

# Elementary Selection

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# Motivation

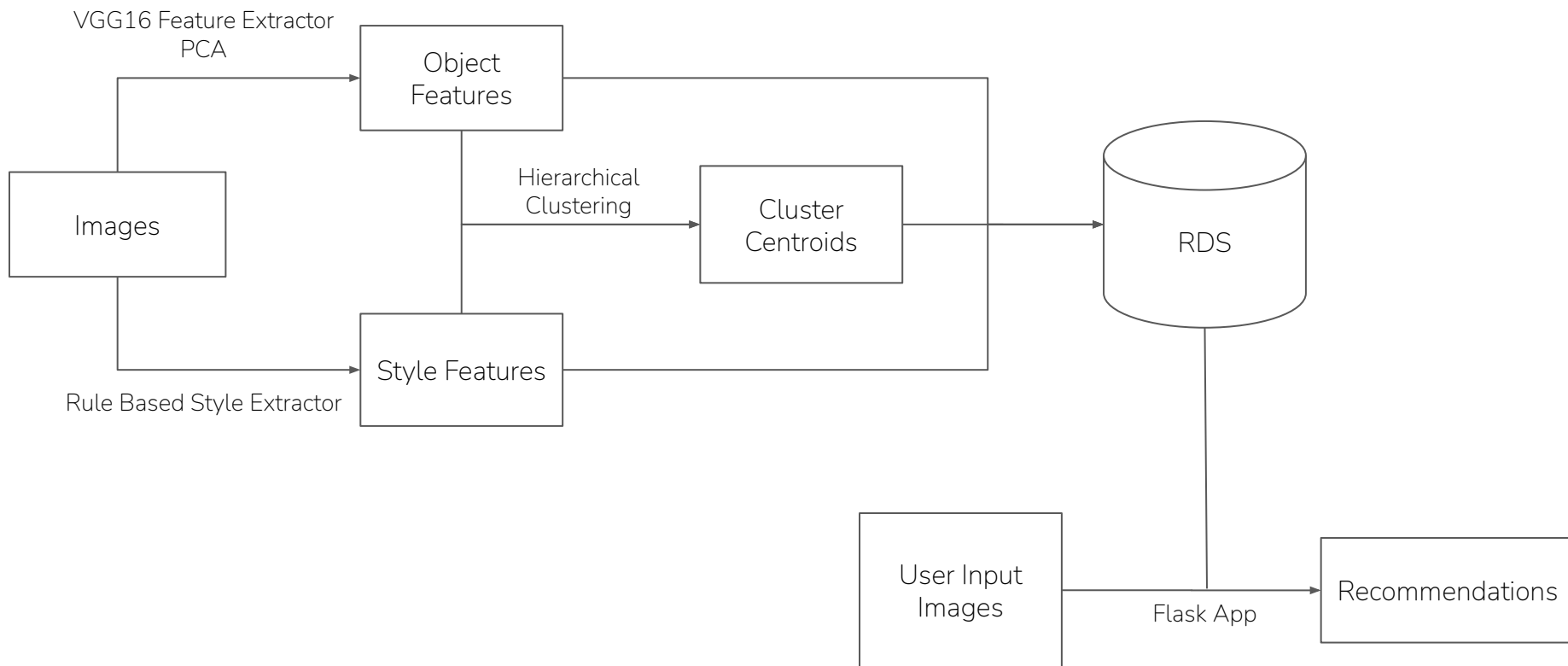
As a photographer,

I want my website to know what to recommend to my viewers.

And I want it to have an opinion on how I should organize my pictures.

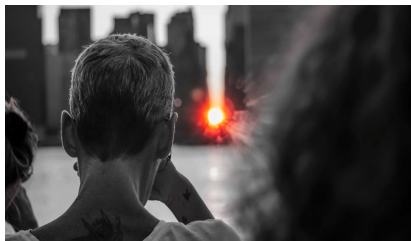
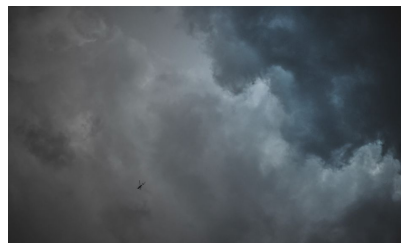
<https://elementarydeduction.com/>

# Solution [Elementary Recommendation System](#)



# Data

# My Pictures!



# Model

## VGG16:

- Pretrained feature extractor

## PCA:

- Dimension reduction for 4000+ VGG features

## Hierarchical Clustering:

- Small data size
- Kmean have biases towards same size clusters

## Evaluation:

- Iterate different:
  - Extraction layers
  - VGG model config
  - Cluster number
  - PCA dimension
  - Style feature weight
- Use **silhouette score** as well as **human judgement** to find the best solution for this specific picture set.

# Insight

Breaking down a picture into **multiple dimensions** usually gives us new findings. Further breaking down the picture features might yield more interesting results!

Thank you!

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