

## Lesson 31: PCA Dimensionality Reduction

Data Science with Python – BSc Course

45 Minutes

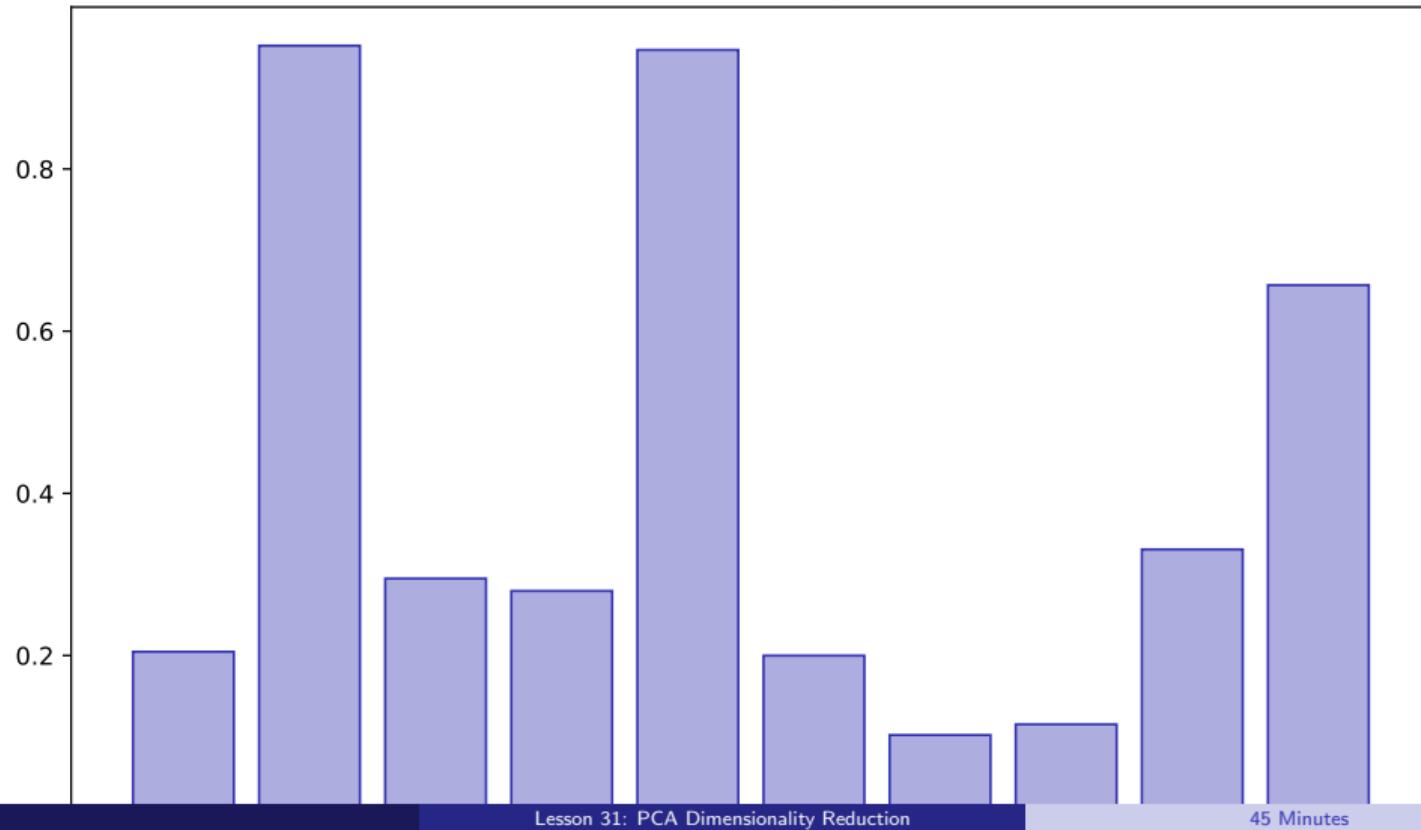
# Learning Objectives

**After this lesson, you will be able to:**

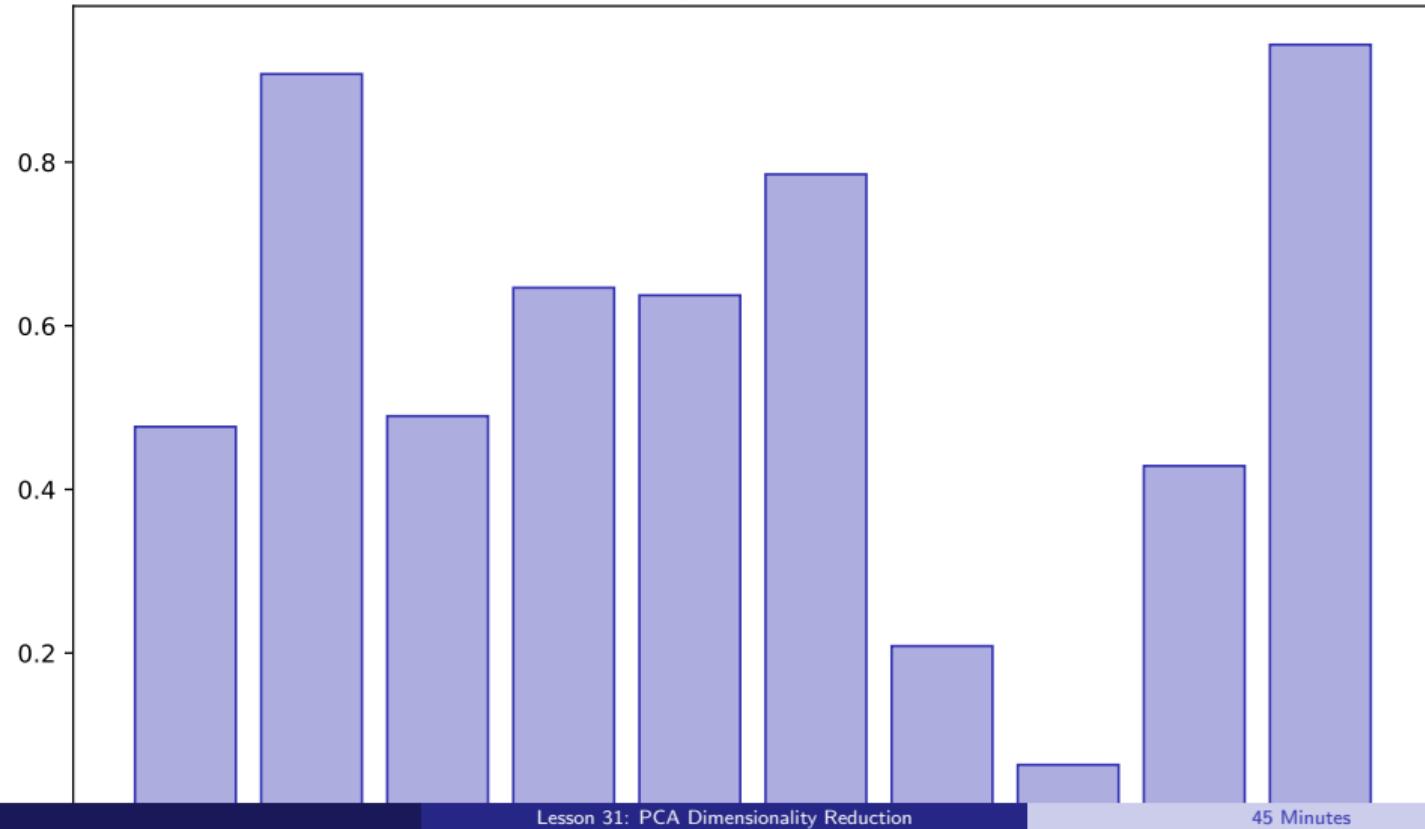
- Understand principal components
- Apply PCA with sklearn
- Interpret explained variance
- Reduce feature dimensions

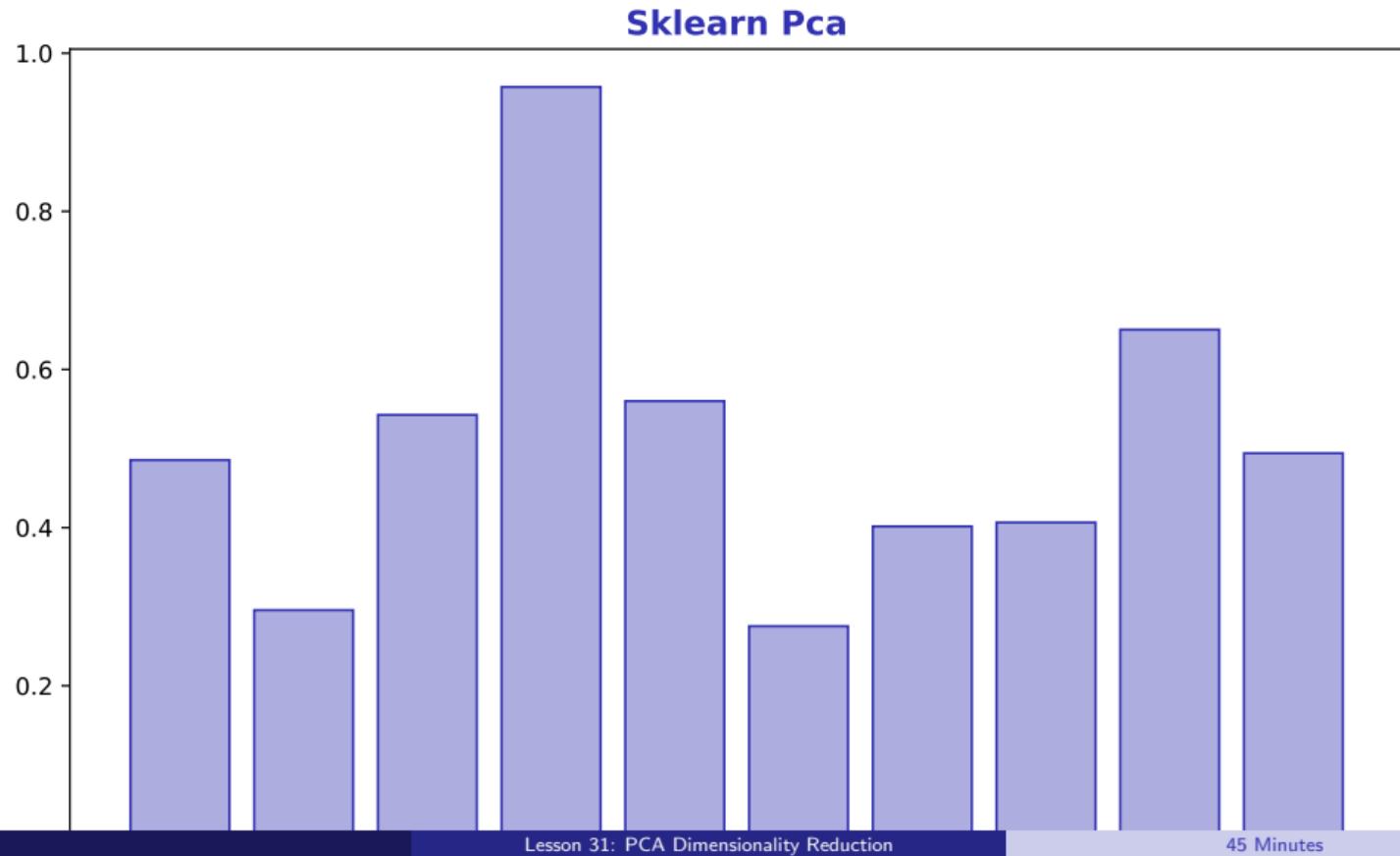
**Building towards your final project**

## Pca Concept

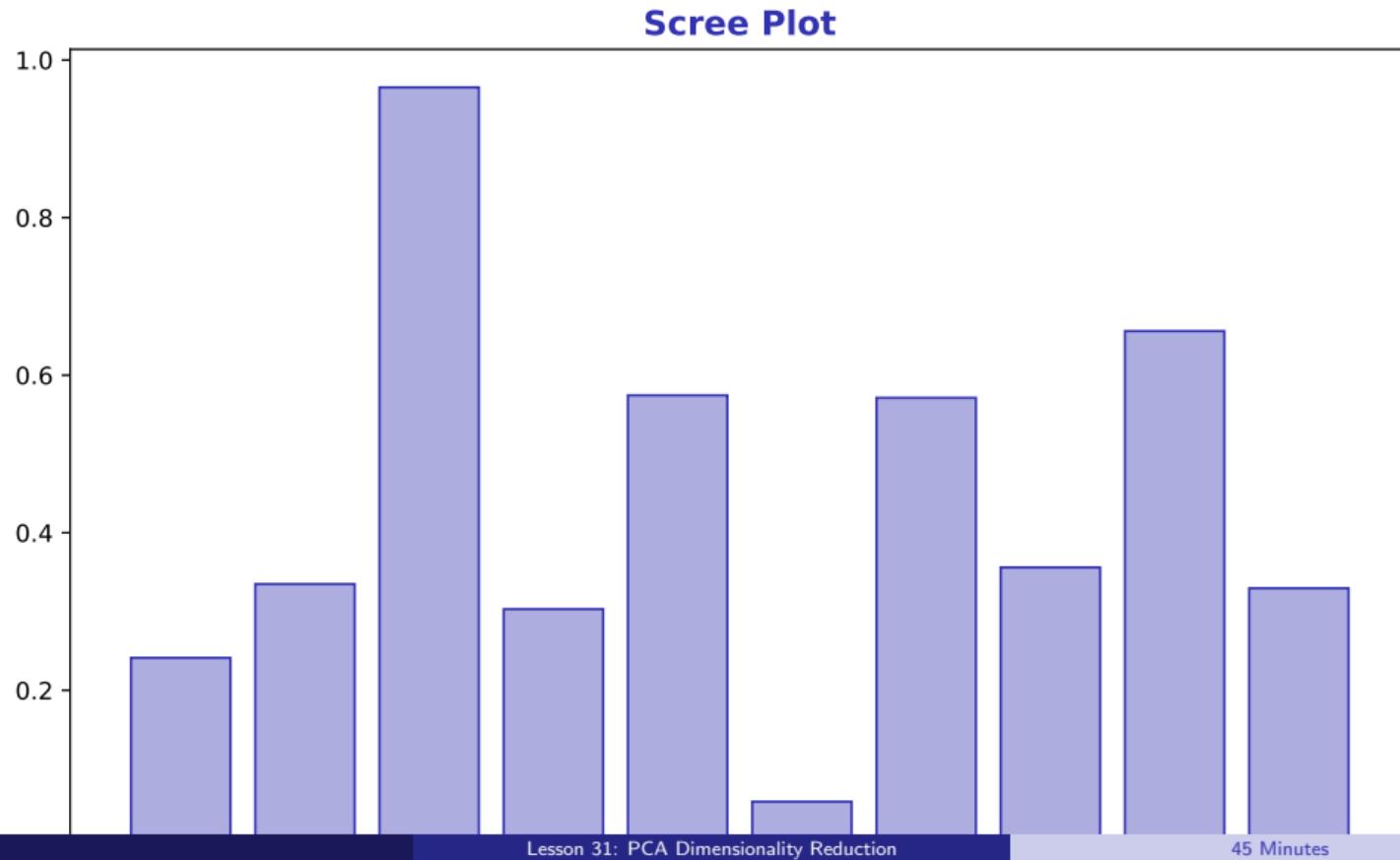


## Eigenvalues



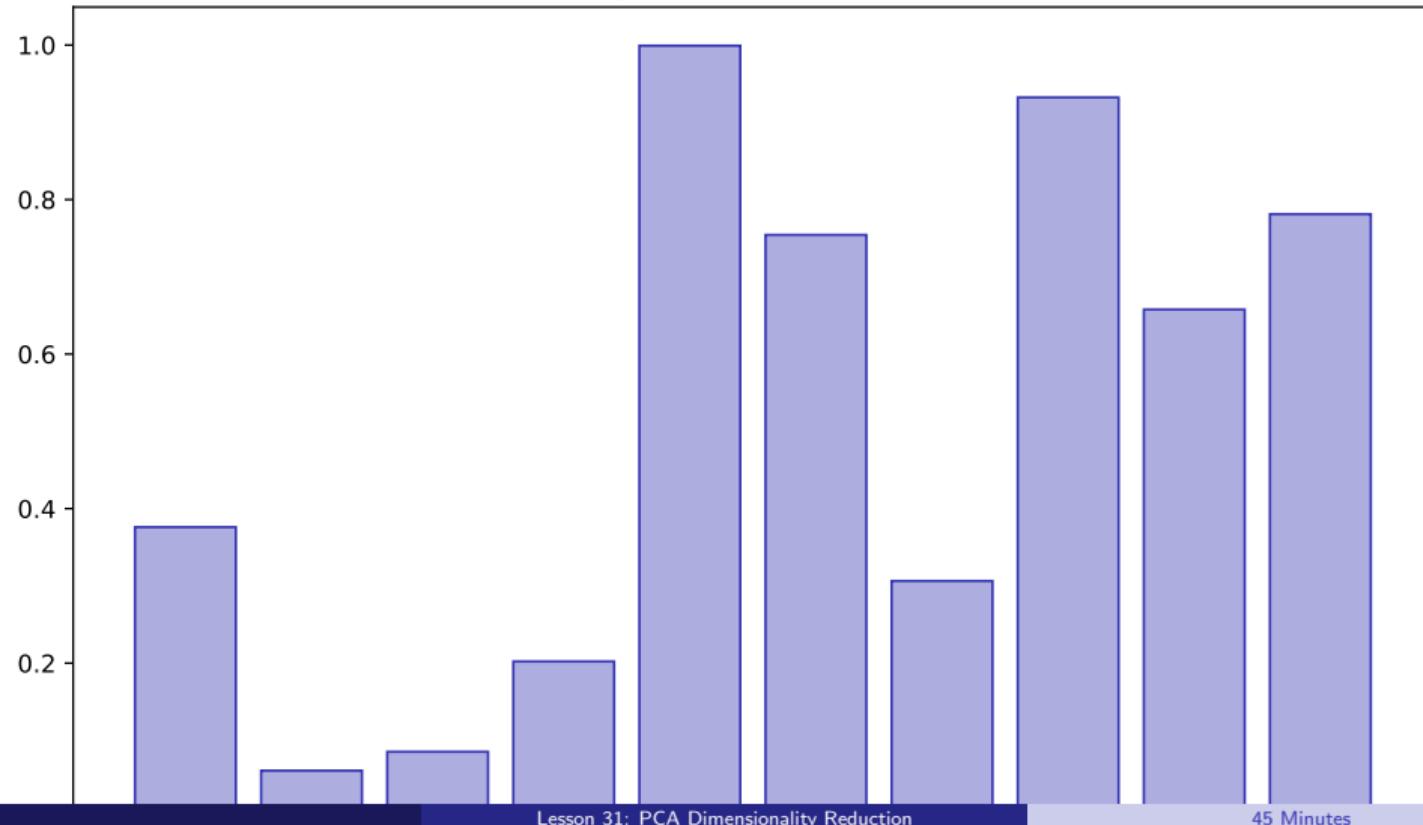


## Scree Plot

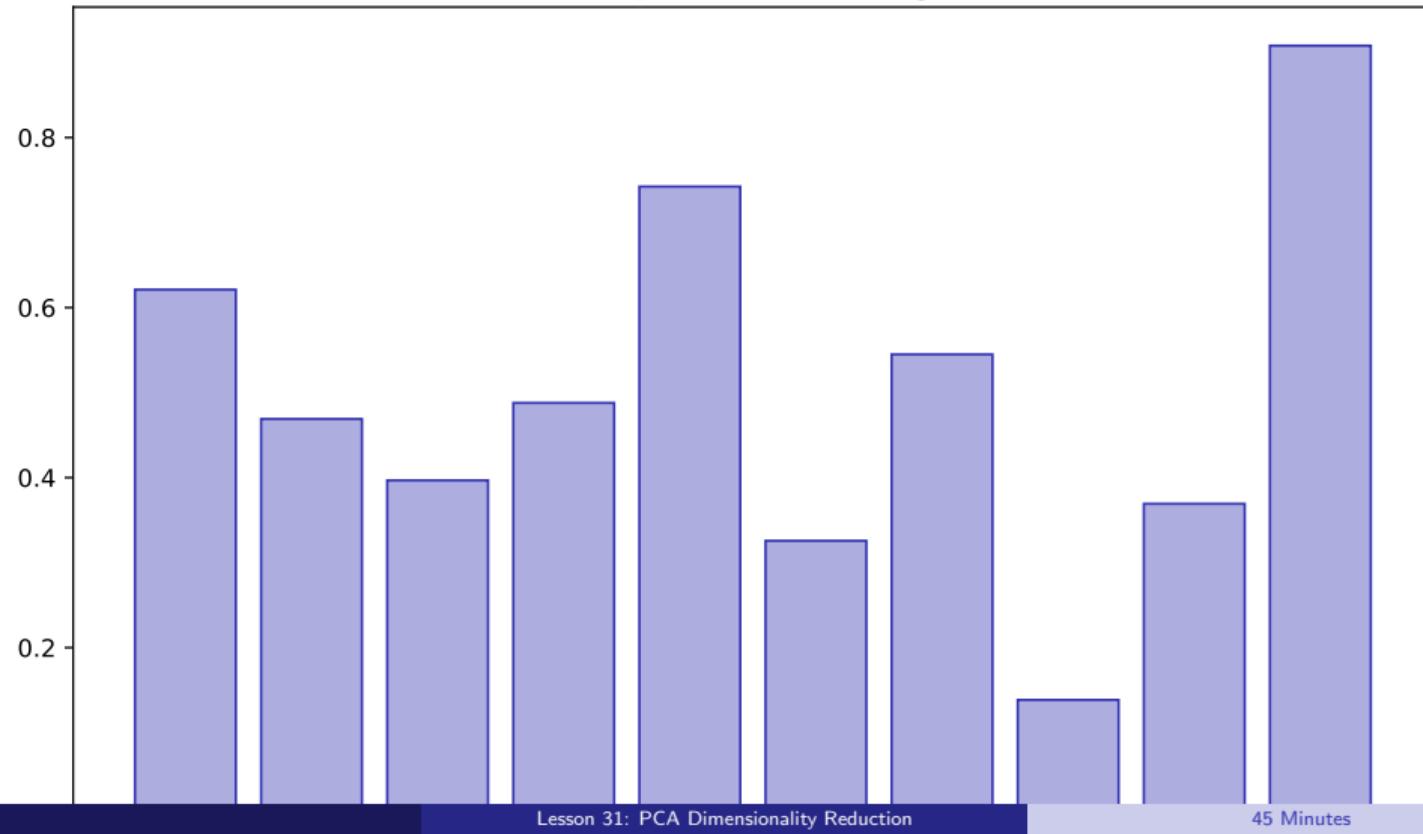


## Explained Variance

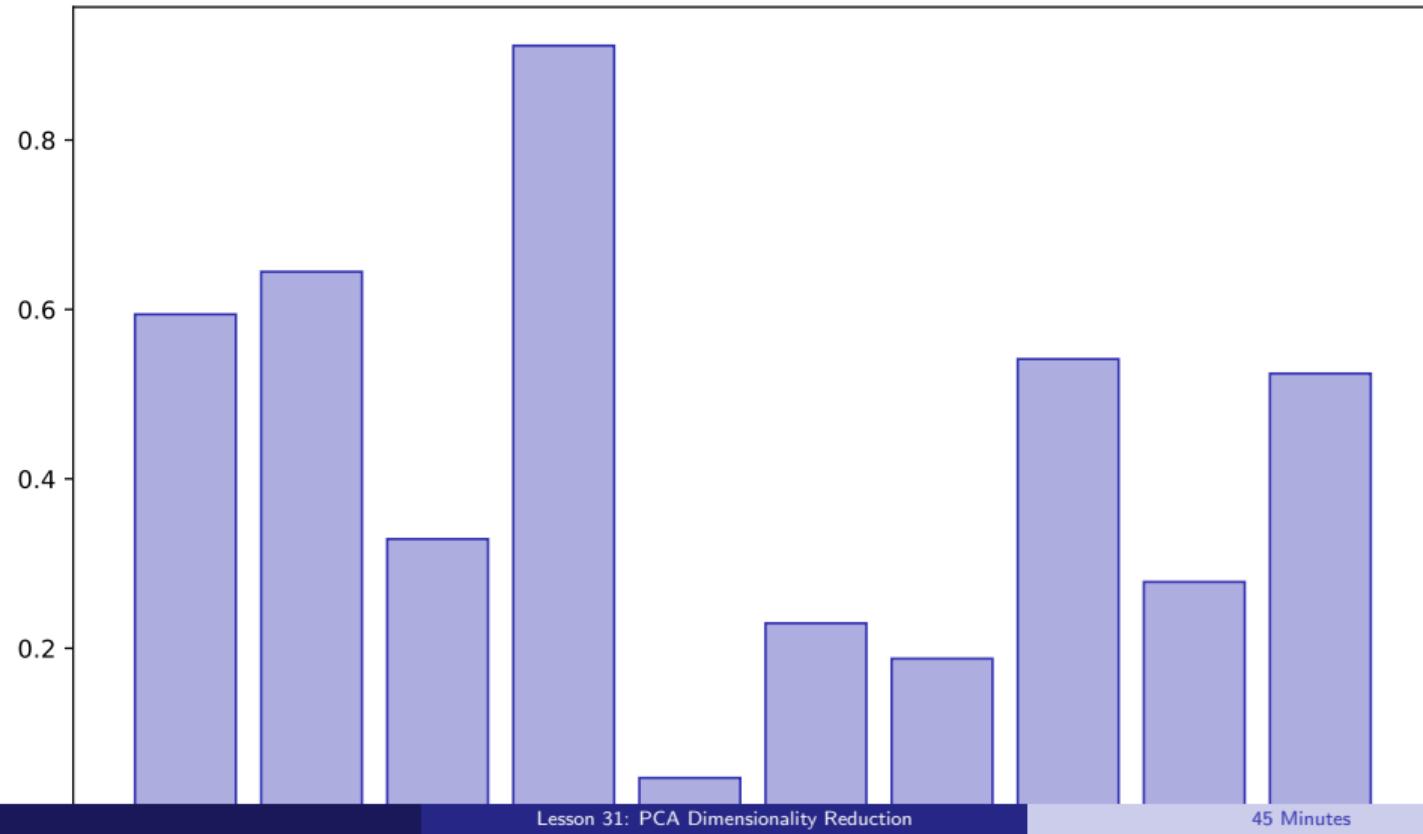
Explained Variance



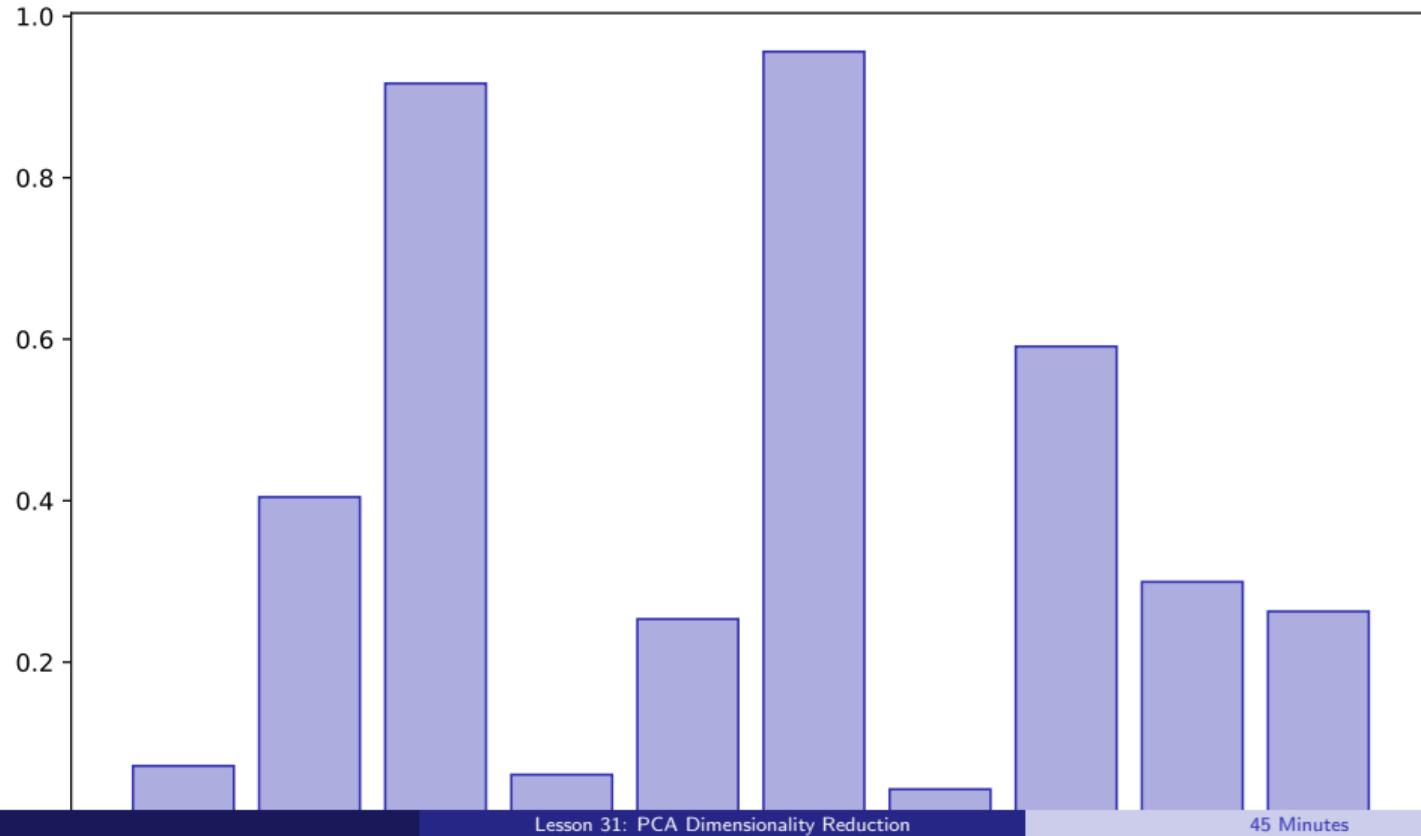
## Component Loadings



## Visualization



### Factor Extraction



# Lesson Summary

## Key Takeaways:

- Understand principal components
- Apply PCA with sklearn
- Interpret explained variance
- Reduce feature dimensions

Apply these skills in your final project