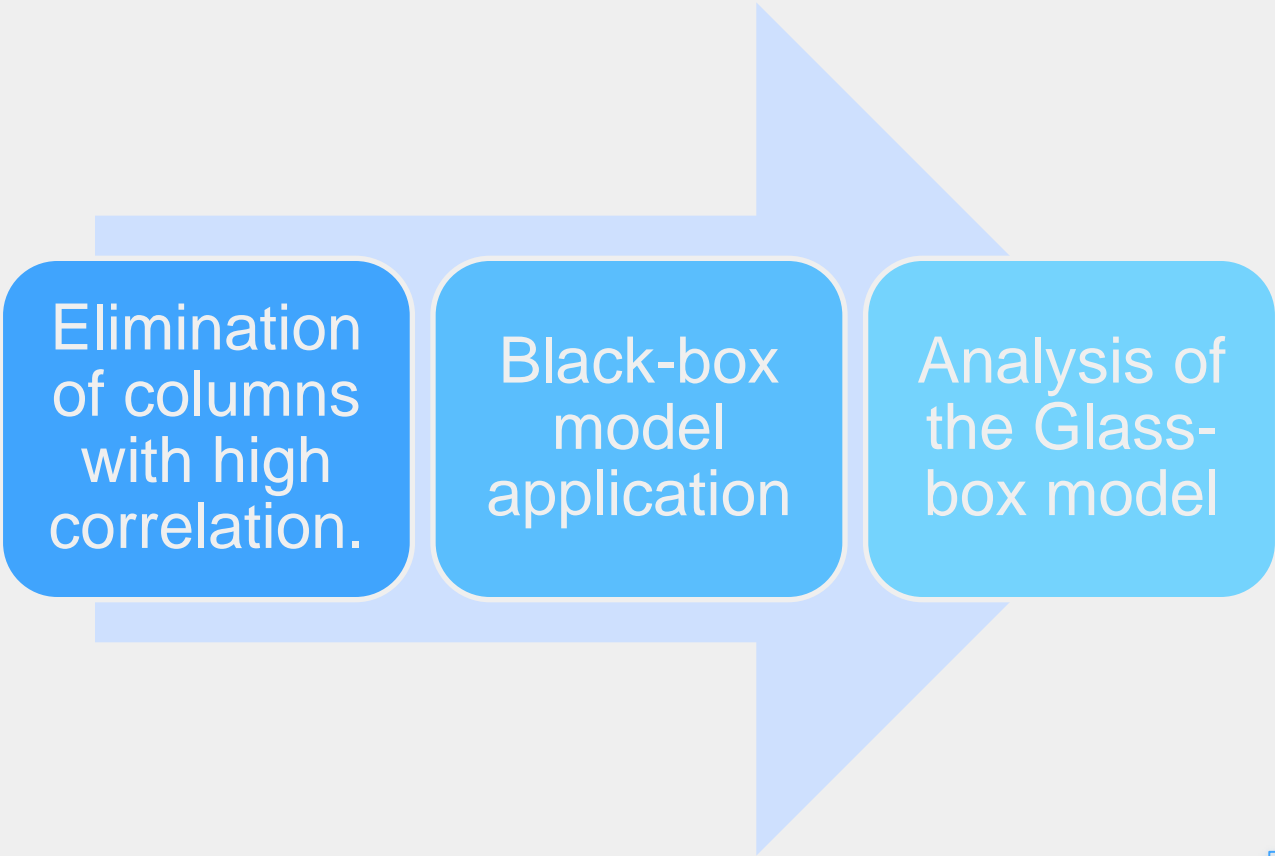


# Explainable Artificial Intelligence (XAI)

Advanced Topics on Machine Learning





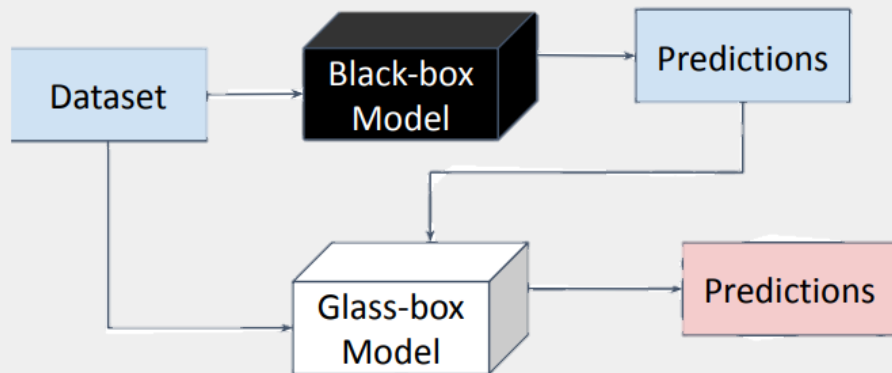
Elimination  
of columns  
with high  
correlation.

Black-box  
model  
application

Analysis of  
the Glass-  
box model

# Simplification-Based Technique - Global Surrogates

- We decide use a **Decision Tree**
- Simplify the **XGBoost** model by using a surrogate model
- Assesses how well the surrogate model replicates the behavior of the original black-box model



# Feature-Based Techniques



## Sensitivity Analysis

### Partial Dependence Plots (PDP)

- Ideal for understanding **non-linear relationships** and interactions between features in an intuitive and simple way.



## Feature Importance

### SHAP

- Offers precise insights into how each feature contributes to the model's predictions, both locally and globally.

# Example-Based Technique

ANCHOR



**local explanations**  
for individual  
predictions.



Identifies key  
features, such as  
**flight delays** or  
**flight class**, that  
influence a specific  
prediction of  
**satisfaction.**

# Next Steps

- Finishing Tasks 3.2/3.3
- Task 4: Quality of the explanations

