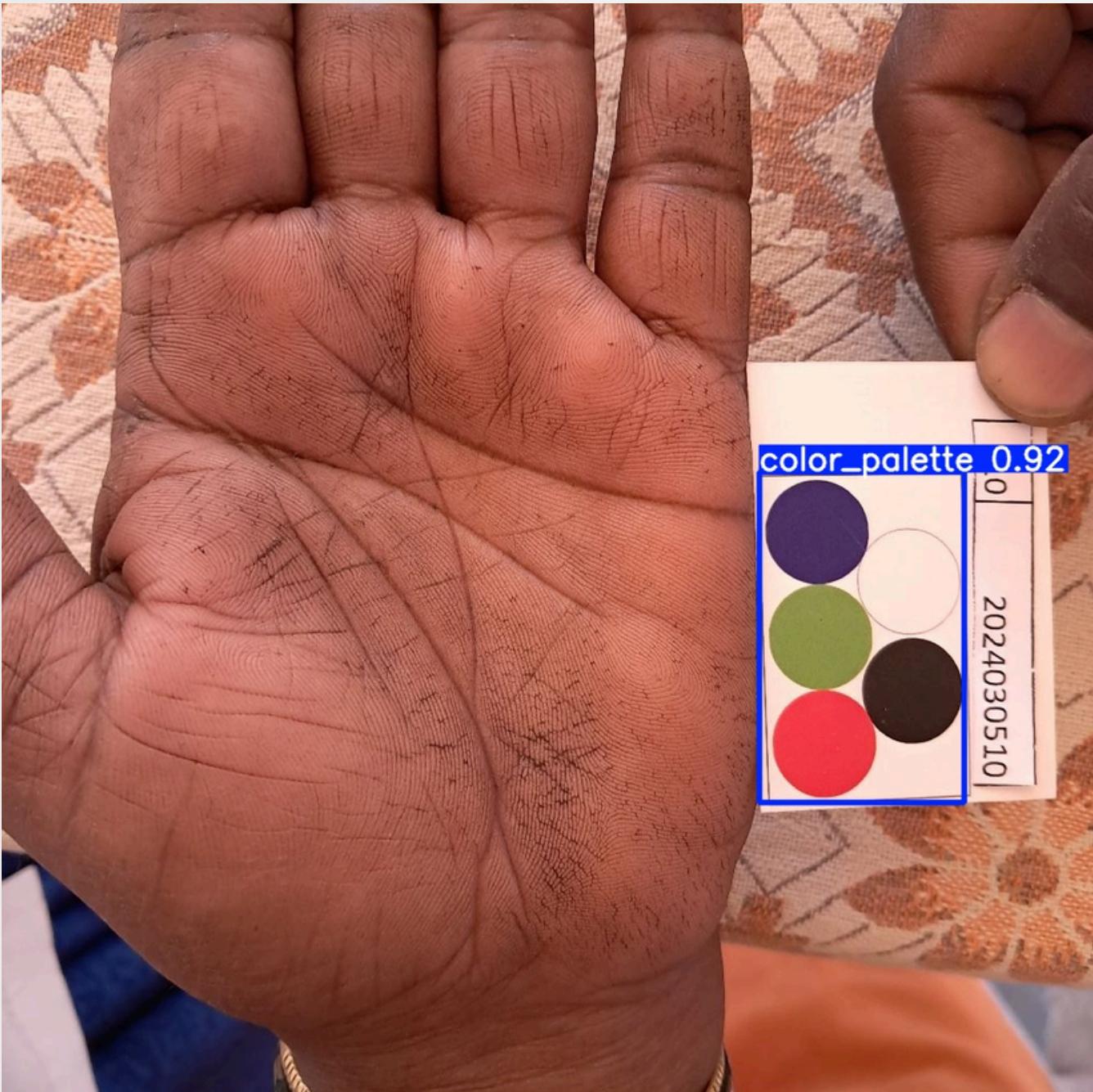


# Hemoglobin Level Estimation from Photographic images

NIRANJAN VERMA  
210020085

PROF. NIRMAL PUNJABI

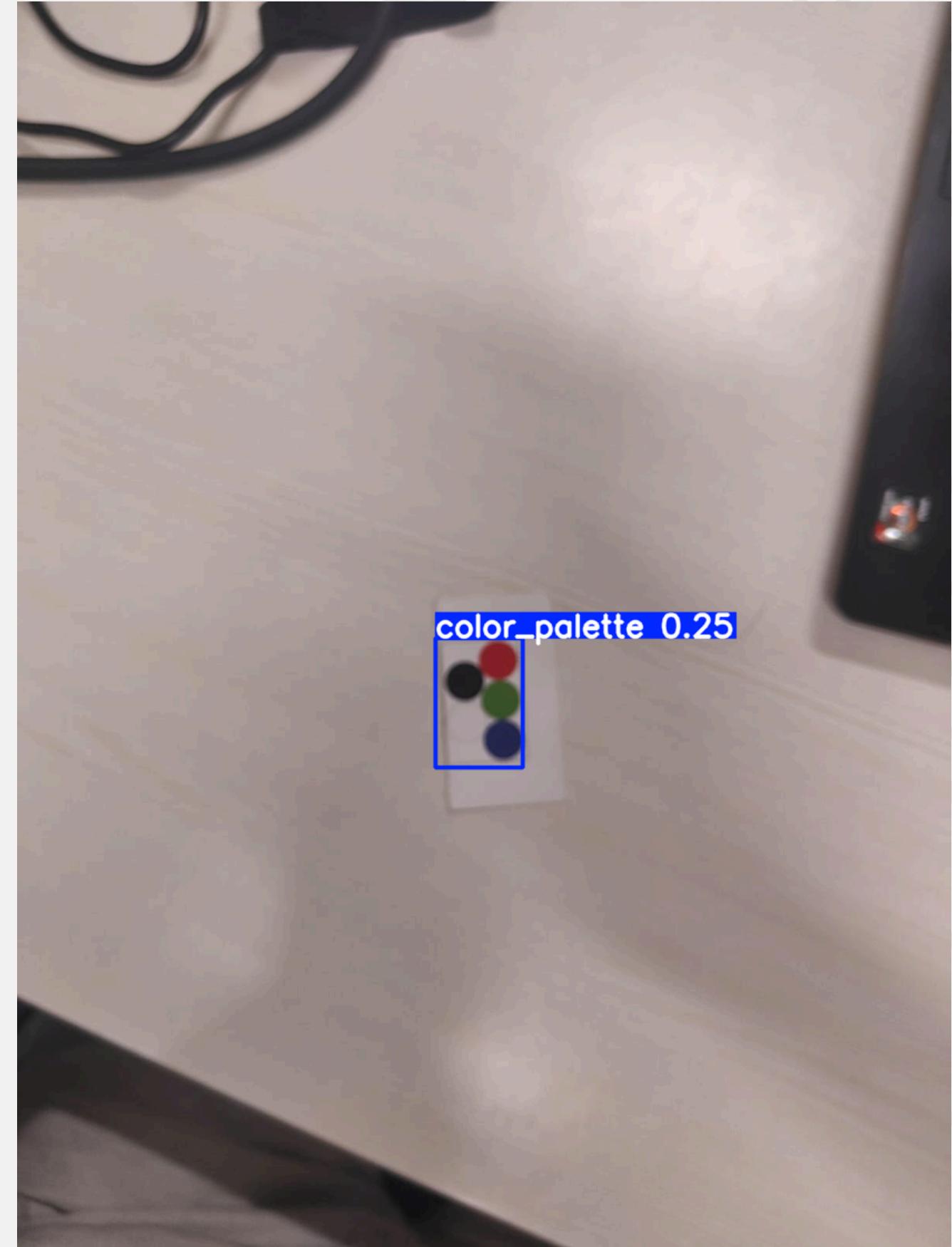
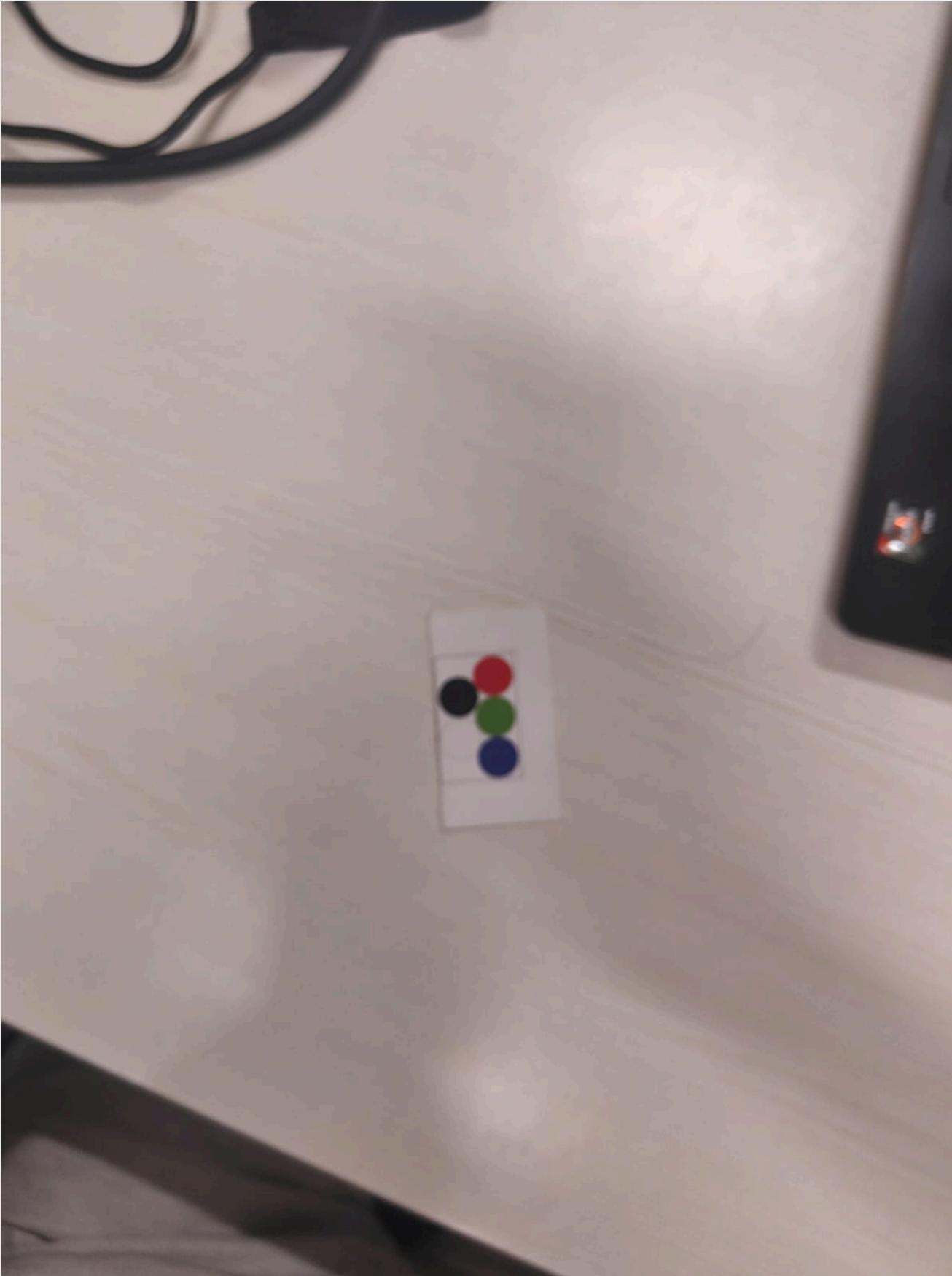
# Testing the Trained Yolo Model



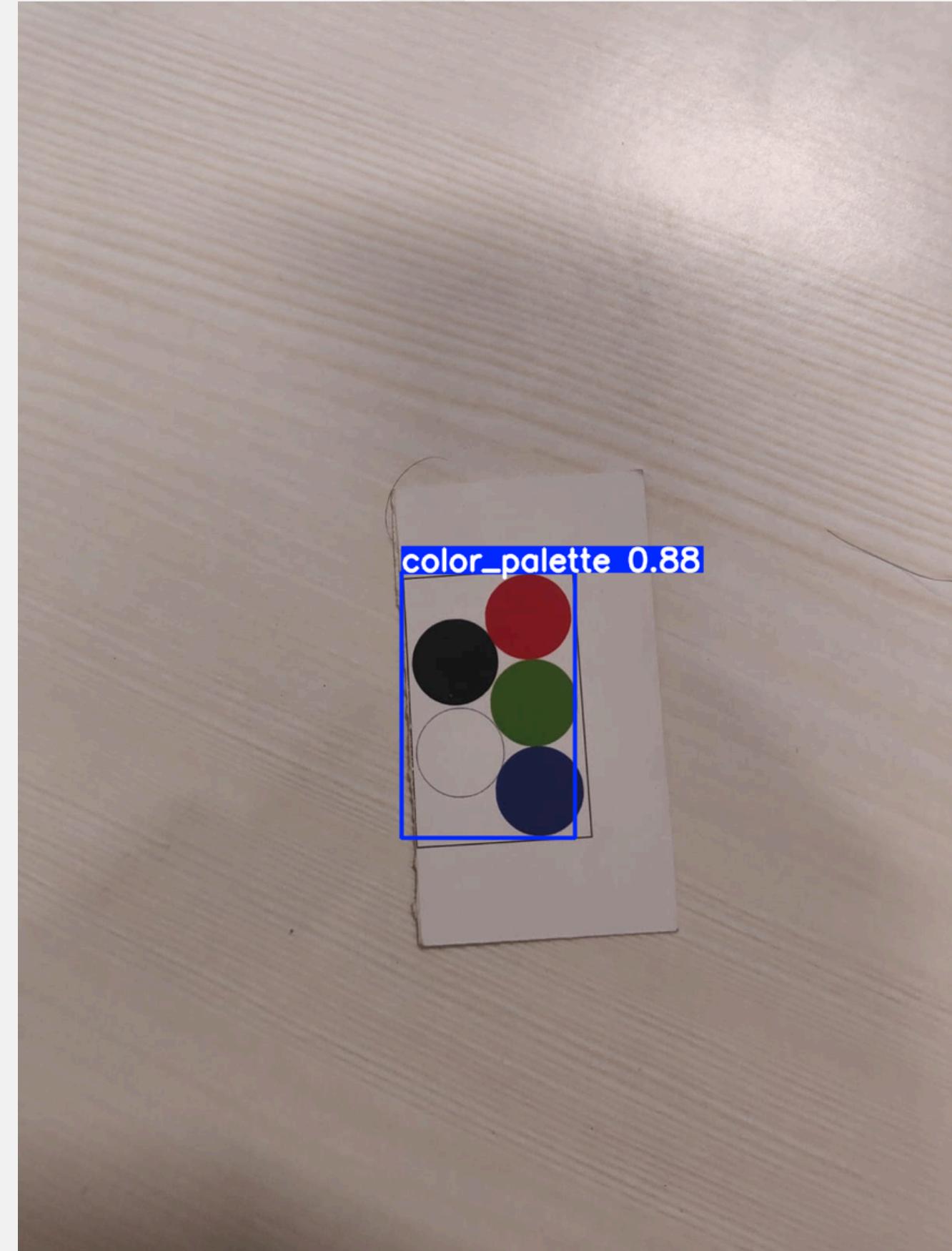
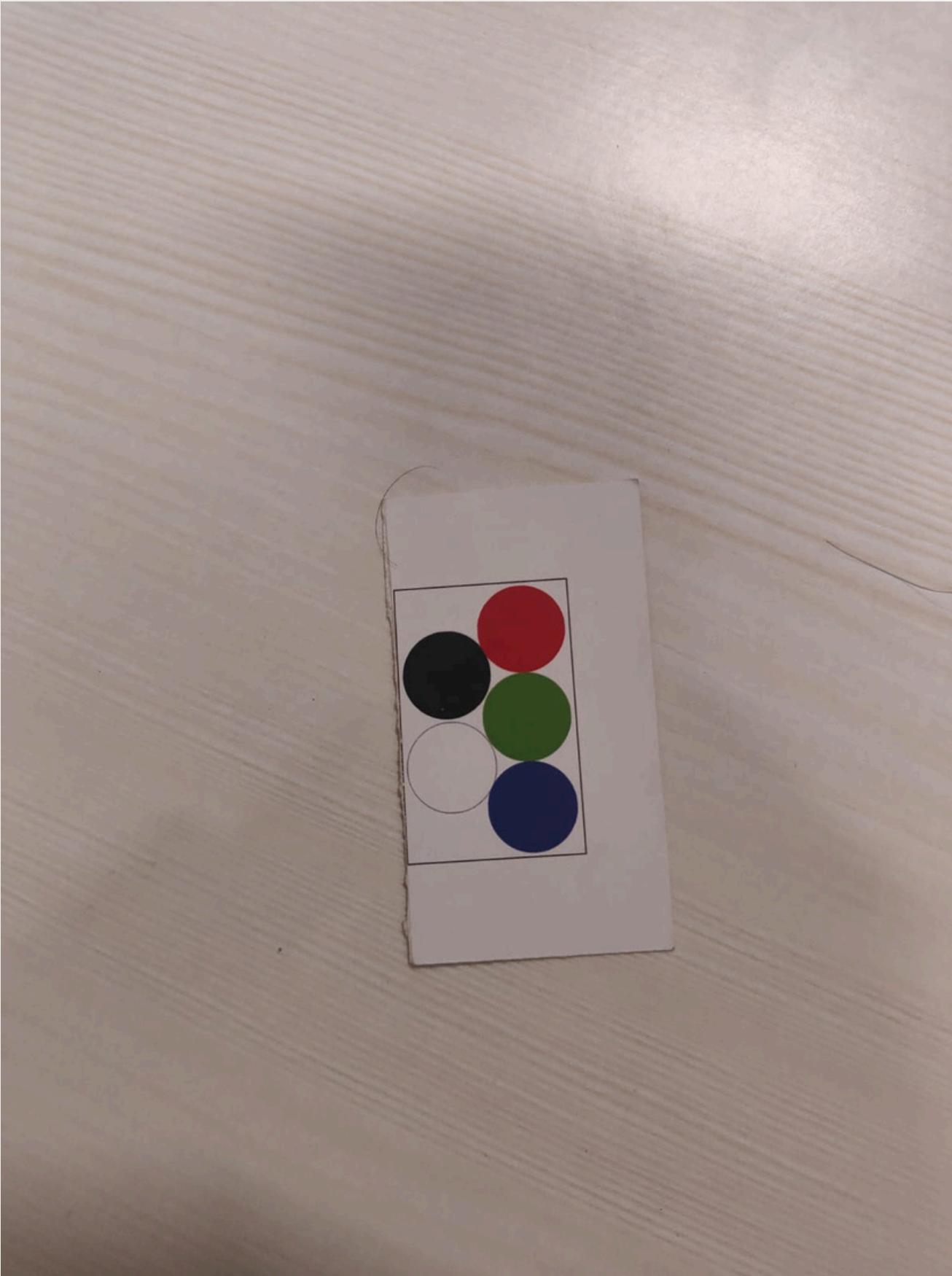
# Testing the Trained Yolo Model



# Testing the Trained Yolo Model

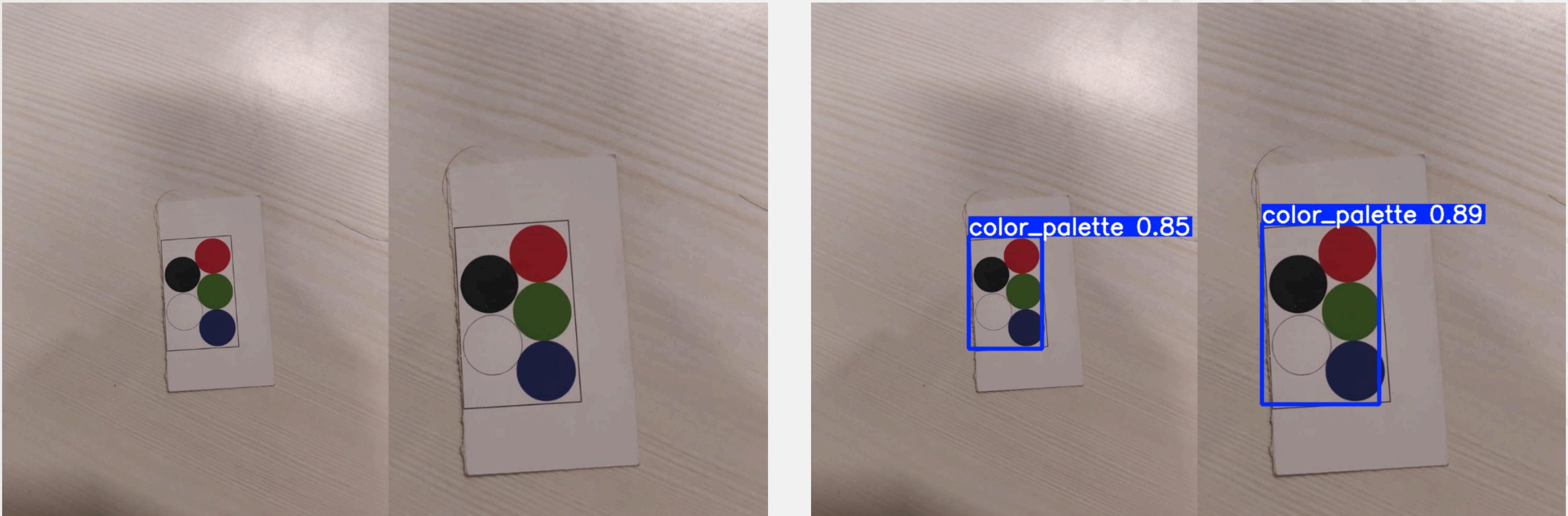


# Testing the Trained Yolo Model

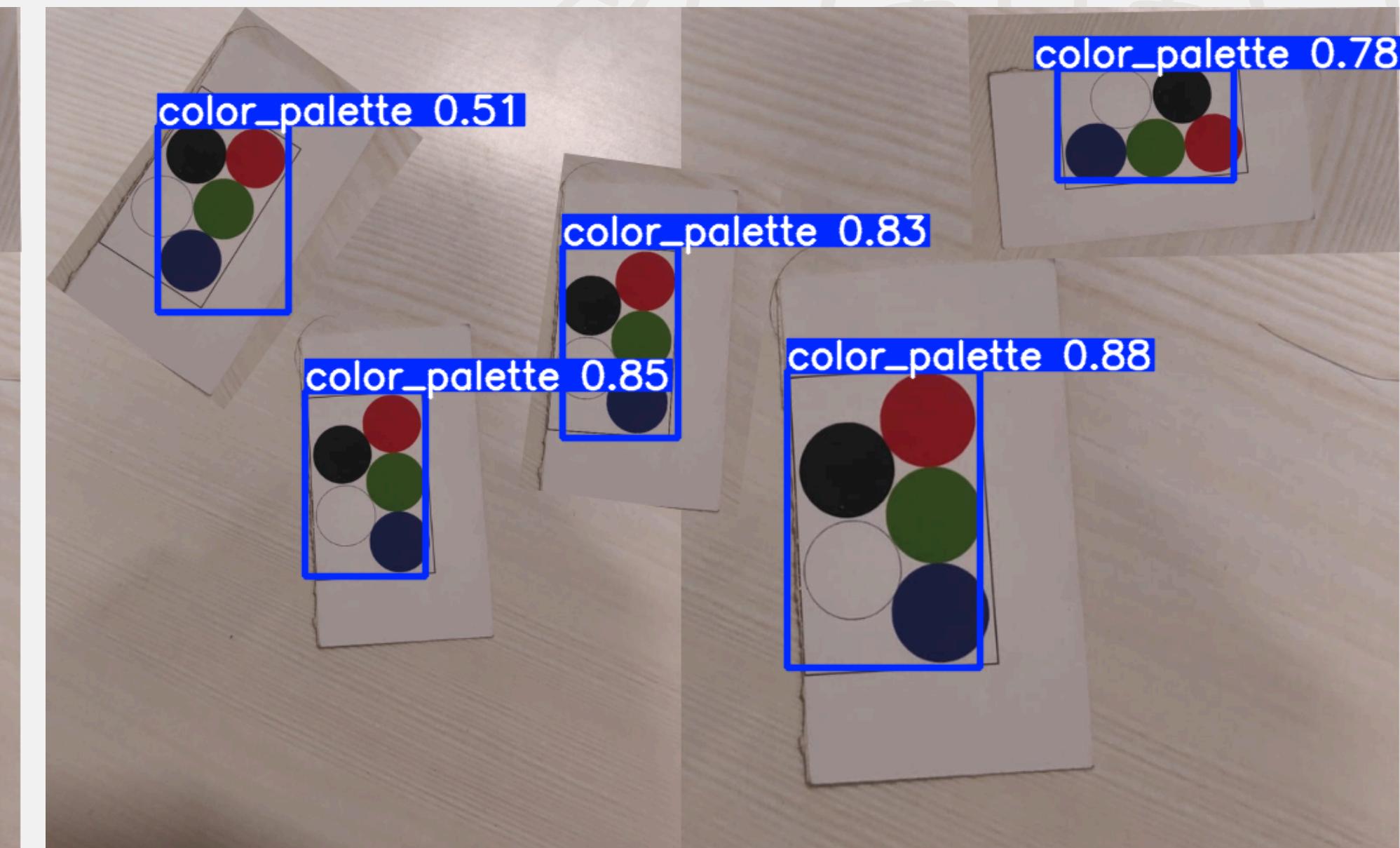
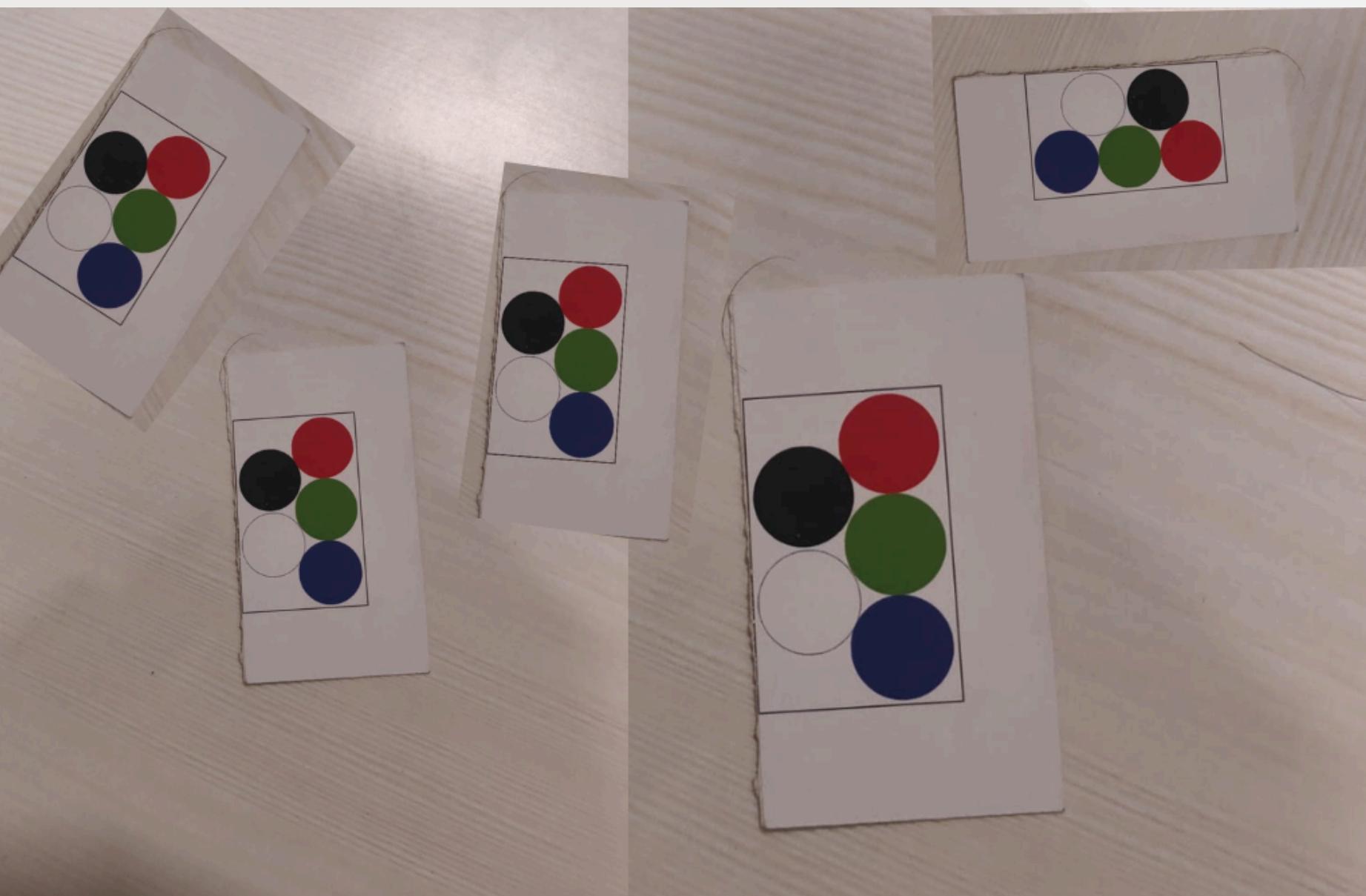


# Testing the Trained Yolo Model

## For Multiple Palette



# Testing the Trained Yolo Model For Multiple Palette

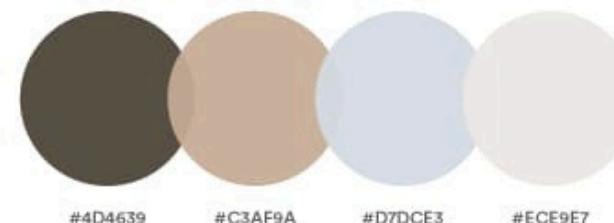


# Testing the Trained Yolo Model

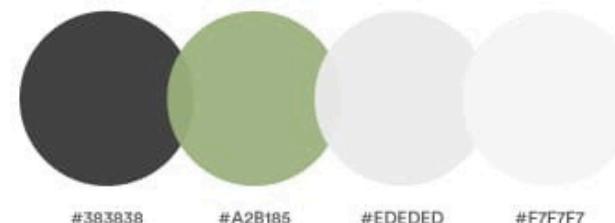


# Testing the Trained Yolo Model

Sophisticated



Brand Palettes



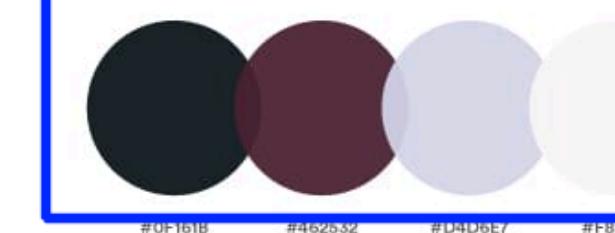
Looka

Sophisticated

color\_palette 0.27



color\_palette 0.31



color\_palette 0.55

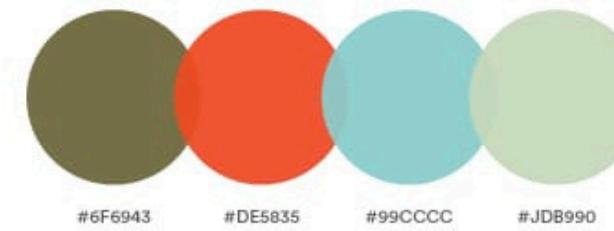
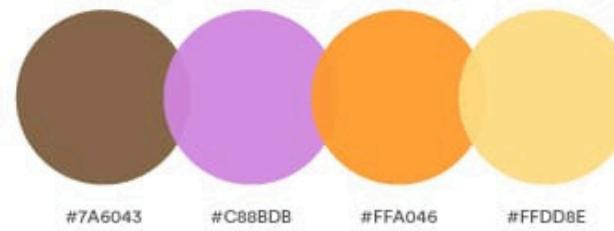
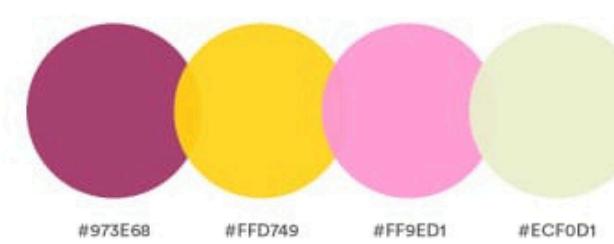
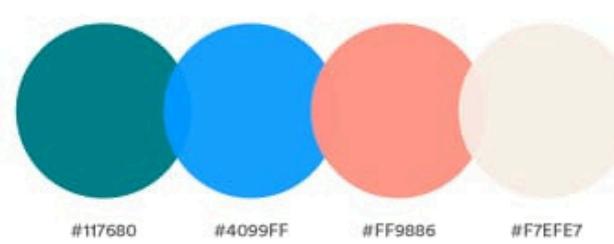


Brand Palettes

Looka

# Testing the Trained Yolo Model

Quirky



Brand Palettes

Looka

Quirky

color\_palette 0.46

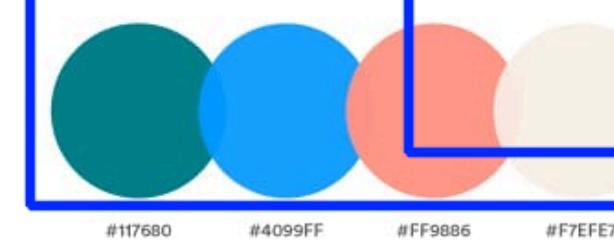
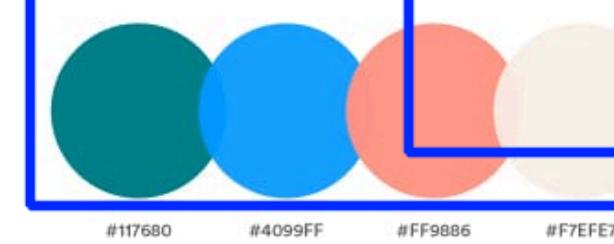
color\_color\_palette 0.39

color\_palette 0.44

color\_palette 0.27

color\_palette 0.71

color\_palette 0.37

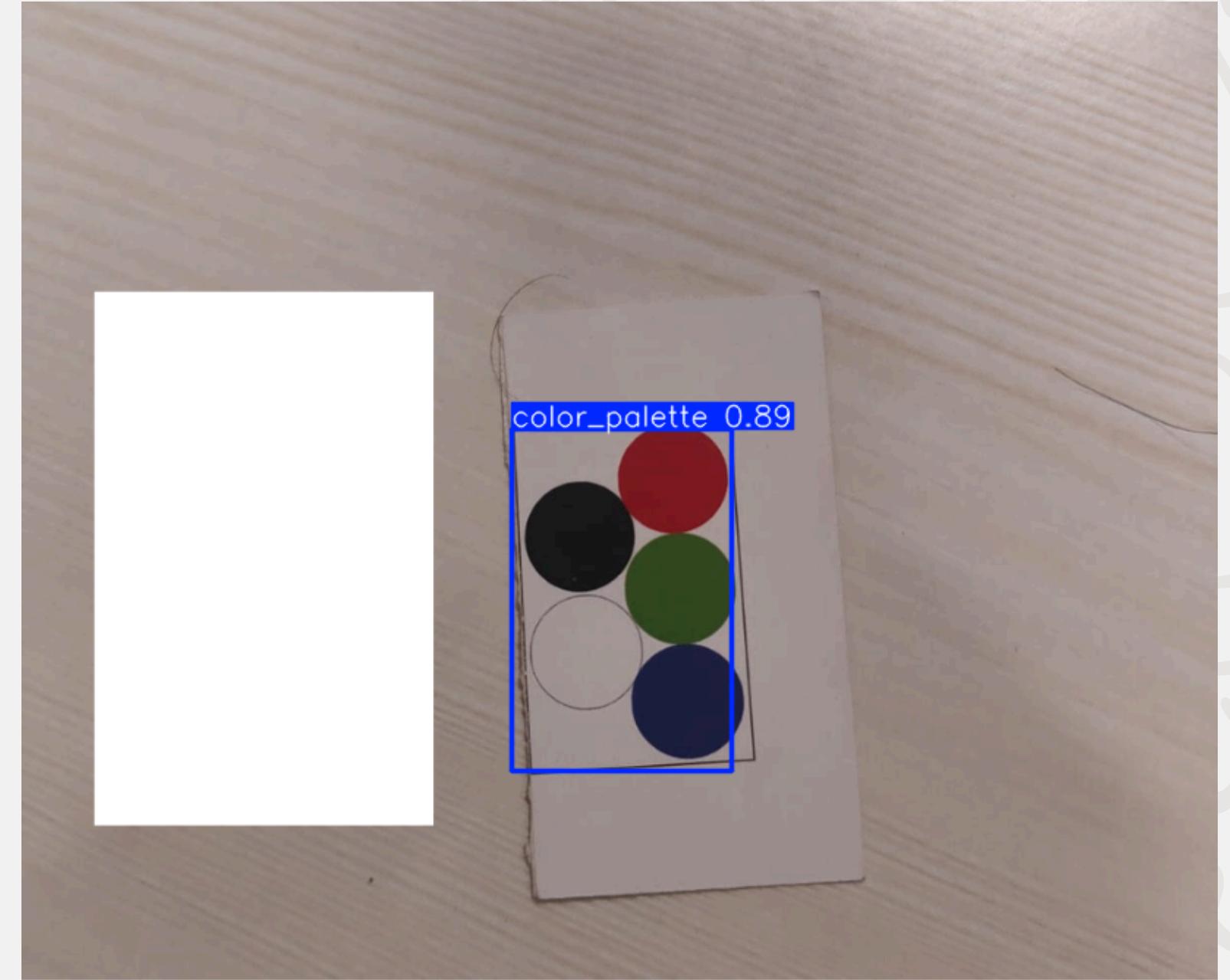
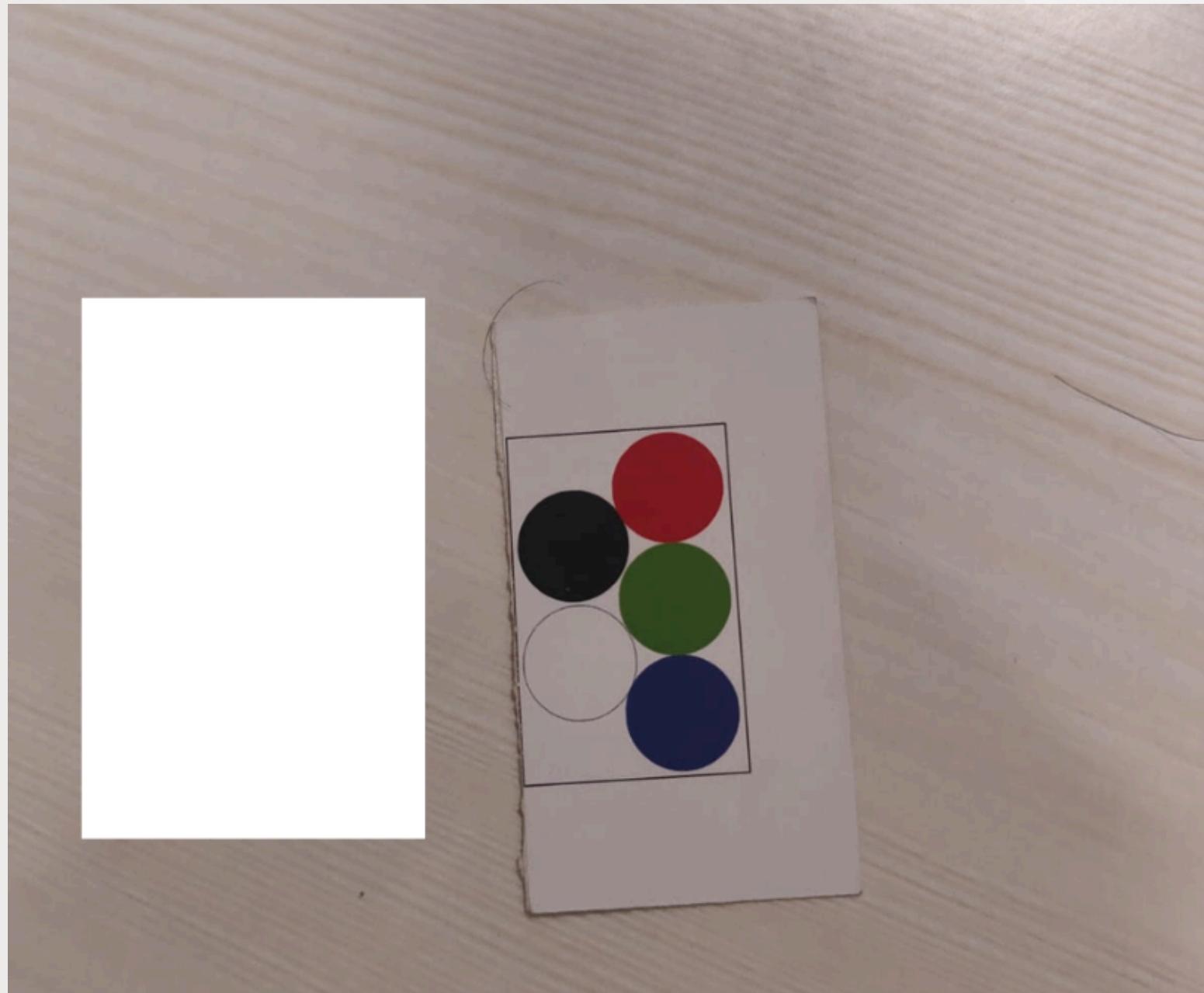


Brand Palettes

Looka

# Testing the Trained Yolo Model

## For Palette with hypothetical rectangle



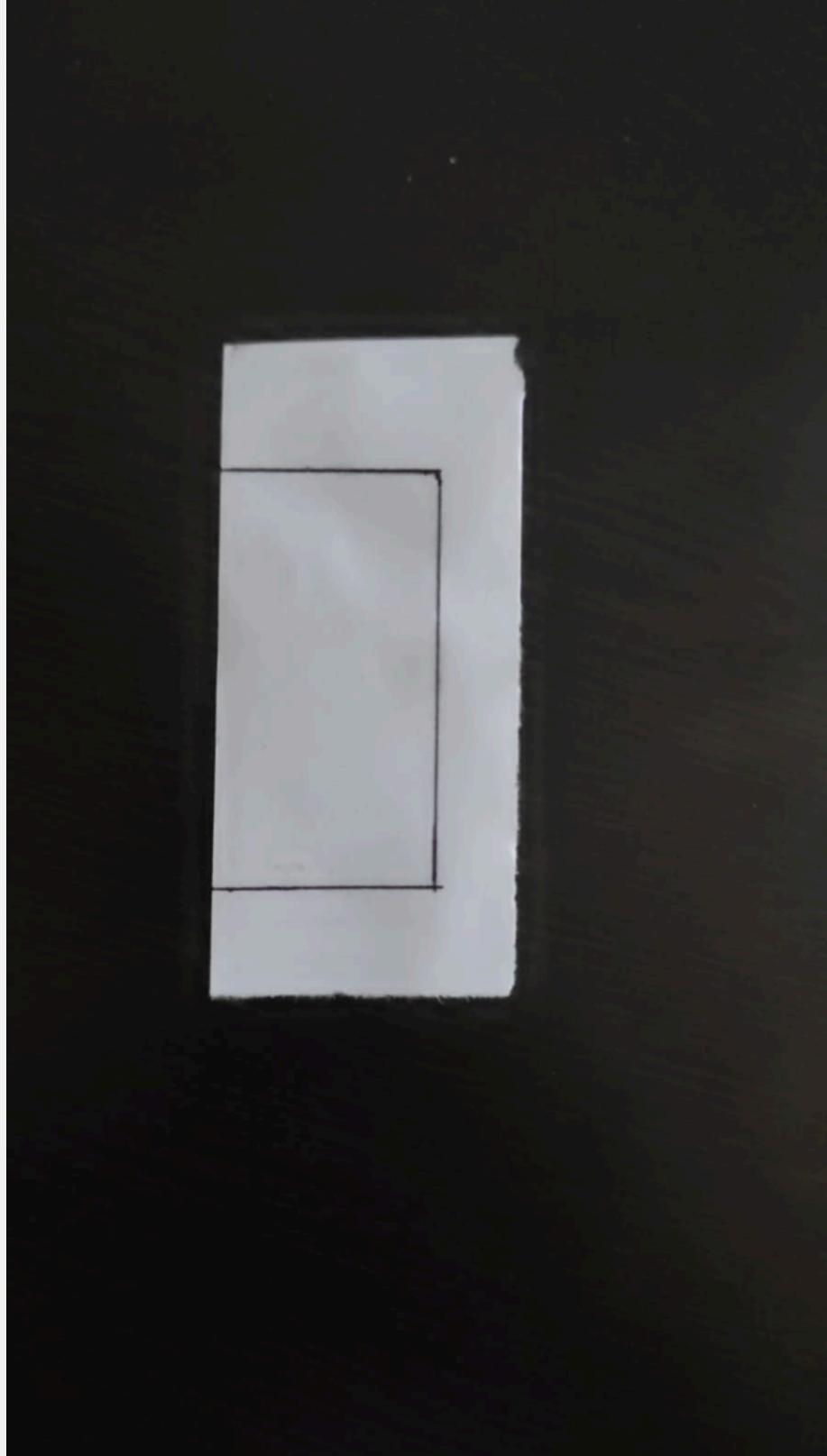
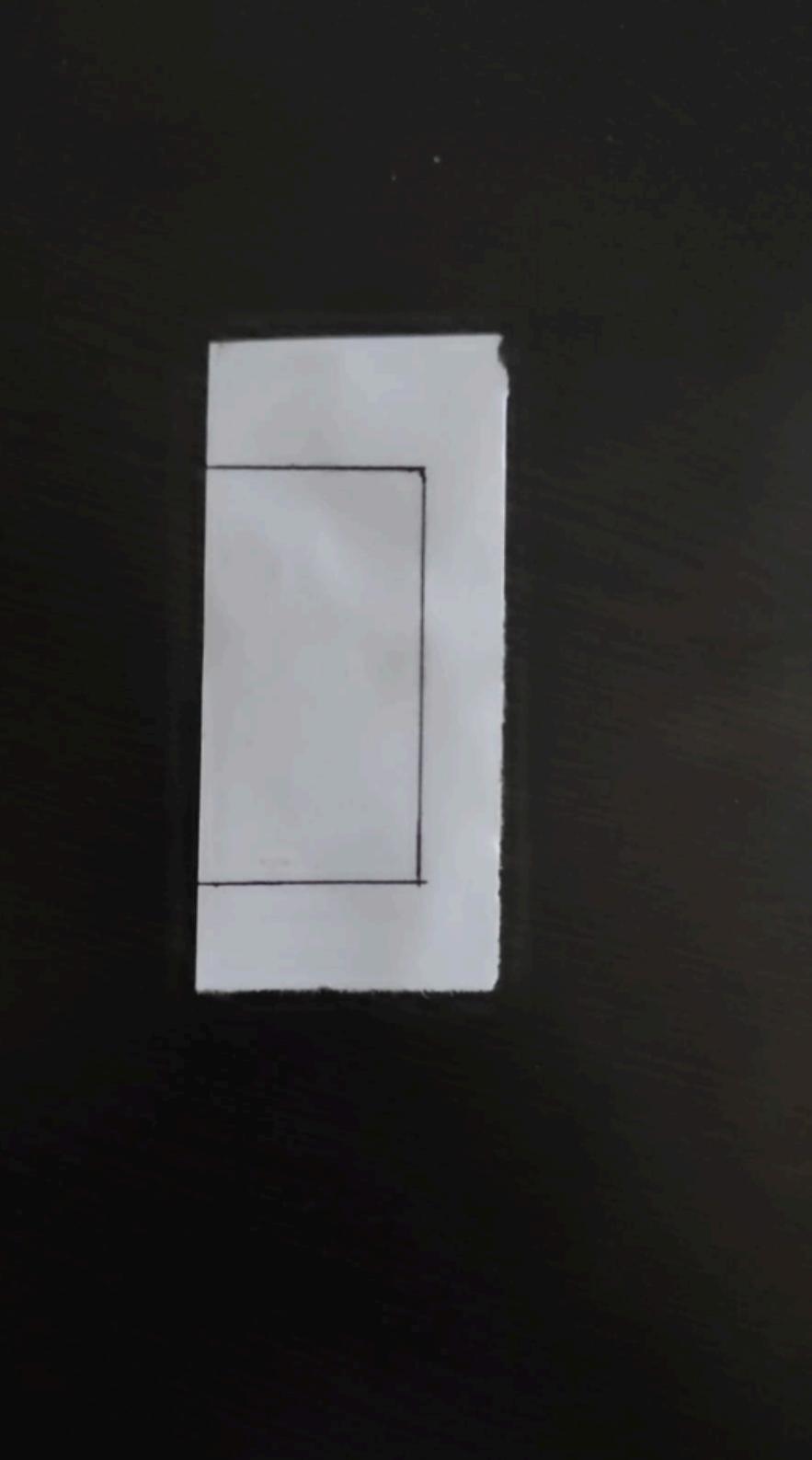
# Testing the Trained Yolo Model

## No Palette detected on a rectangle



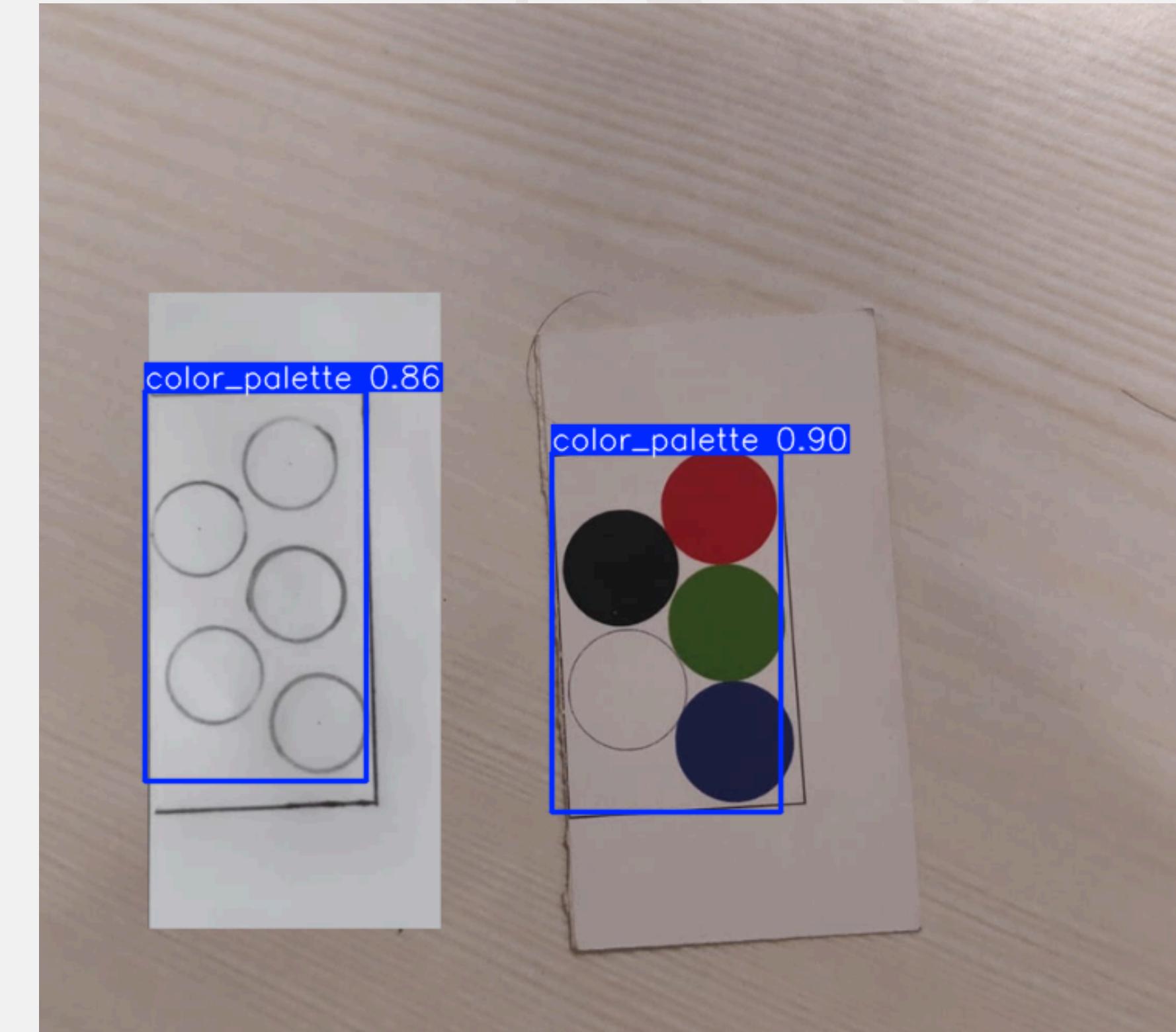
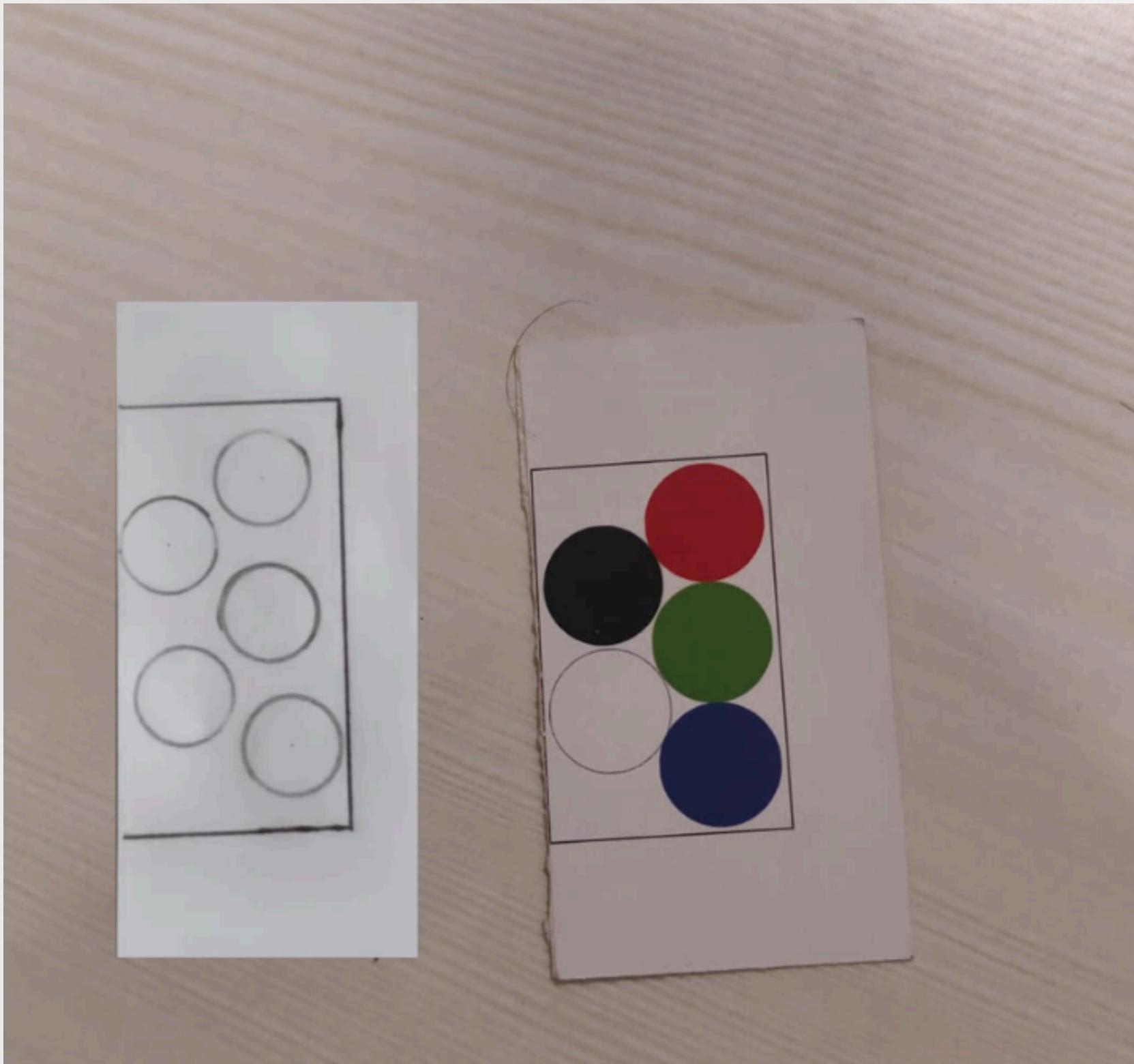
# Testing the Trained Yolo Model

No Palette detected on a rectangle with marked edges



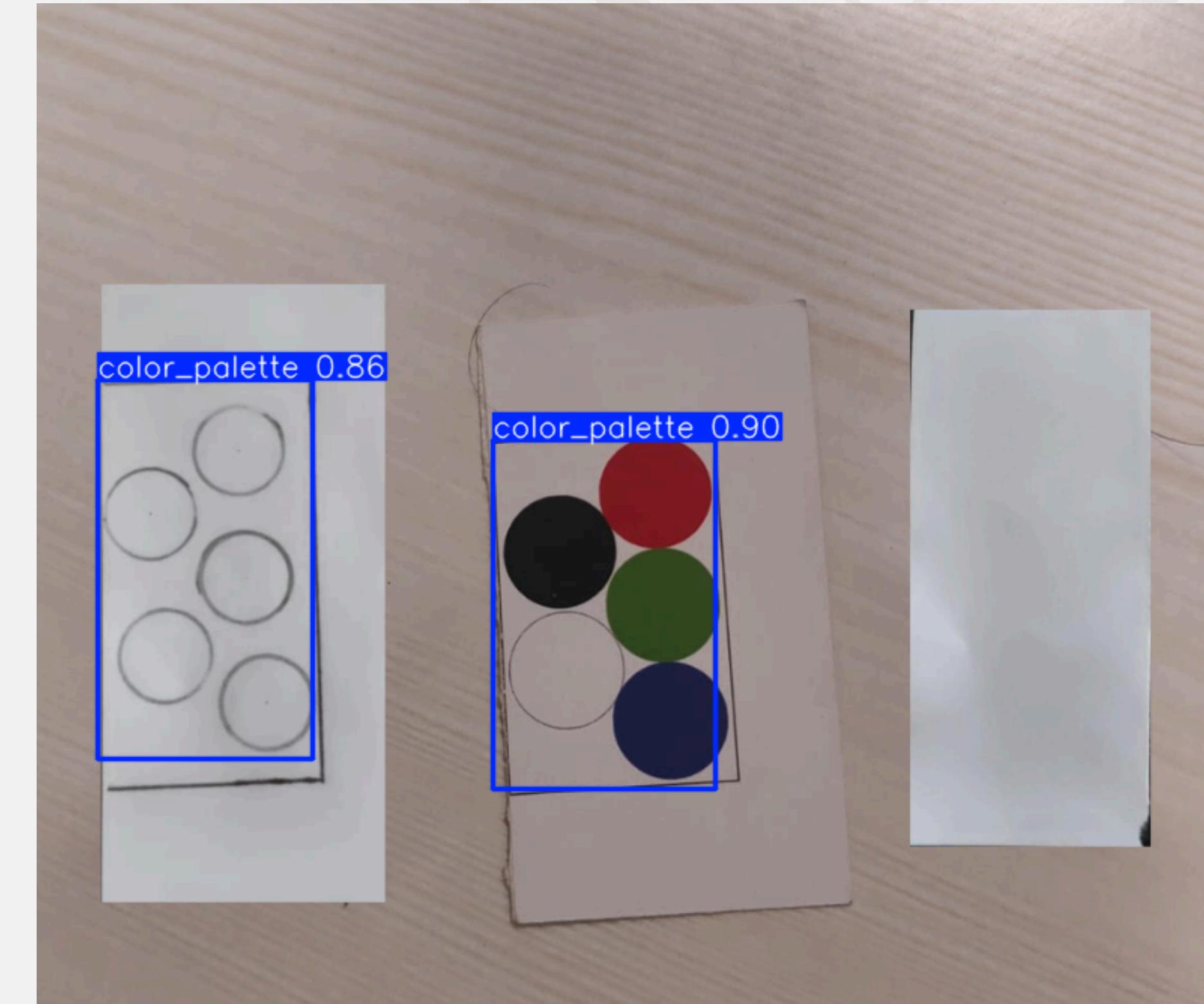
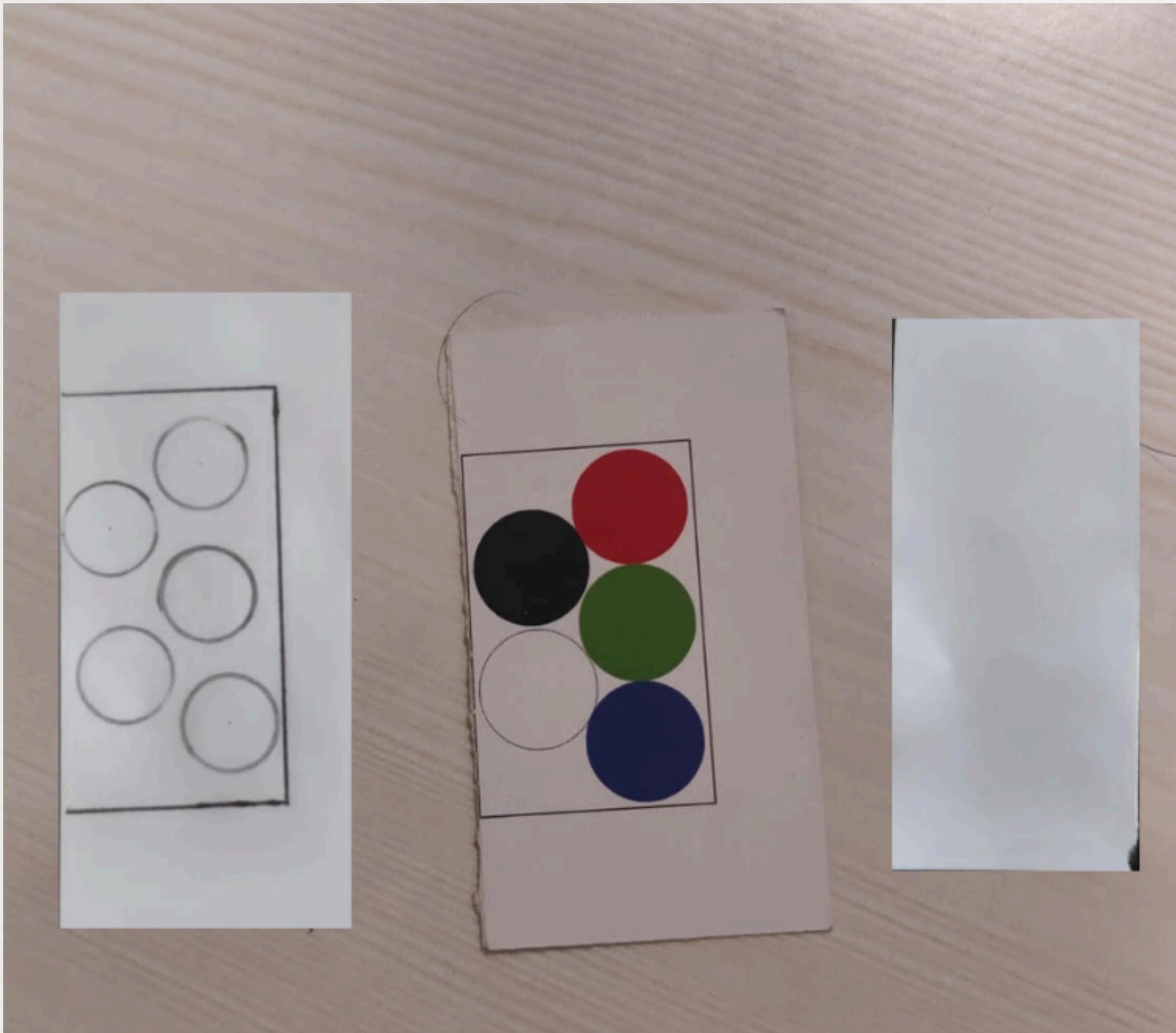
# Testing the Trained Yolo Model

## Palette detected on handmade outline



# Testing the Trained Yolo Model

## Palette detected on handmade outline



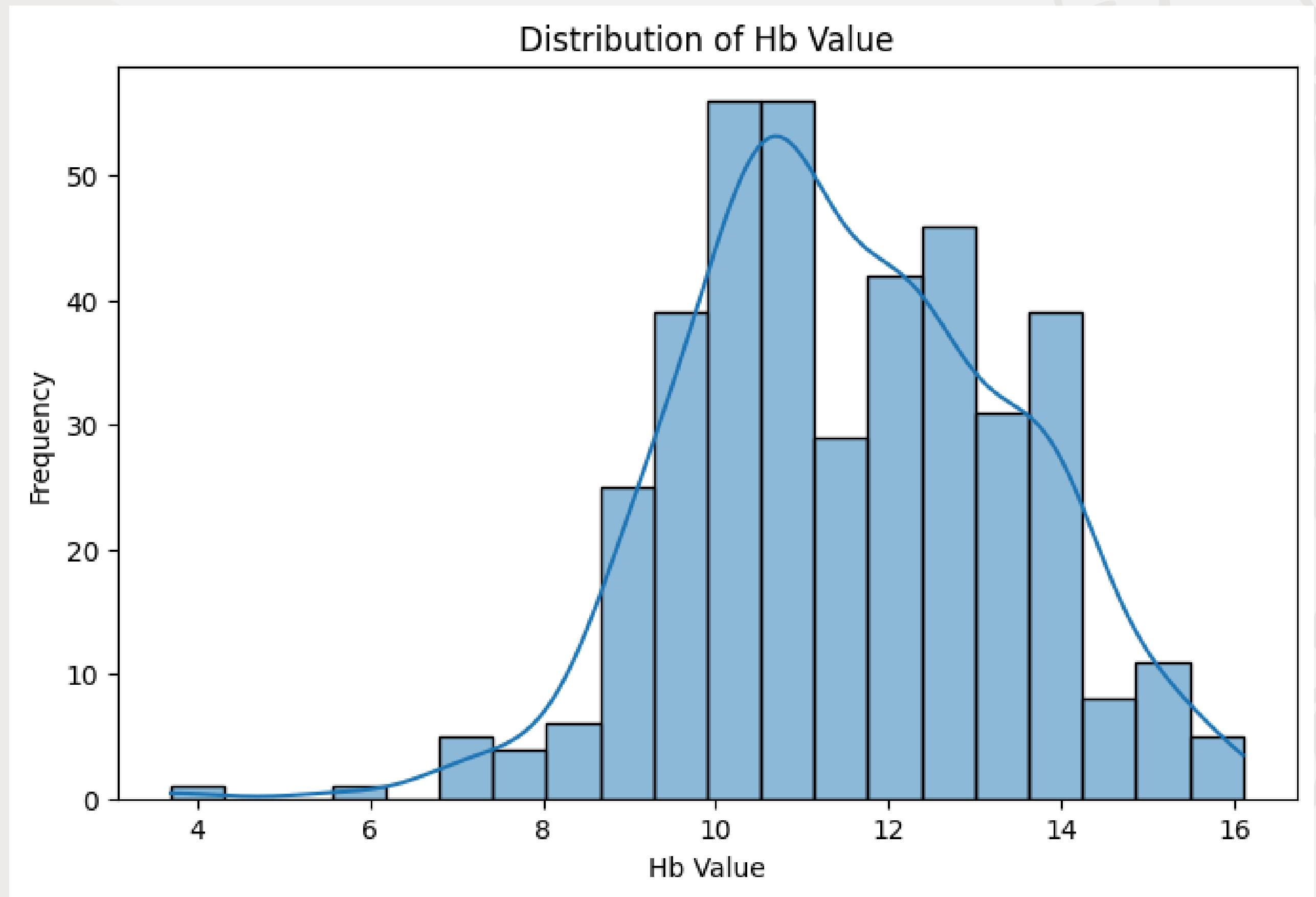
# Feature Extraction

---

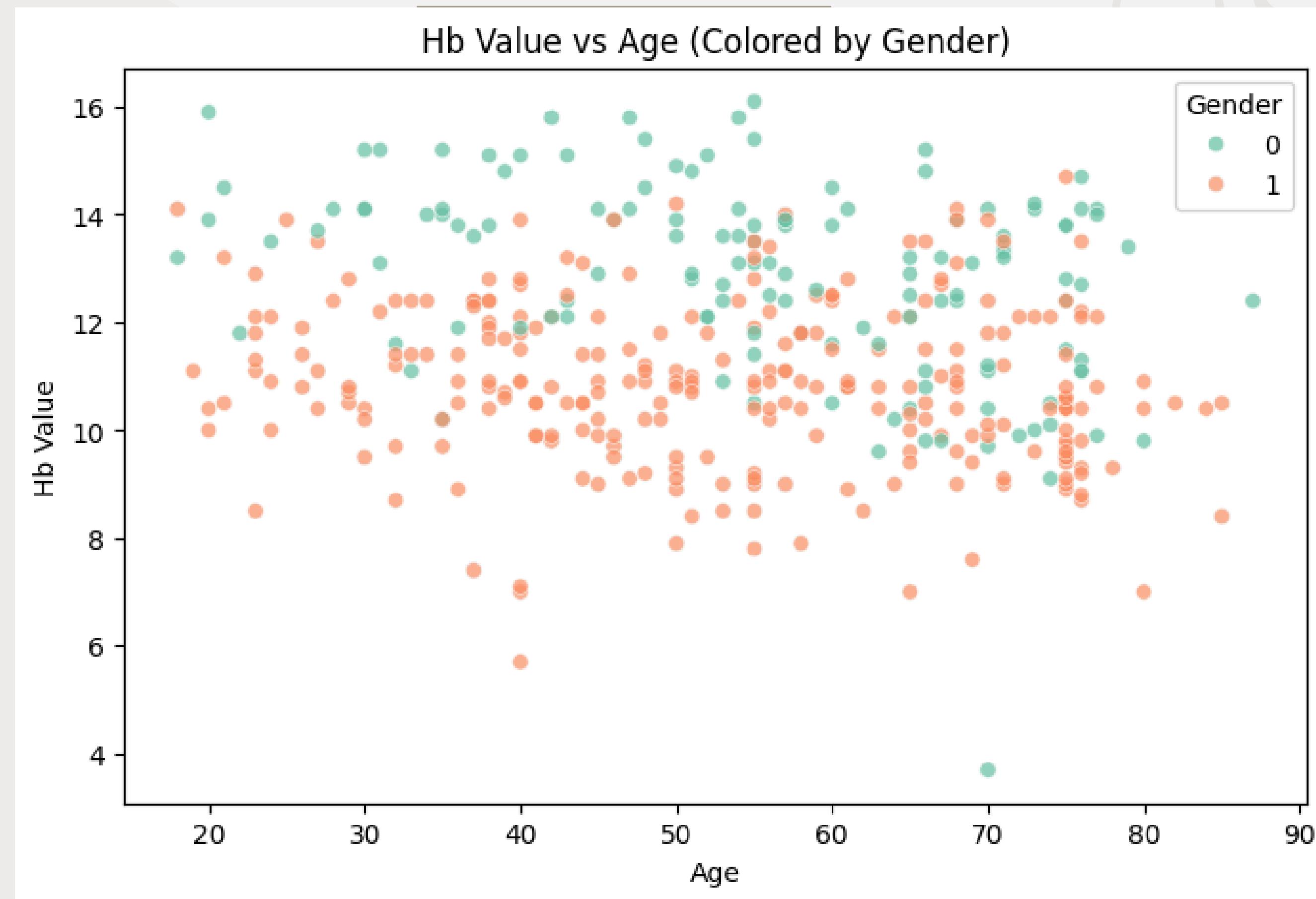
## Left Eye Images

- Mean of all Red pixels
- Mean of all Blue pixels
- Mean of all Green pixels
- Mean of all Red-Green pixels
- Erythema Index
- Mean of Hue of all pixels
- Mean of Saturation of all pixels
- Mean of Value of all pixels
- Brightness
- Entropy
- Weight
- Mean of all G1 features
- Mean of all G2 features
- Mean of all G3 features
- Mean of all G4 features
- Mean of all G5 features
- Mean of all Lightness ( L\*) values
- Mean of all a\* values
- Mean of all b\* values
- Age
- Height
- Gender

# EDA on Features

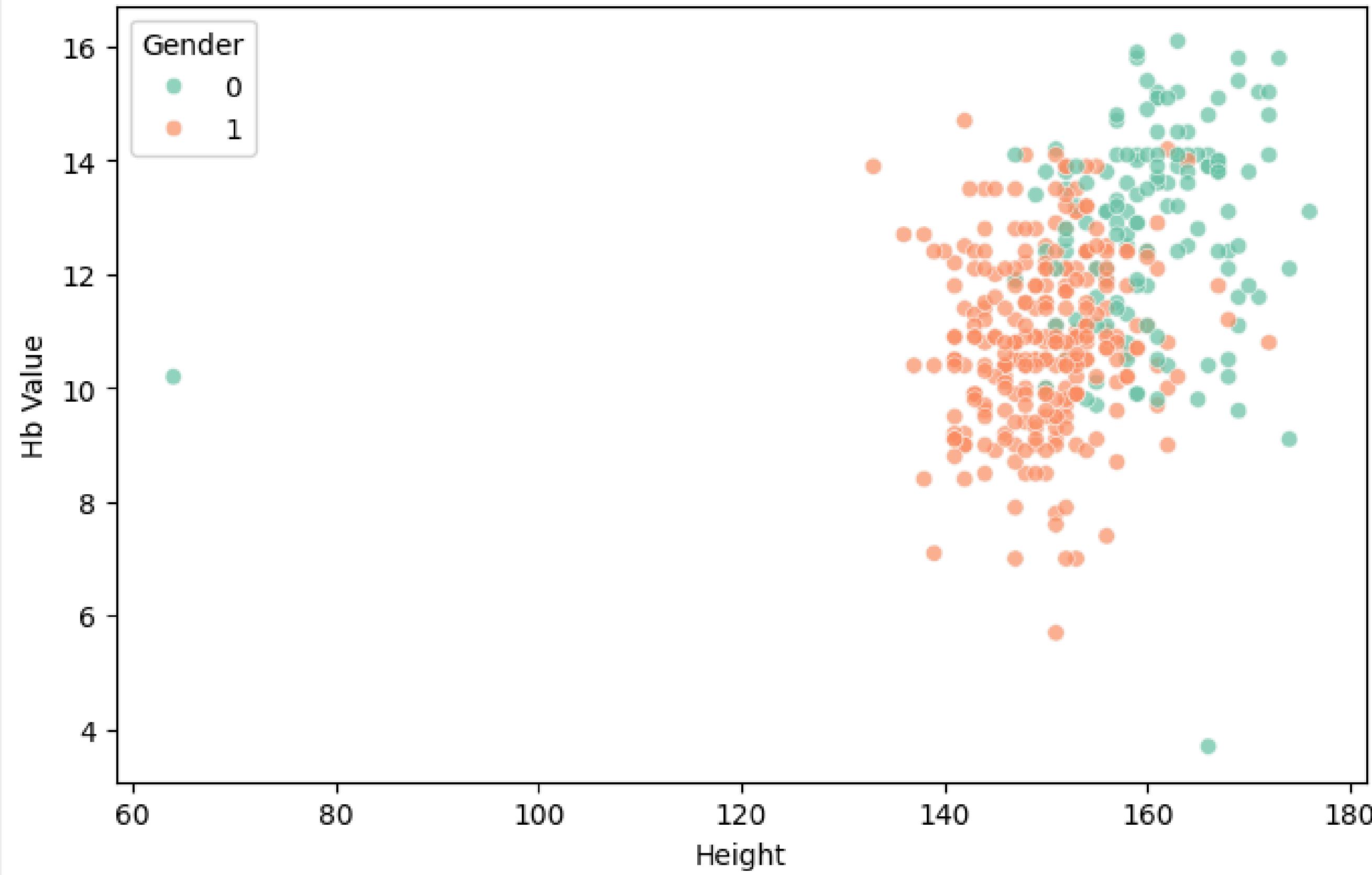


# EDA on Features

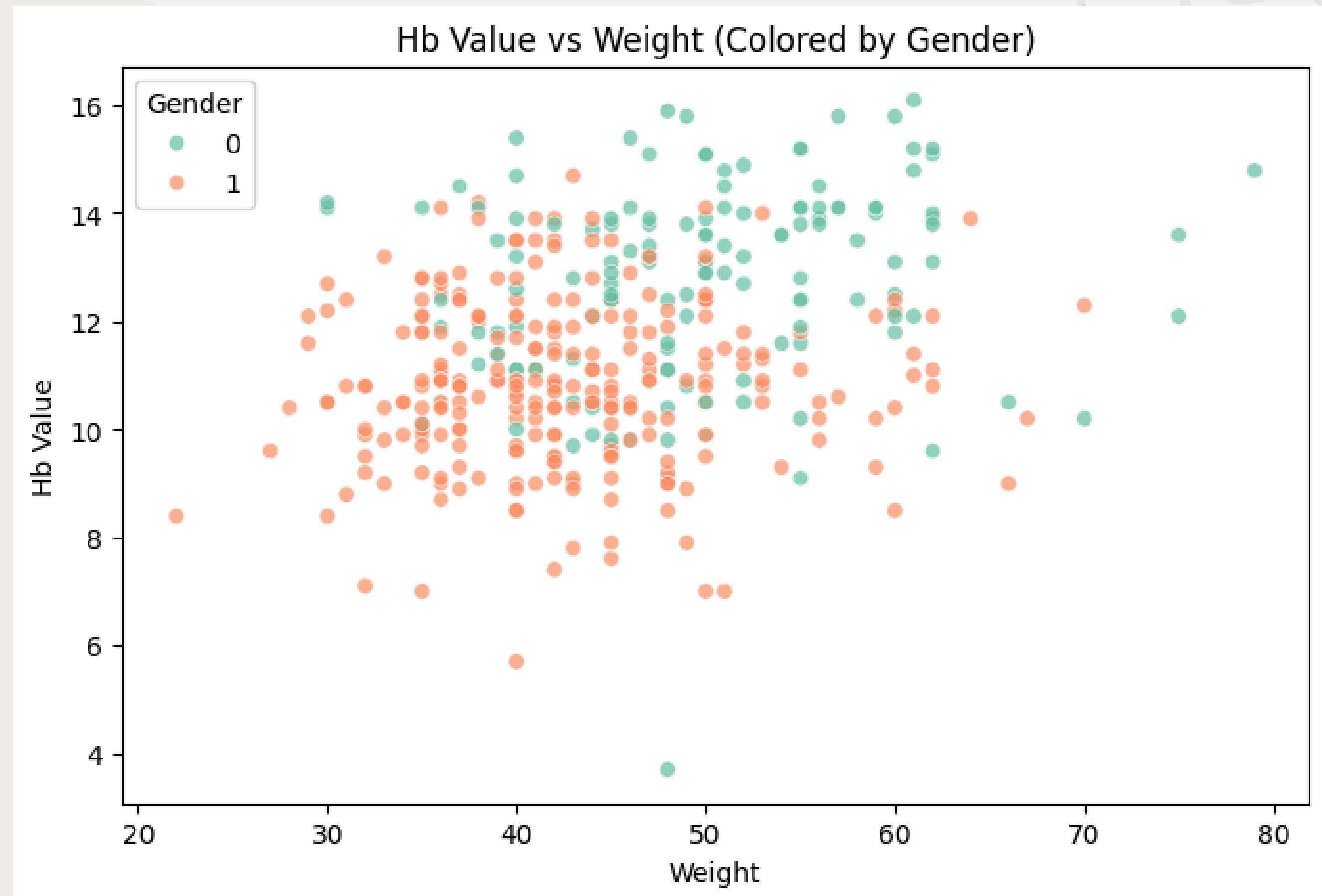


# EDA on Features

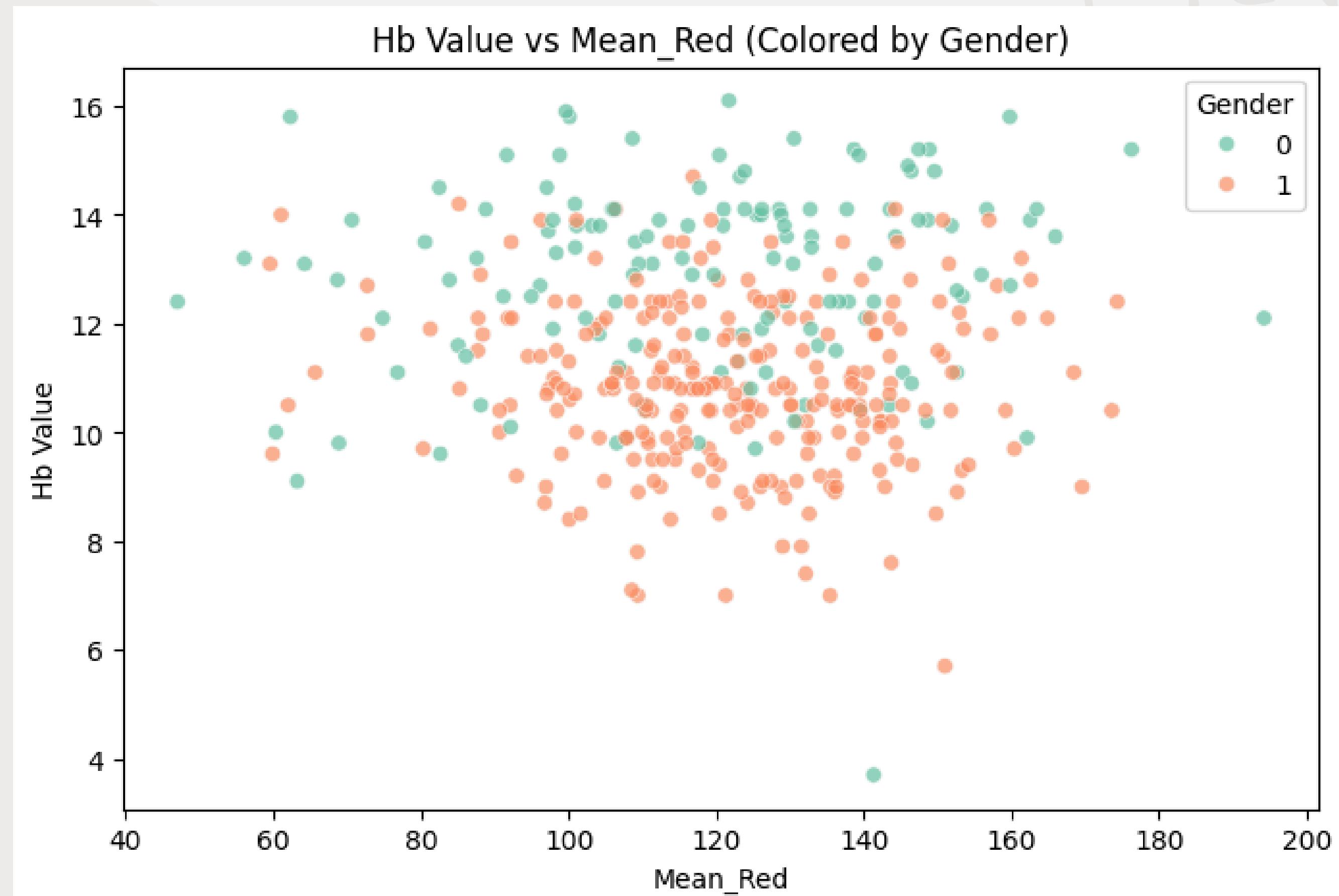
Hb Value vs Height (Colored by Gender)



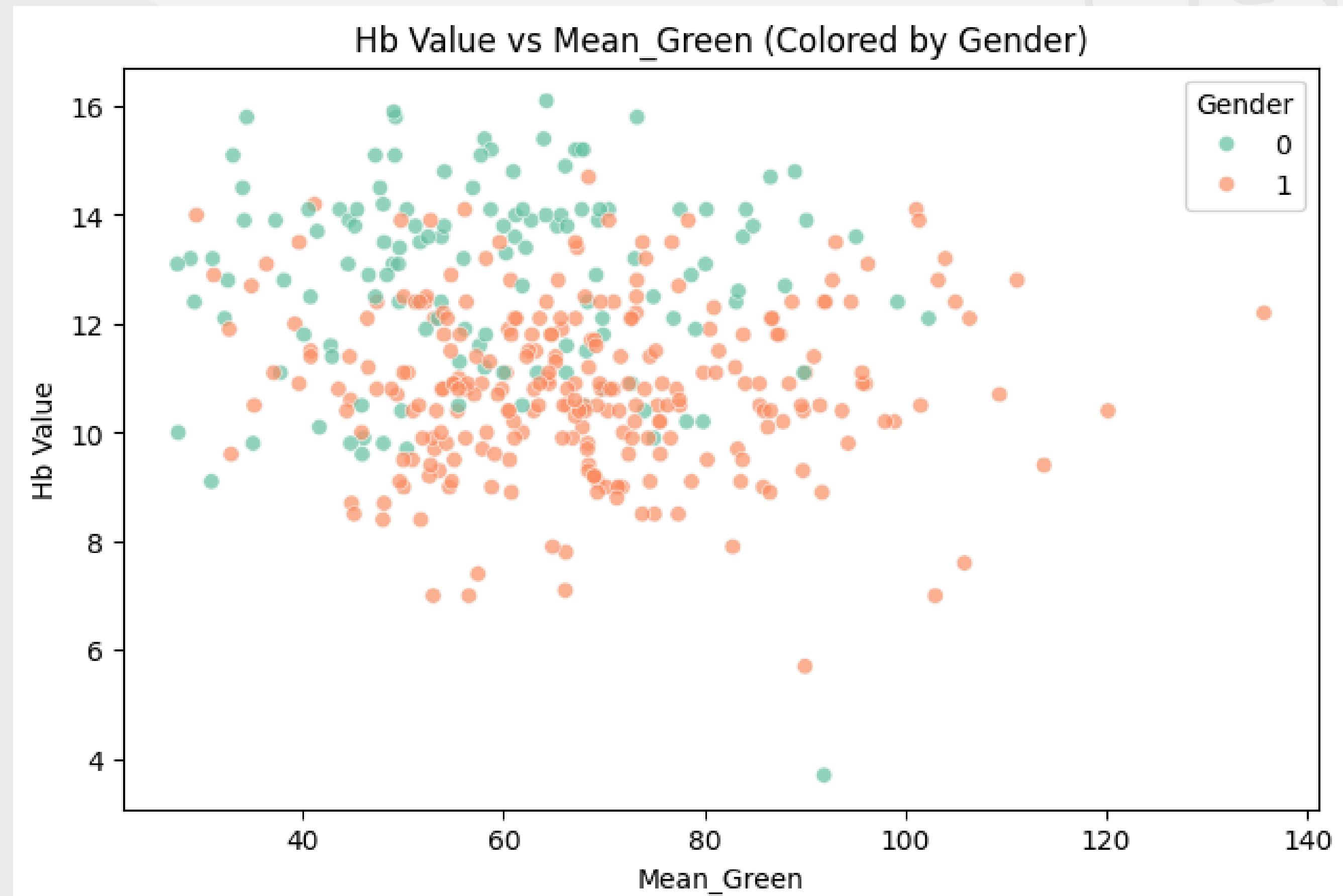
# EDA on Features



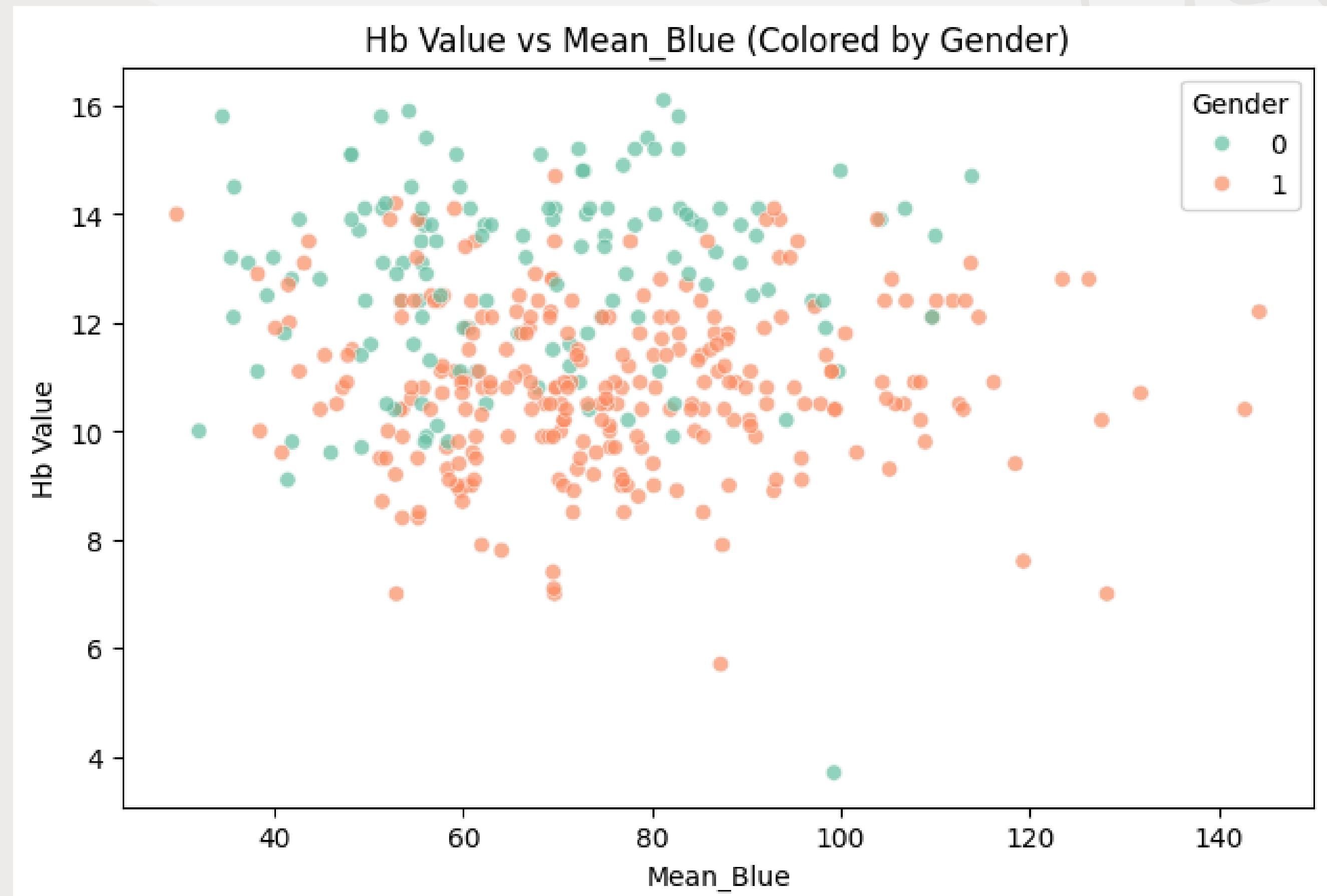
# EDA on Features



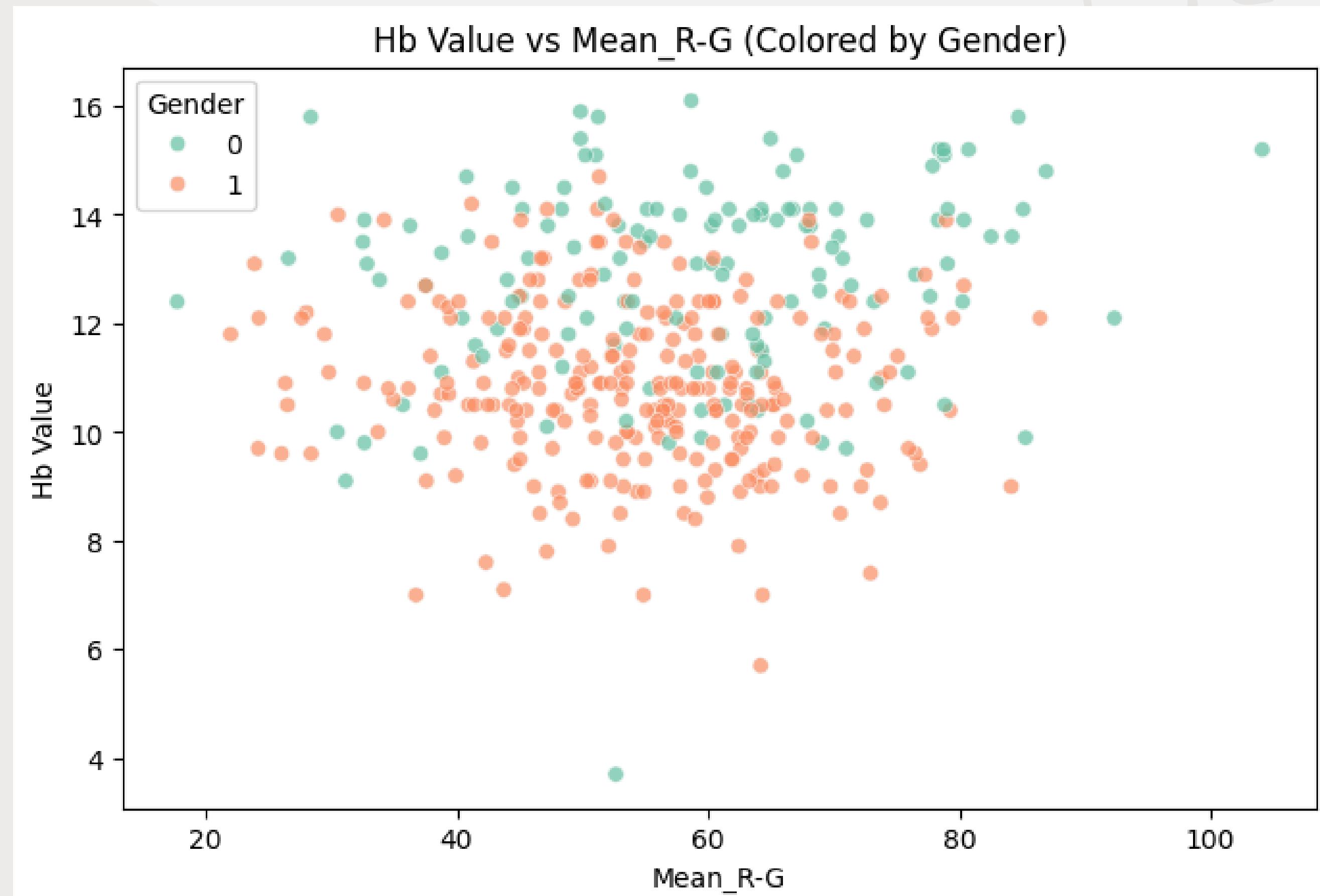
# EDA on Features



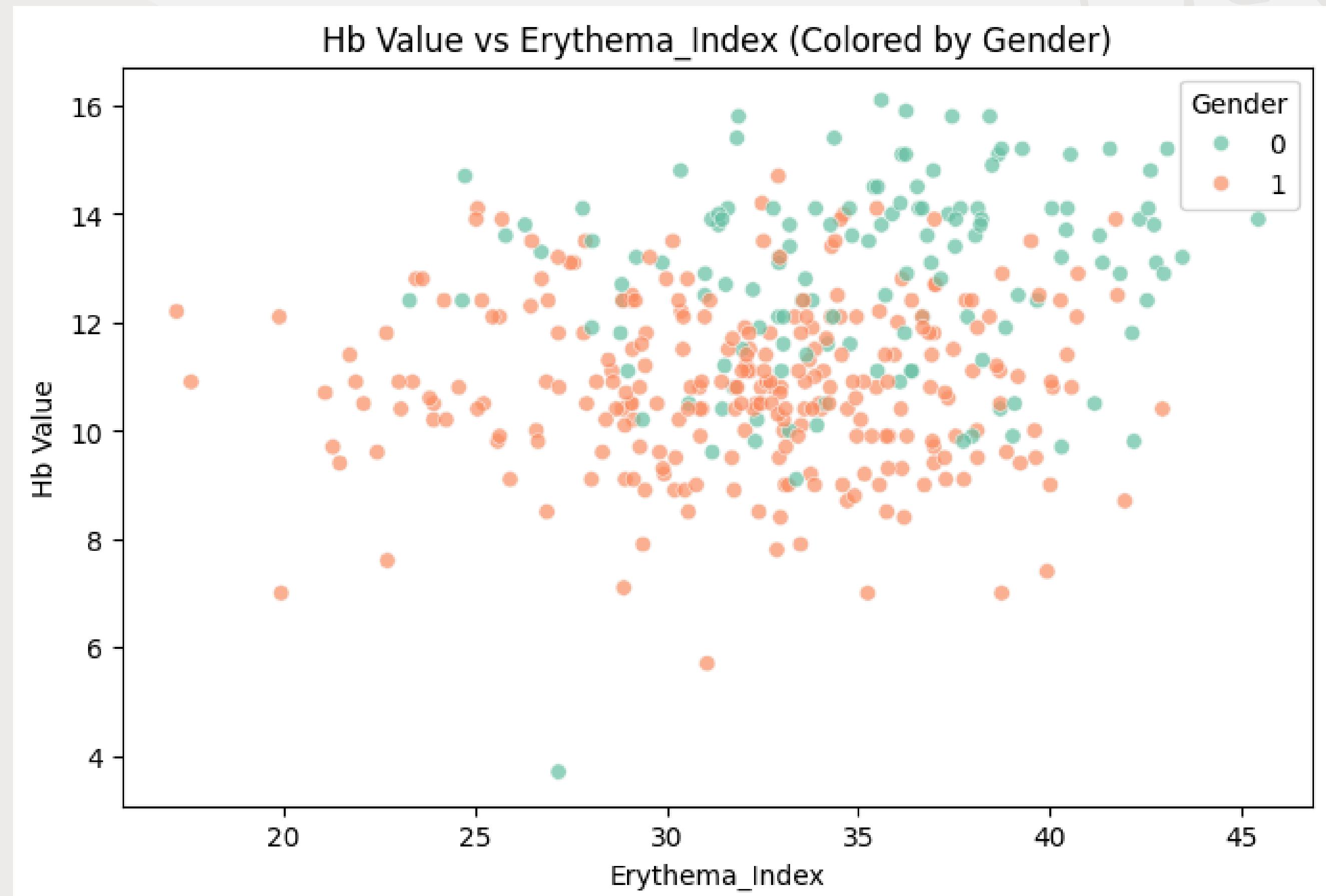
# EDA on Features



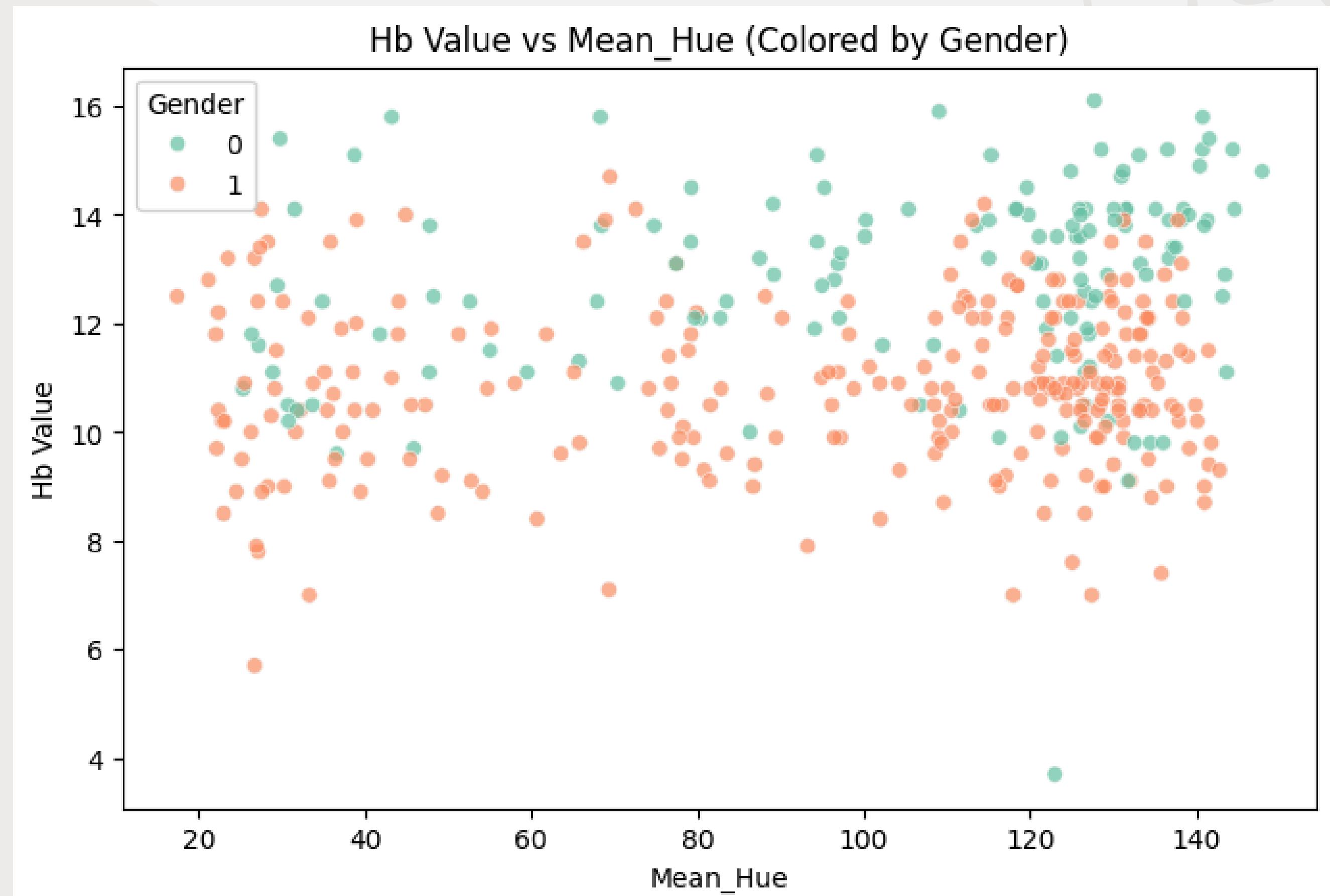
# EDA on Features



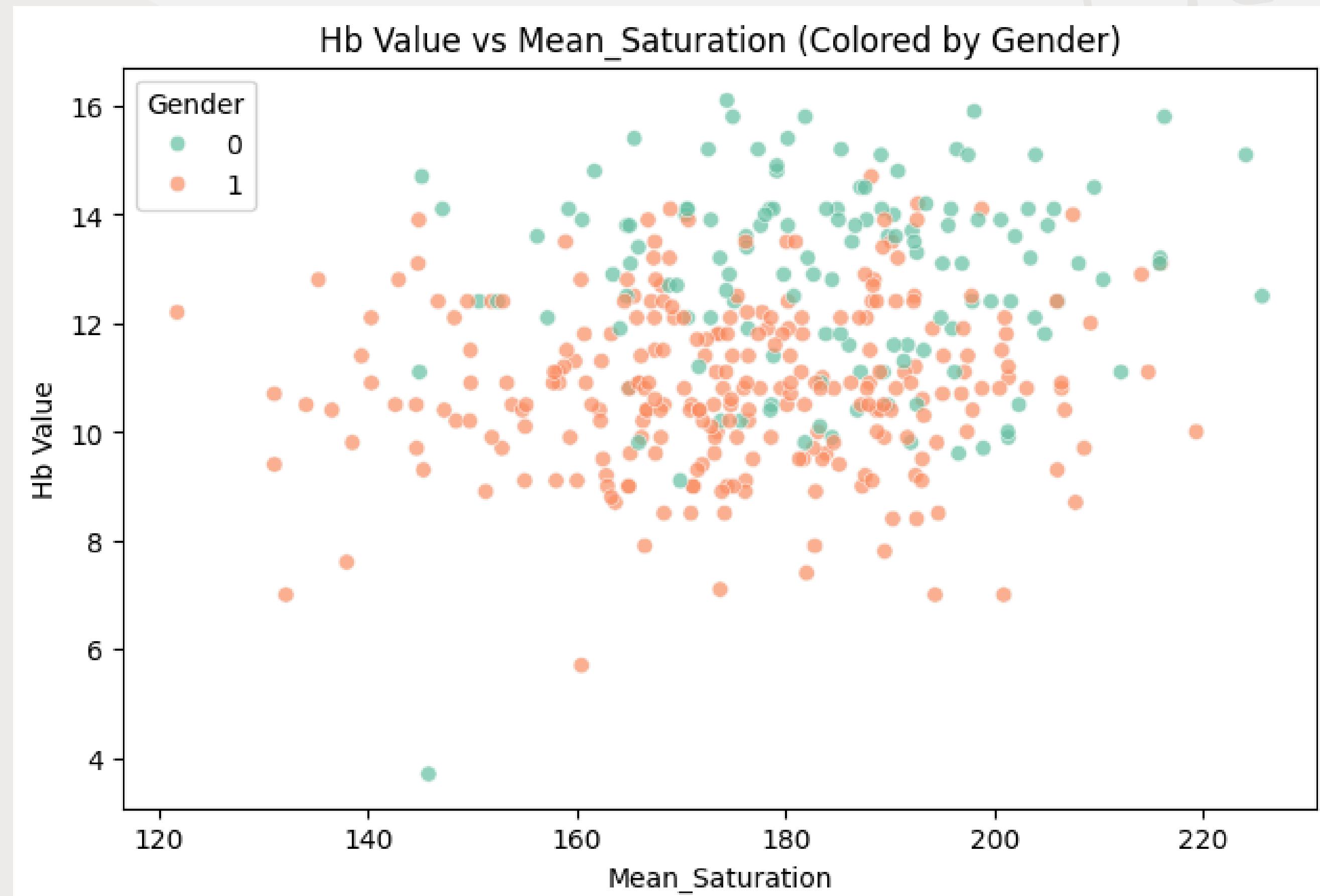
# EDA on Features



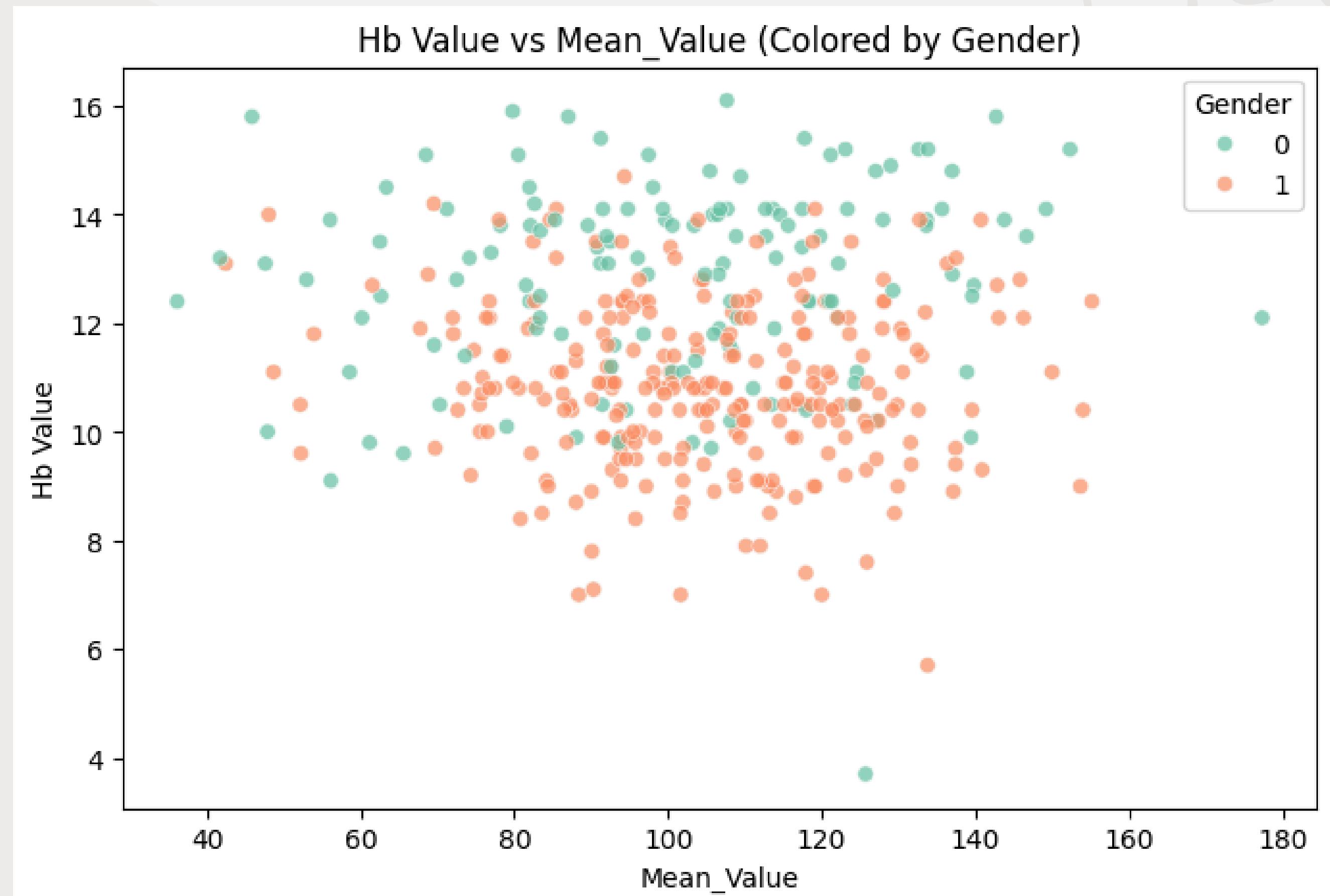
# EDA on Features



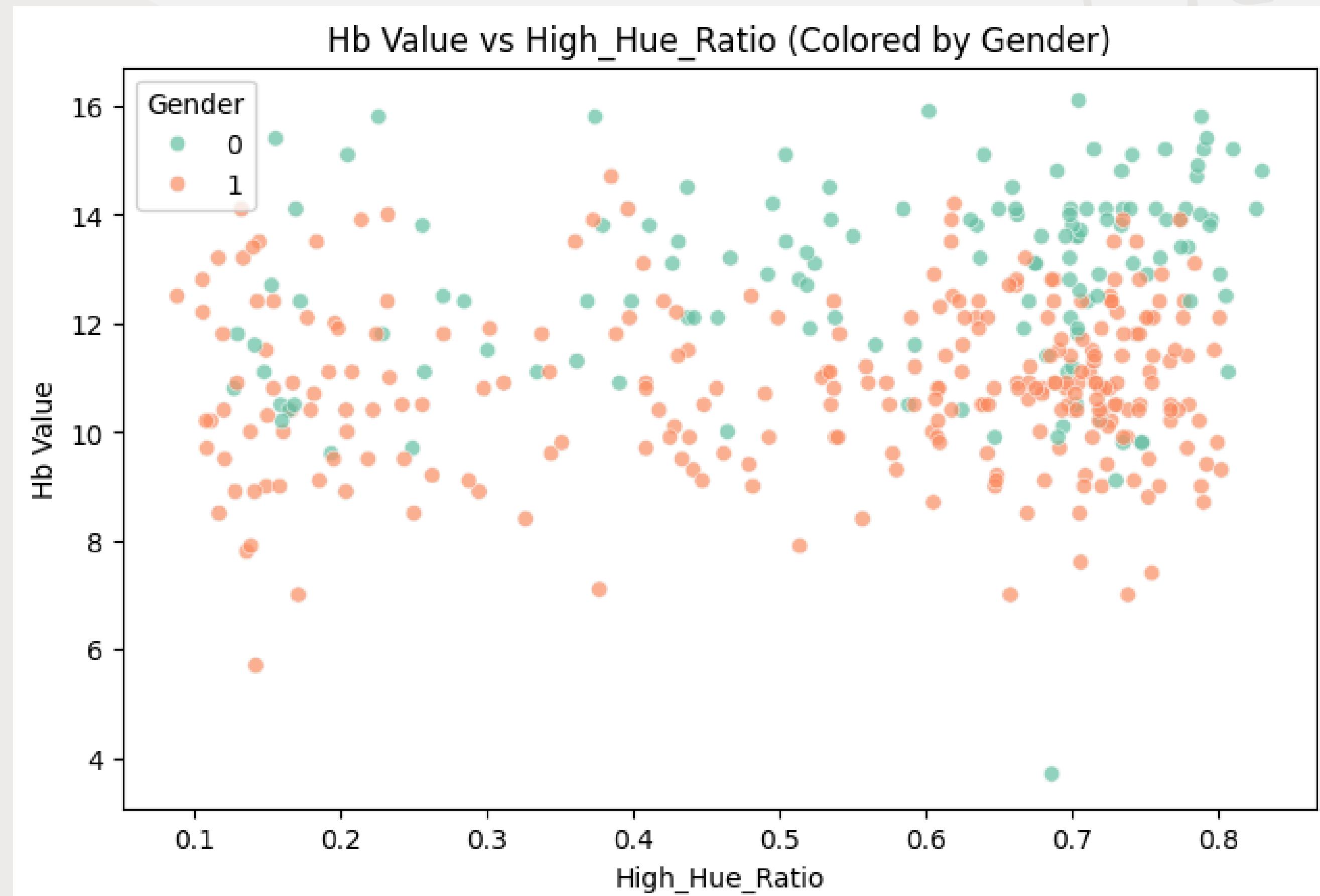
# EDA on Features



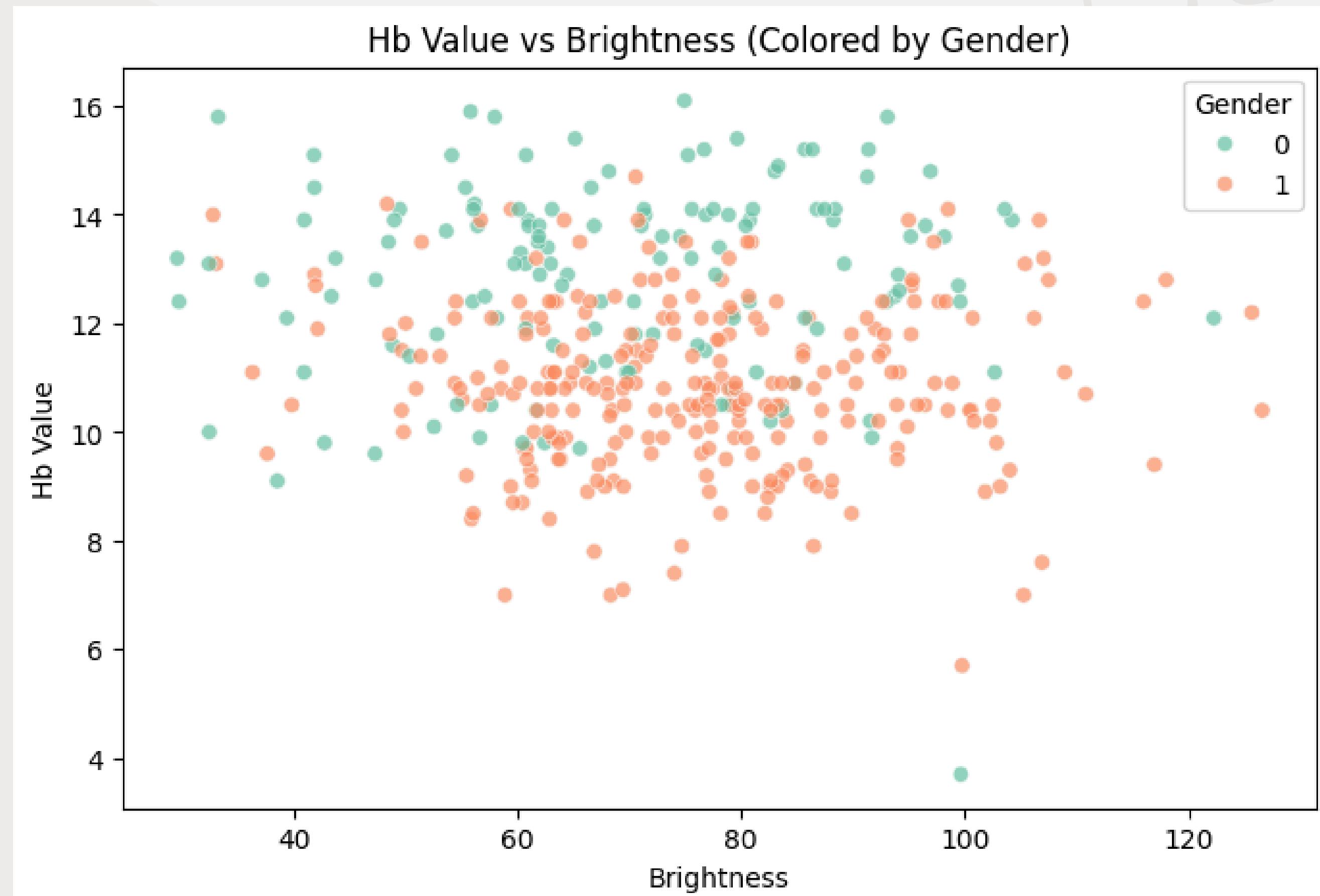
# EDA on Features



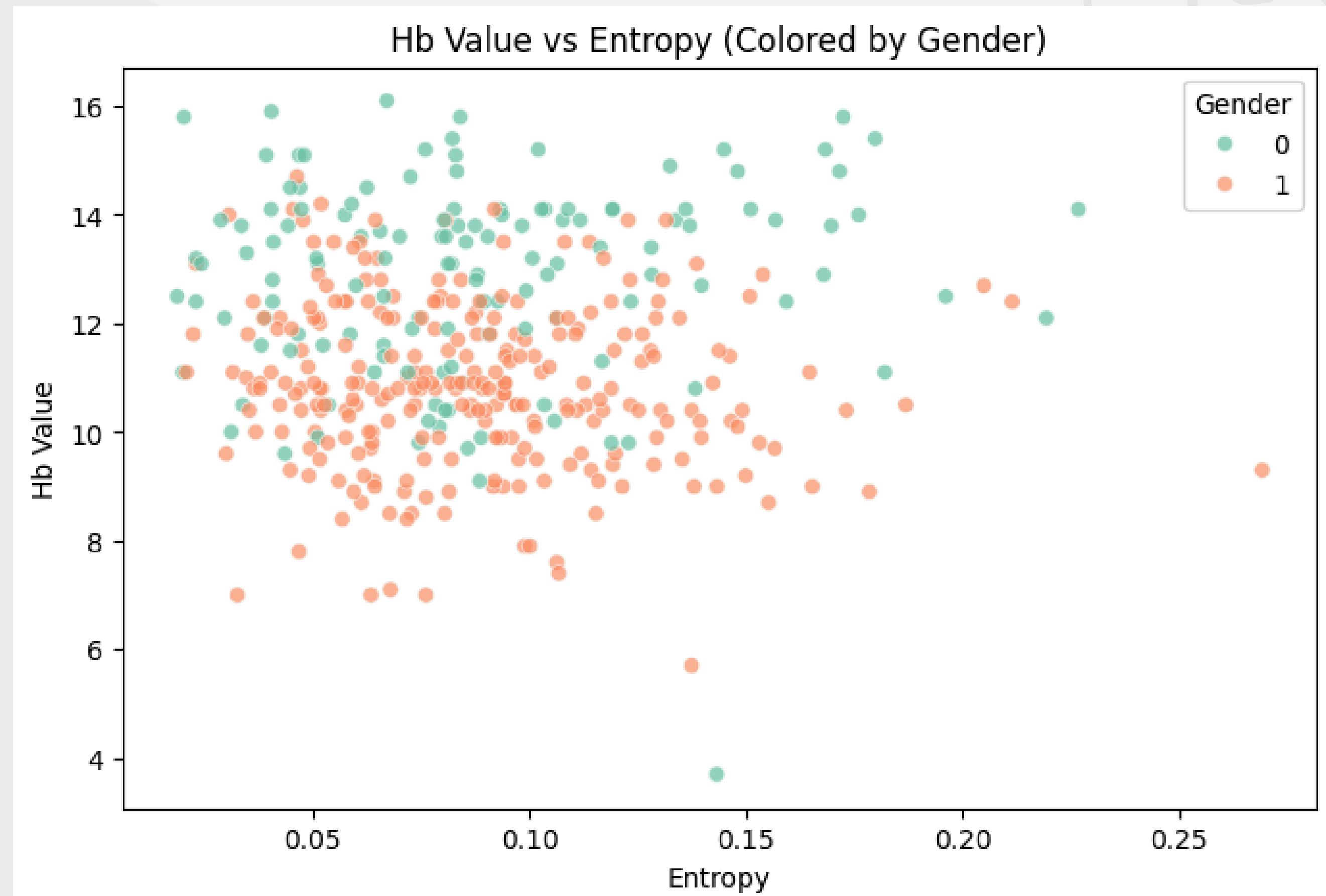
# EDA on Features



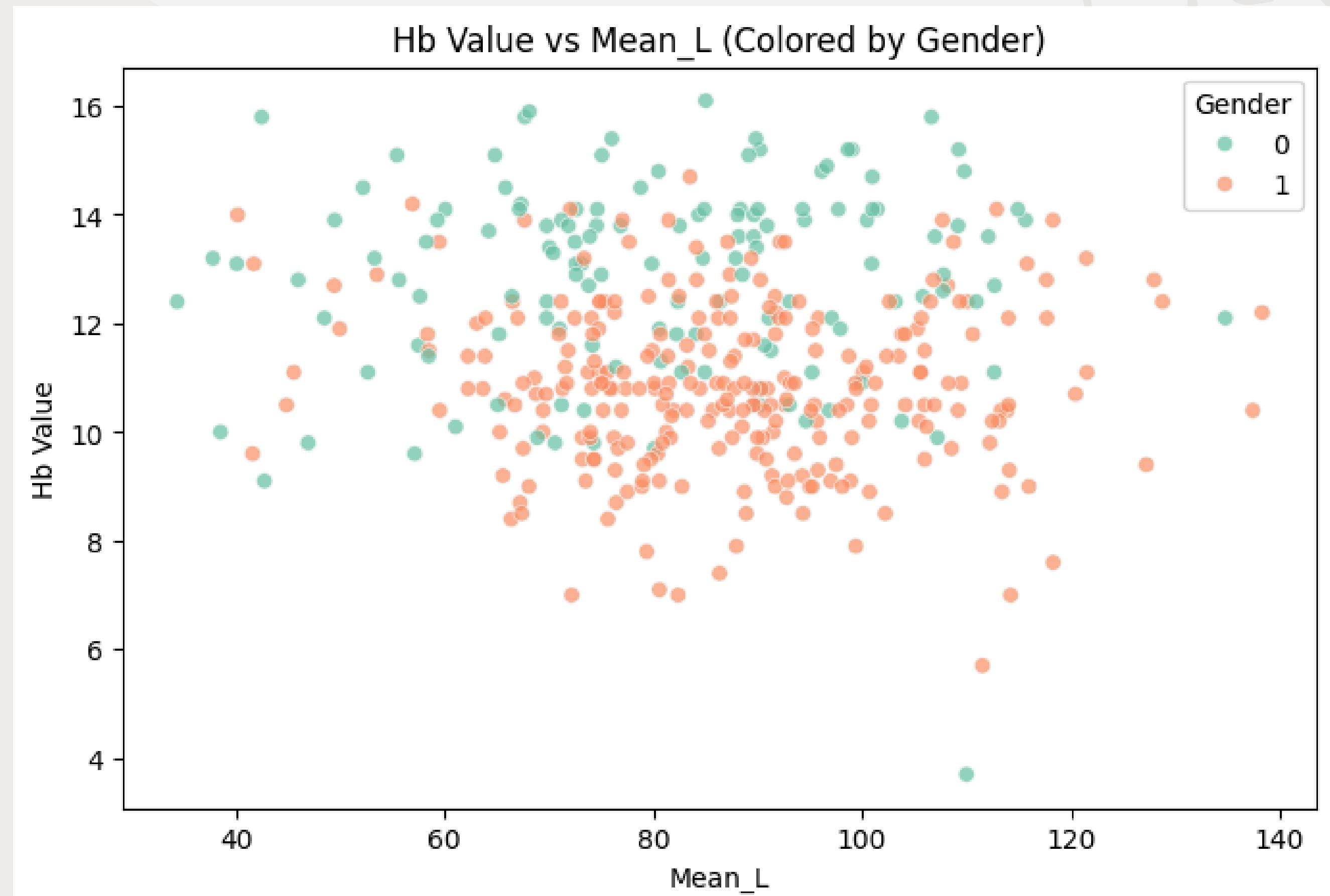
# EDA on Features



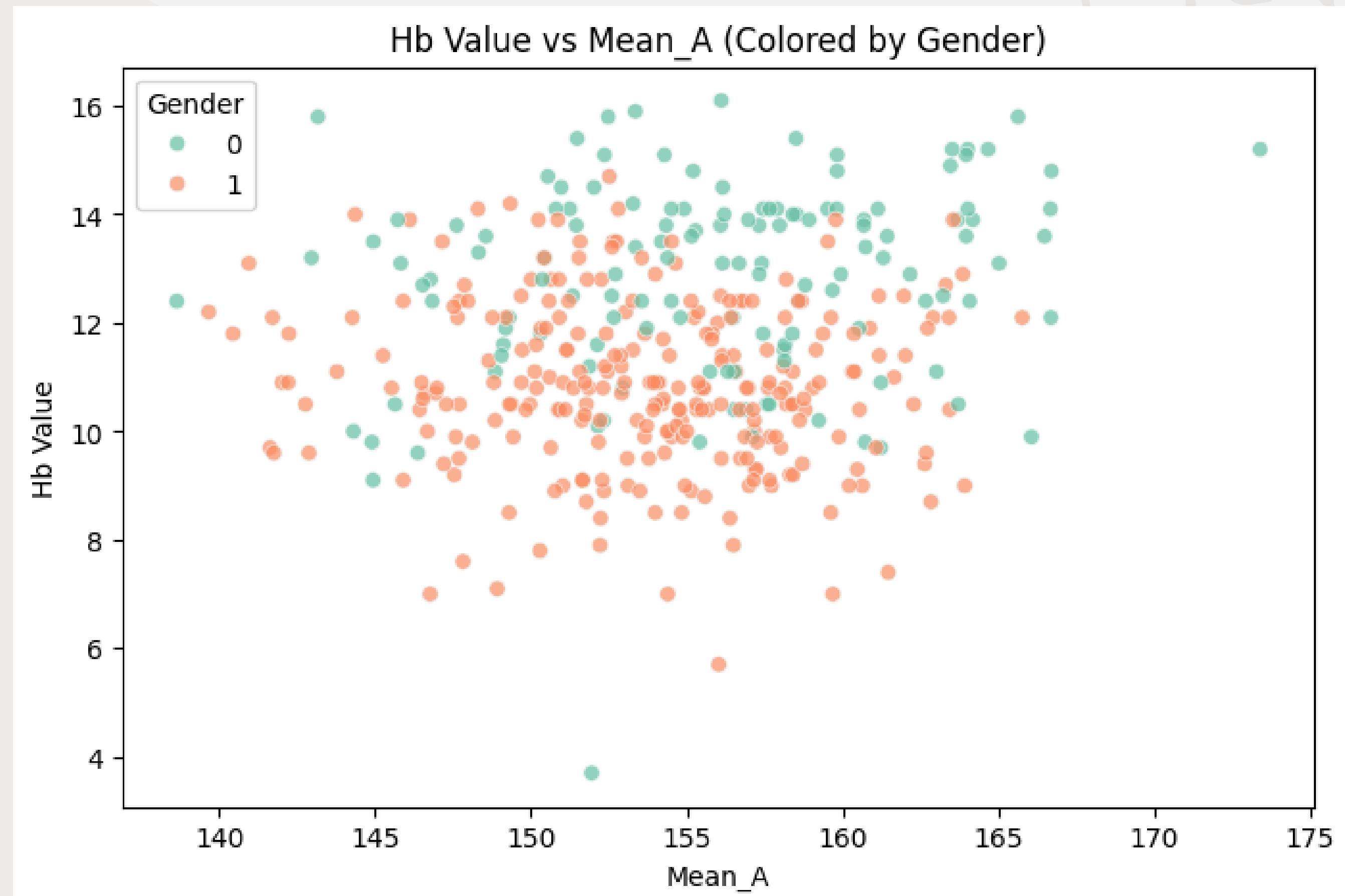
# EDA on Features



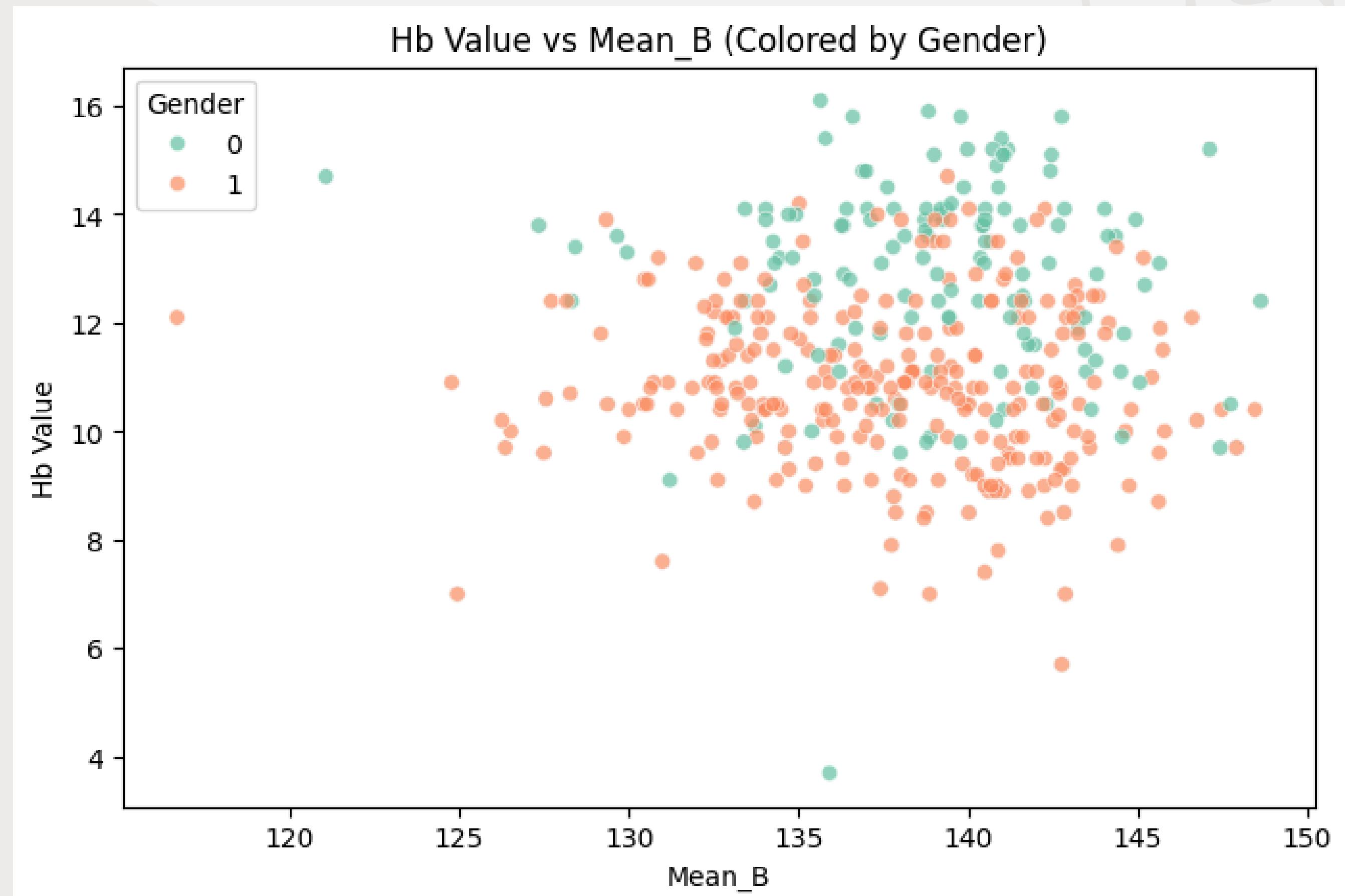
# EDA on Features



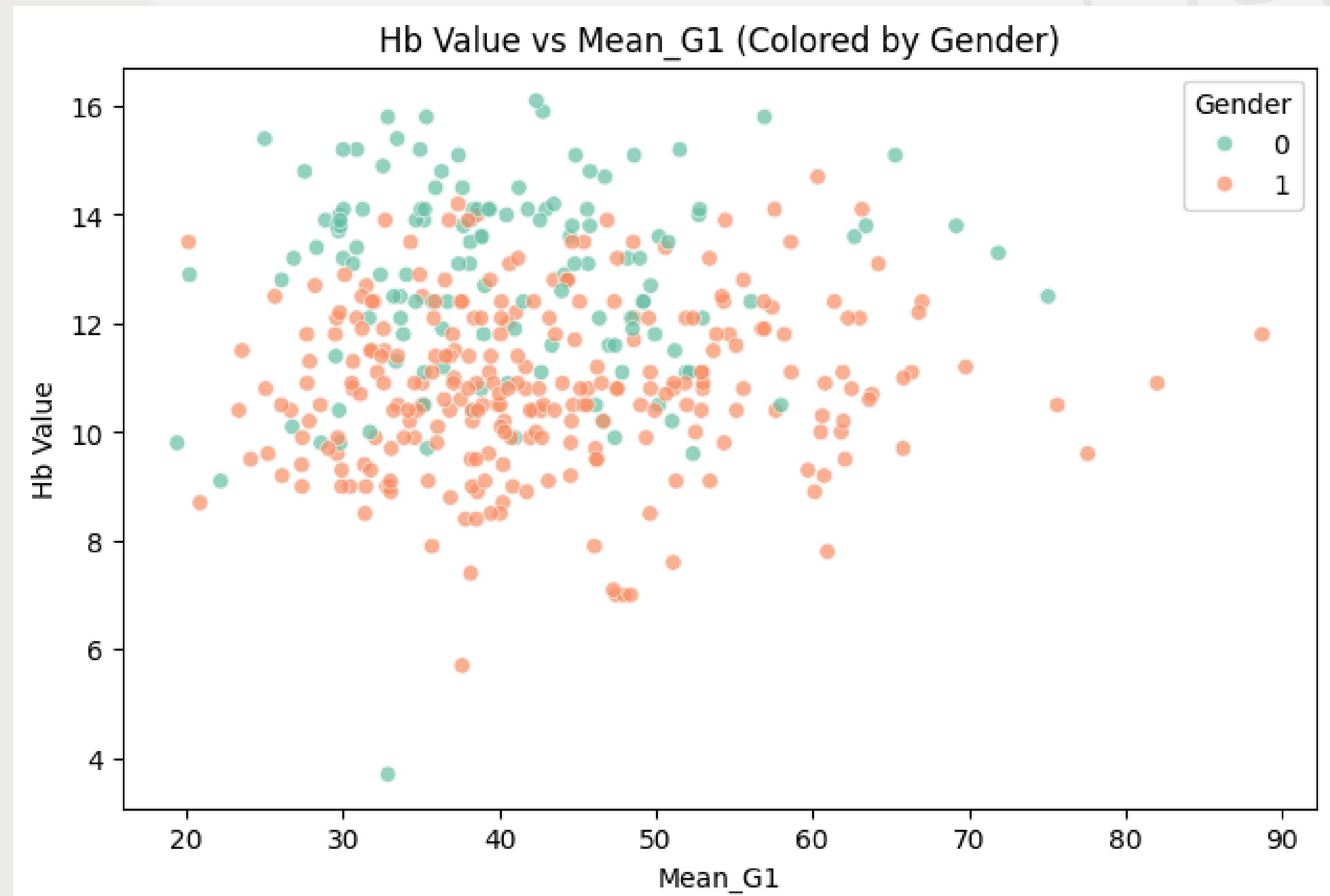
# EDA on Features



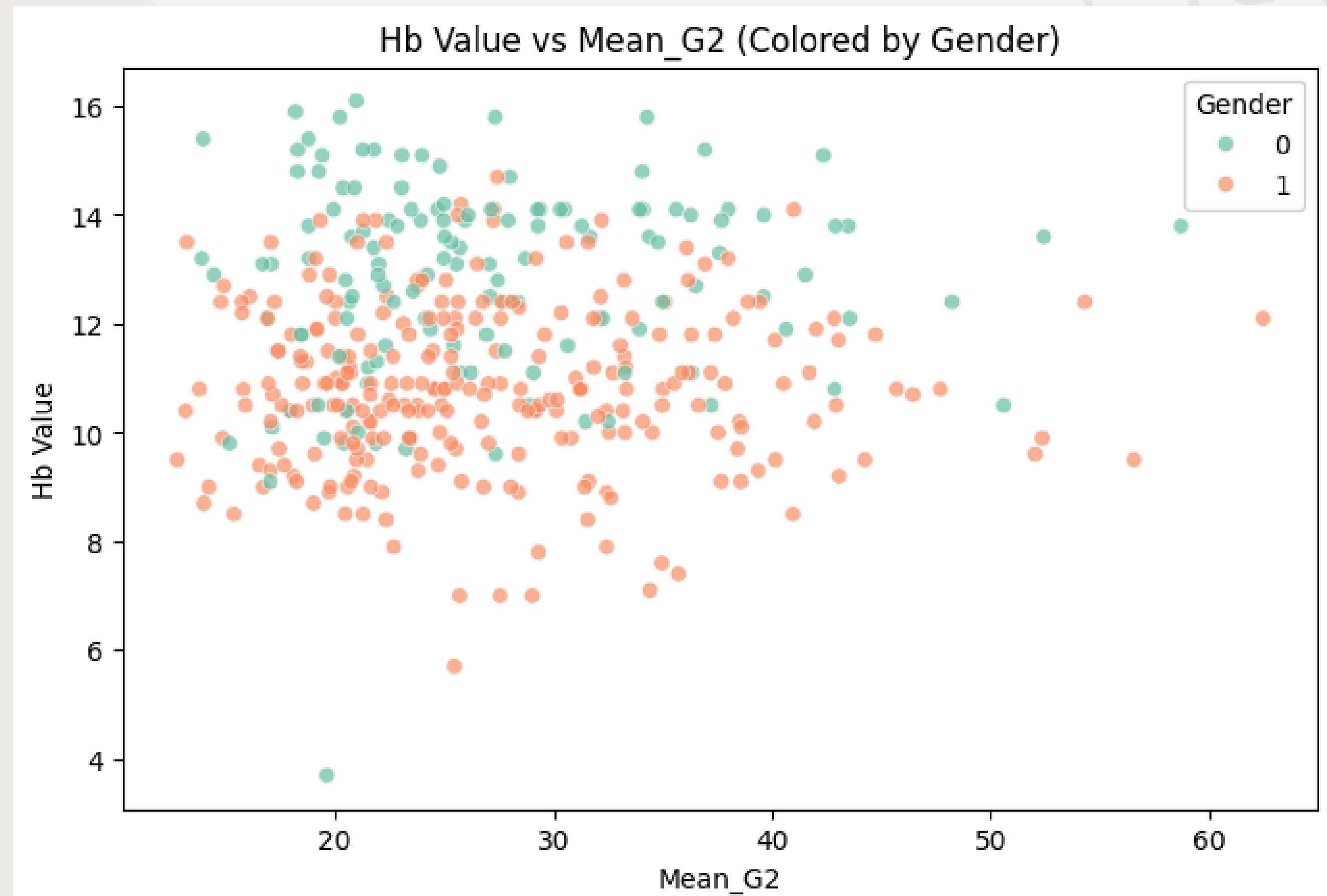
# EDA on Features



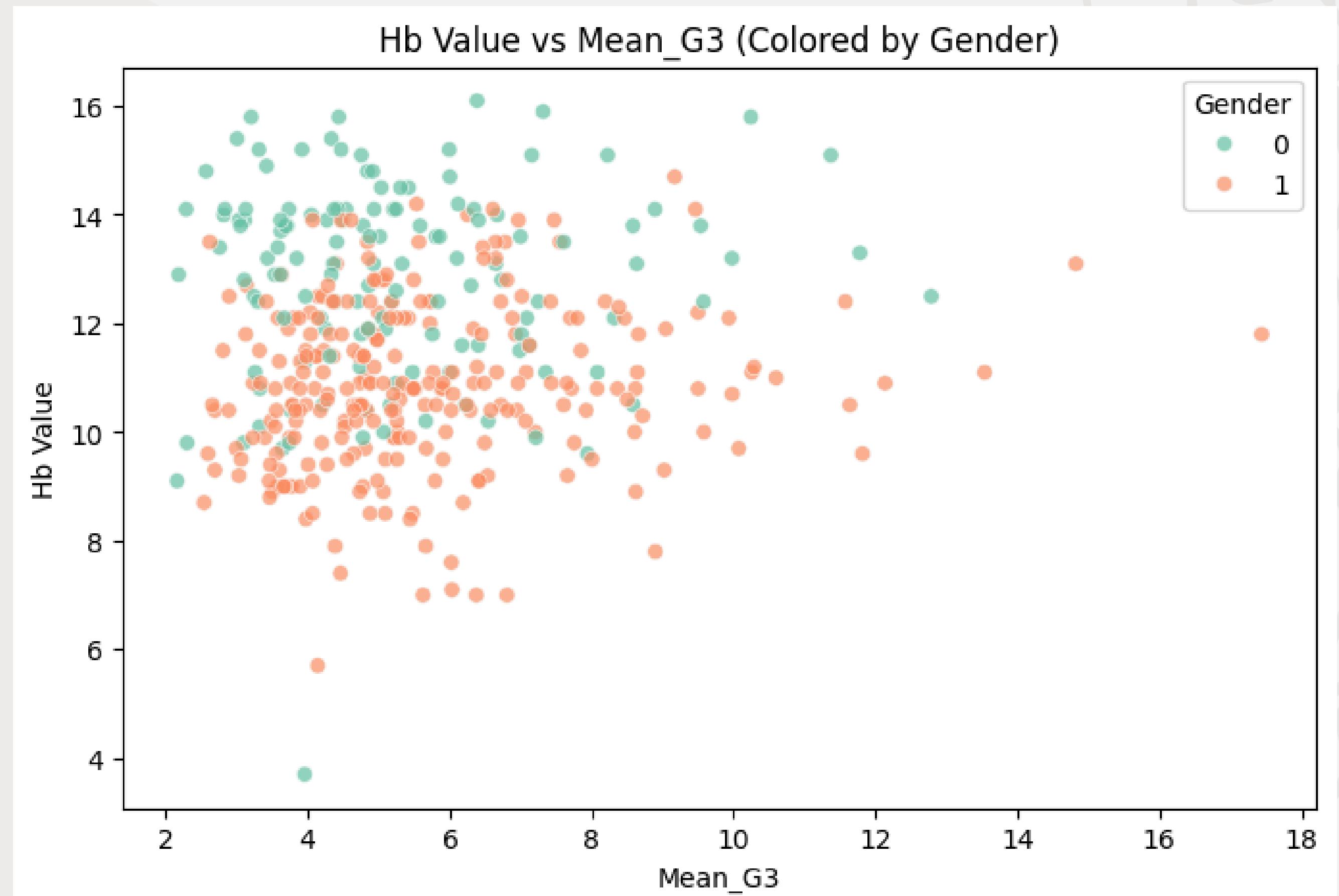
# EDA on Features



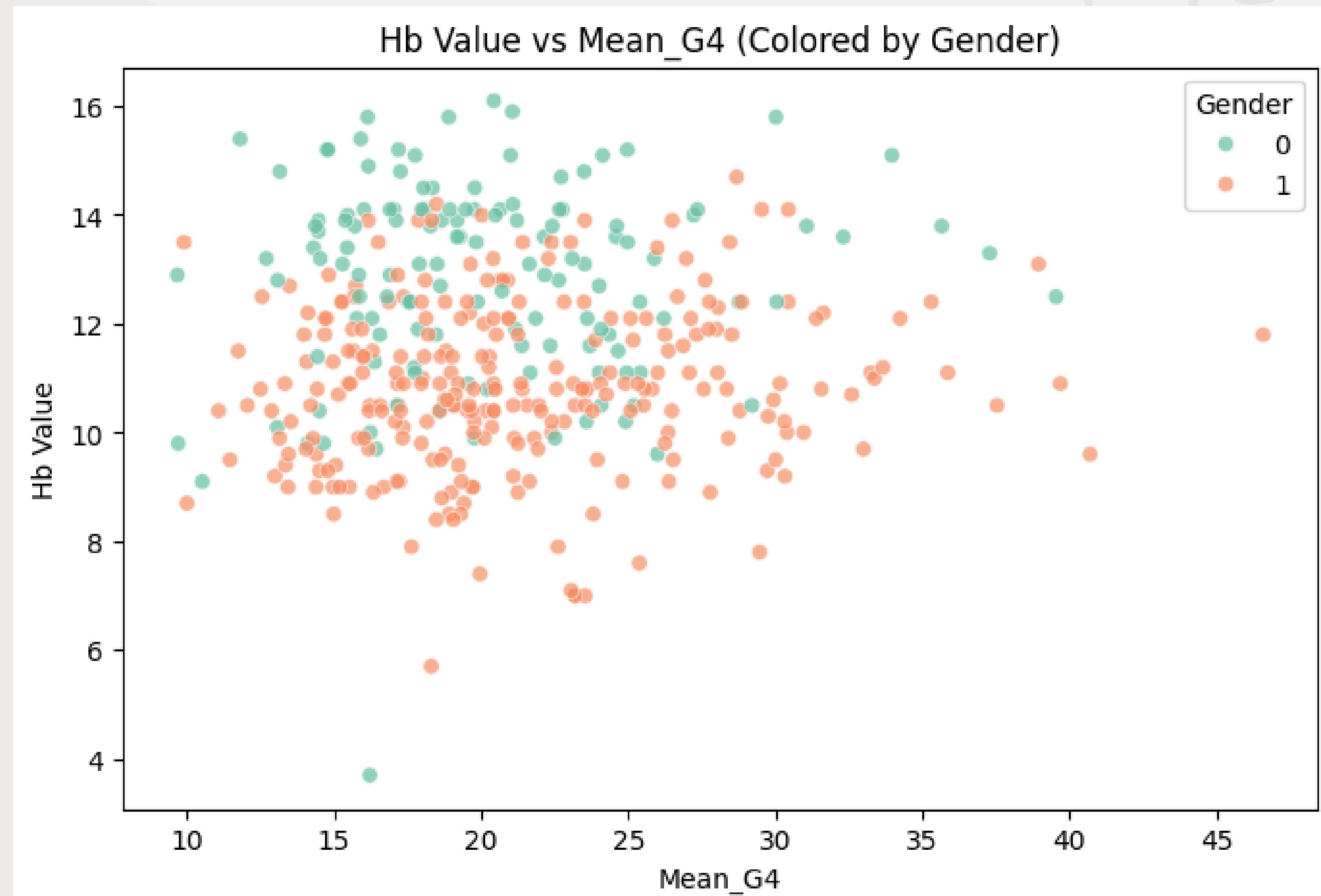
# EDA on Features



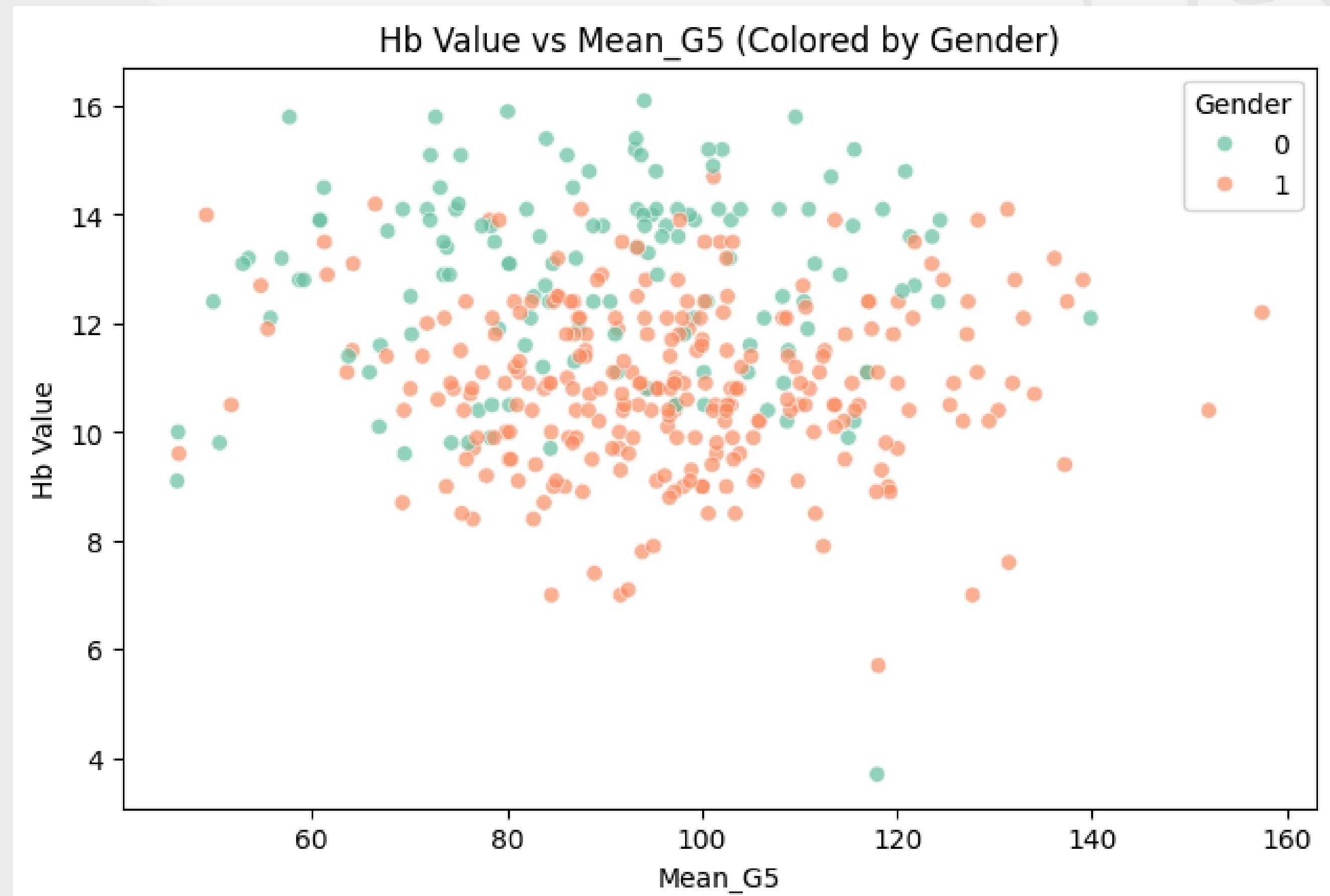
# EDA on Features



# EDA on Features

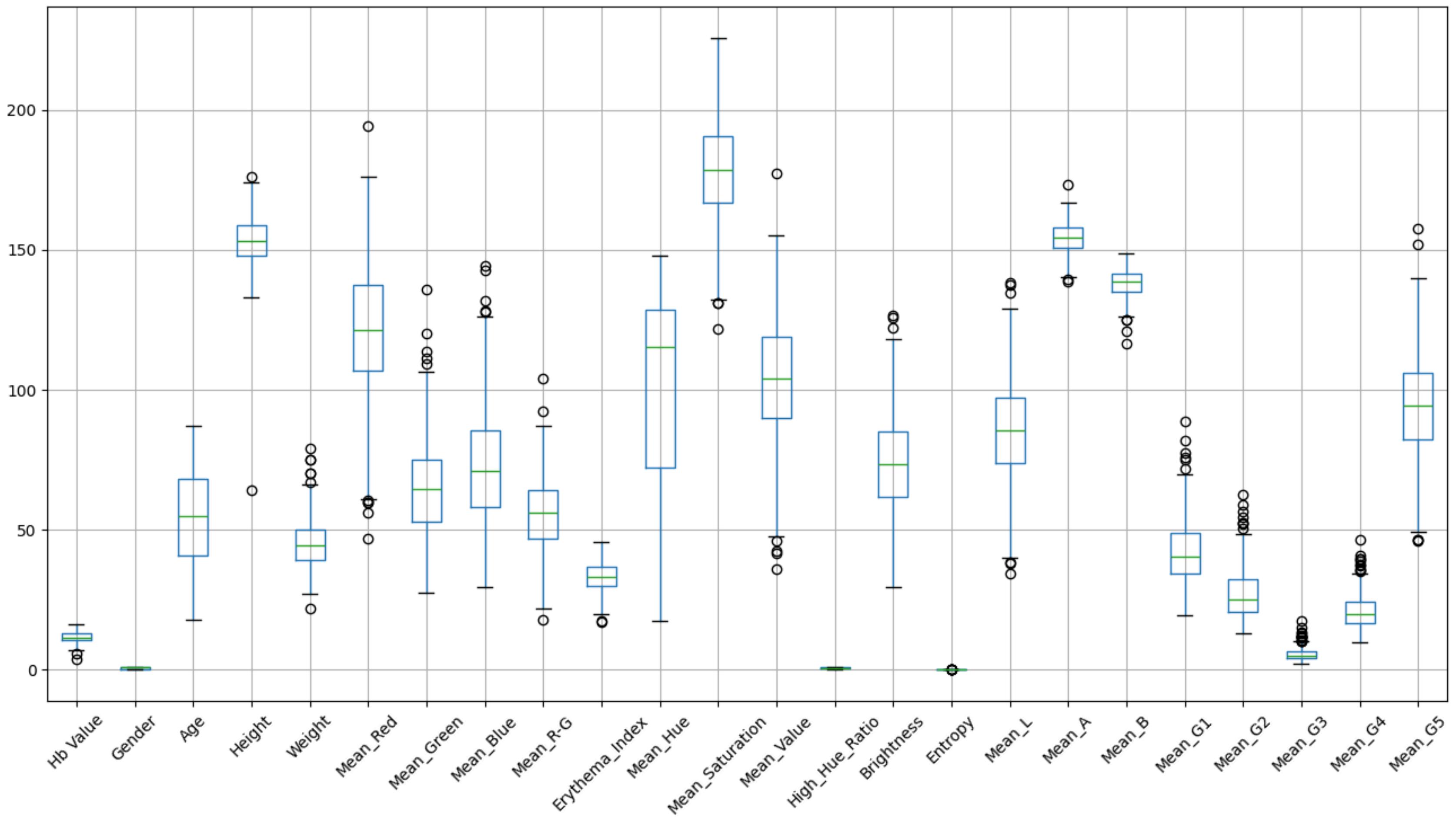


# EDA on Features

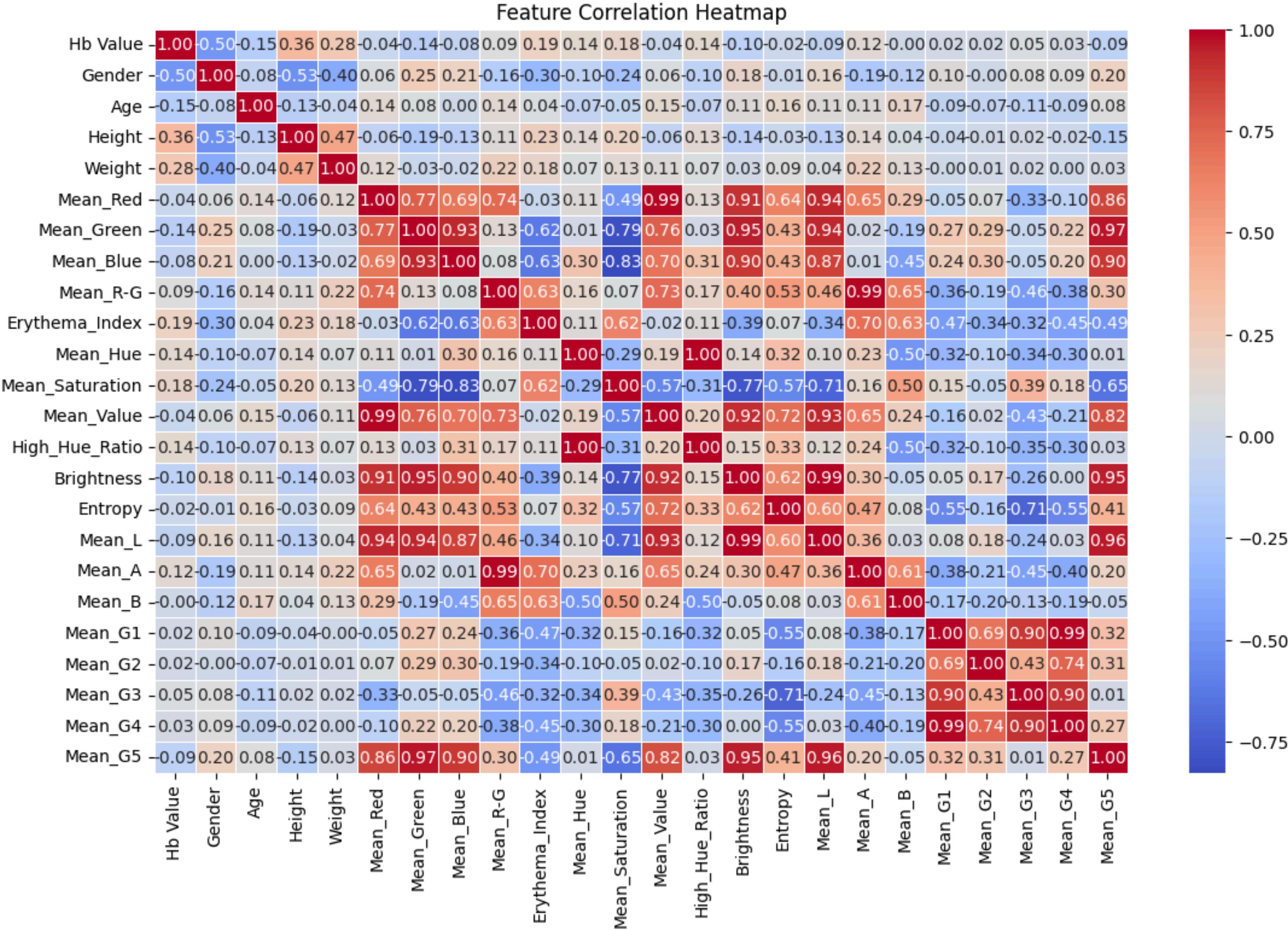


# EDA on Features

Feature Outlier Detection

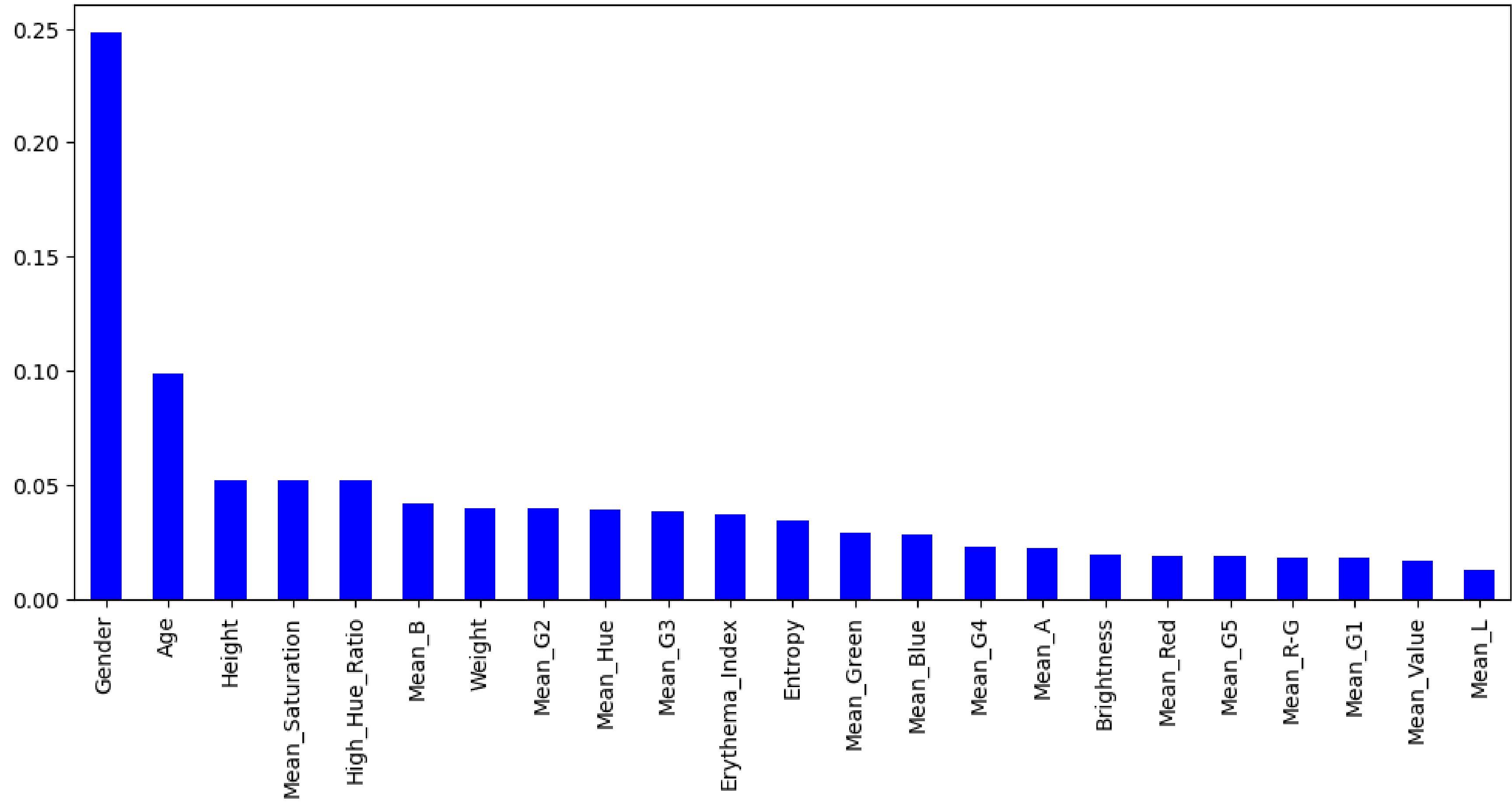


# Correlation



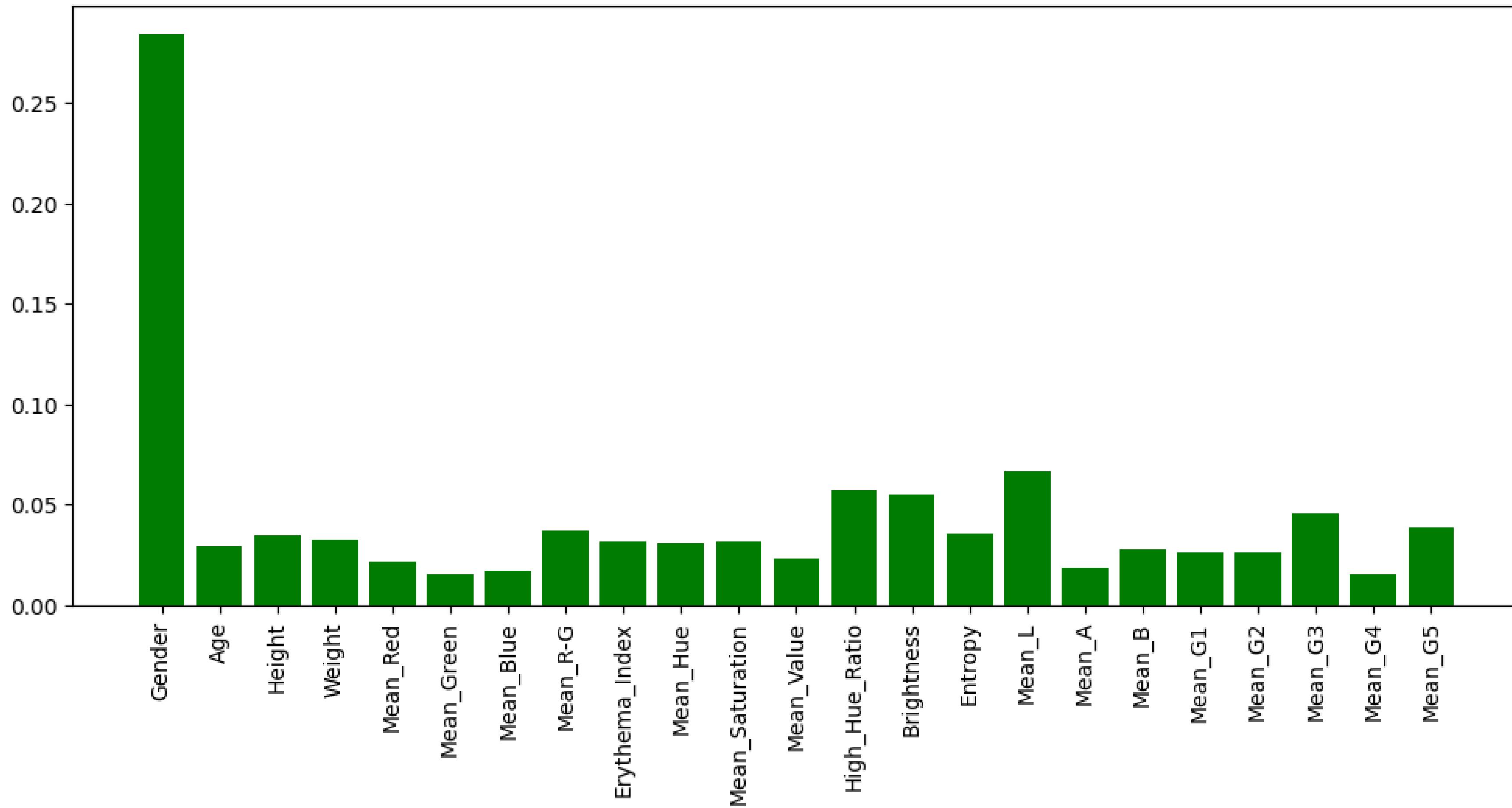
# Feature Importance

Feature Importance (Random Forest)



# Feature Importance

Feature Importance (XGBoost)



# Future Research

## RECOMMENDATION FOR NEXT RESEARCH

- Make model without using the color palette

Thank you