

# “Visual Searching” Using Image Segmentation and Google’s Vision API

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A dark blue diagonal gradient bar that starts from the bottom left corner and extends towards the top right corner, covering the lower half of the slide.

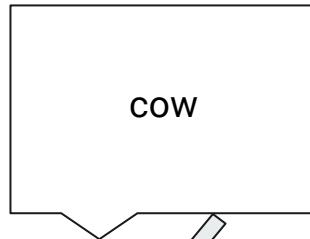
# From Our Project Proposal

- Receive an image from the user
- Receive a query from the user of something in the image (ideally)
- Perform image segmentation on the image and split it up into smaller components
- Feed each component into the Google API to see if the topic of the query is in the image
- If it is in the image, return the part of the image where it exists; otherwise, print a brief message

## 1. Input:



## 2. Query



## 3. Output



# Motivation



- Open-ended
- Practical
- Many new skills
- Covers many different topics
  - Different types of image segmentation
  - Working with the Google API
  - Interface!

# Challenges and Changes

- Using C#
  - Trouble creating image segmentation and communicating with the Google API
- Splitting up images using Laplacian edge detection
- Edge detection vs. K-means clustering
- Building an interface

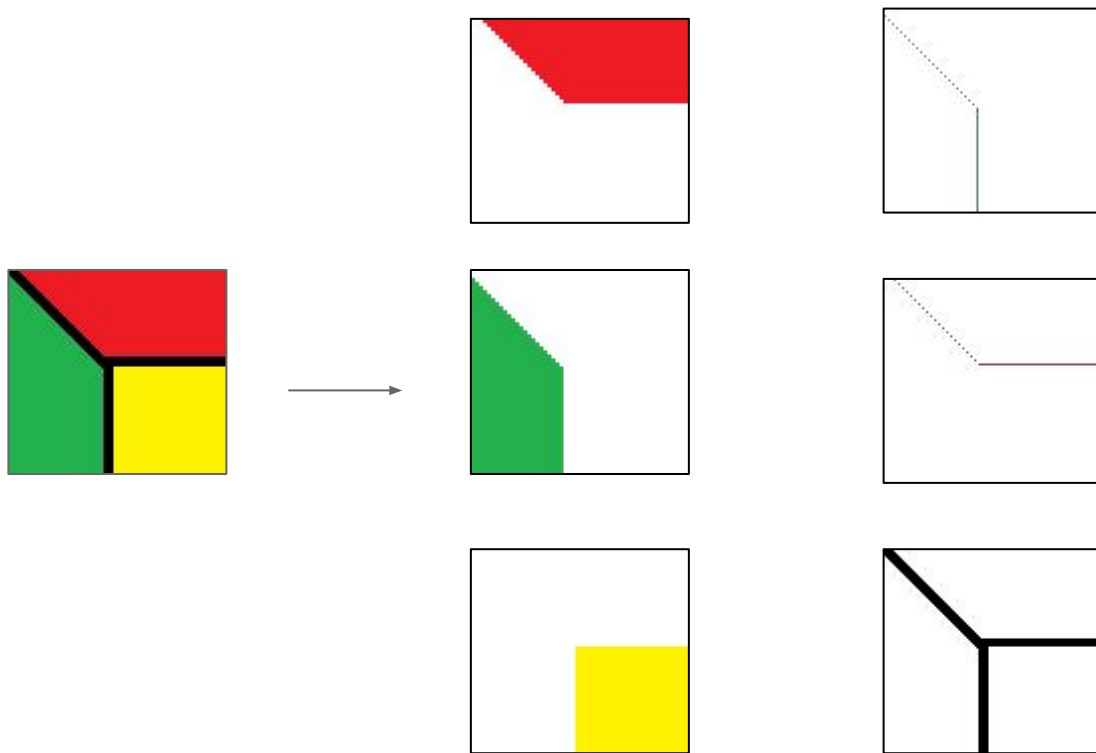
# What Did We Learn?

- How to use C#
  - Manipulating directories
- Communicating with the Google Vision API
- Different types of image segmentation and their implementations
- Making interface



Don't use rm on  
the wrong file!

# K-Means Clustering

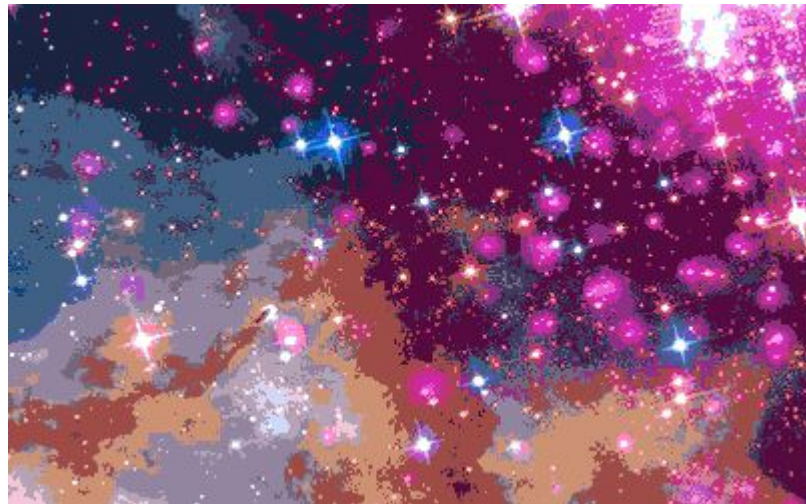


# K-Means Clustering continued

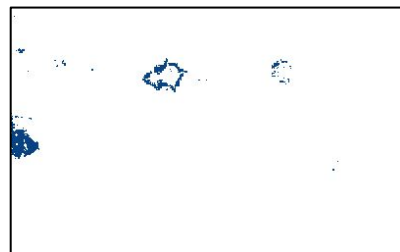
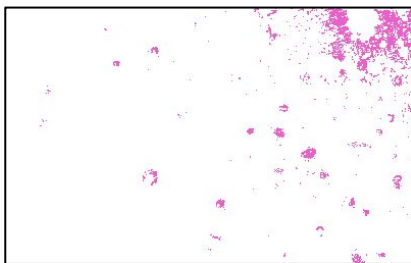
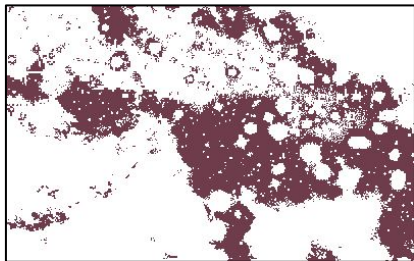
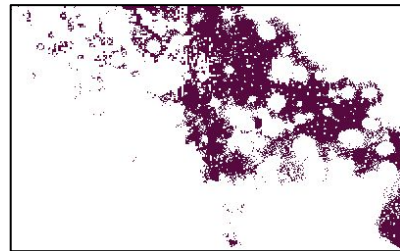
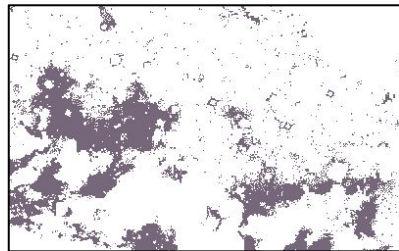
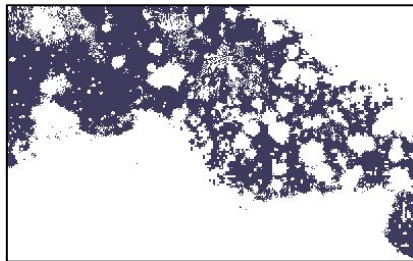
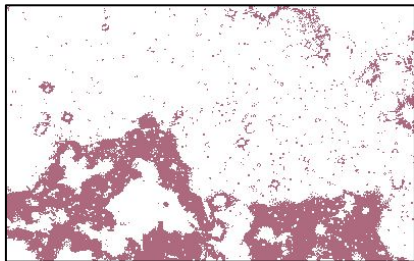
Original Picture:



Segmented Picture:



# More Here:





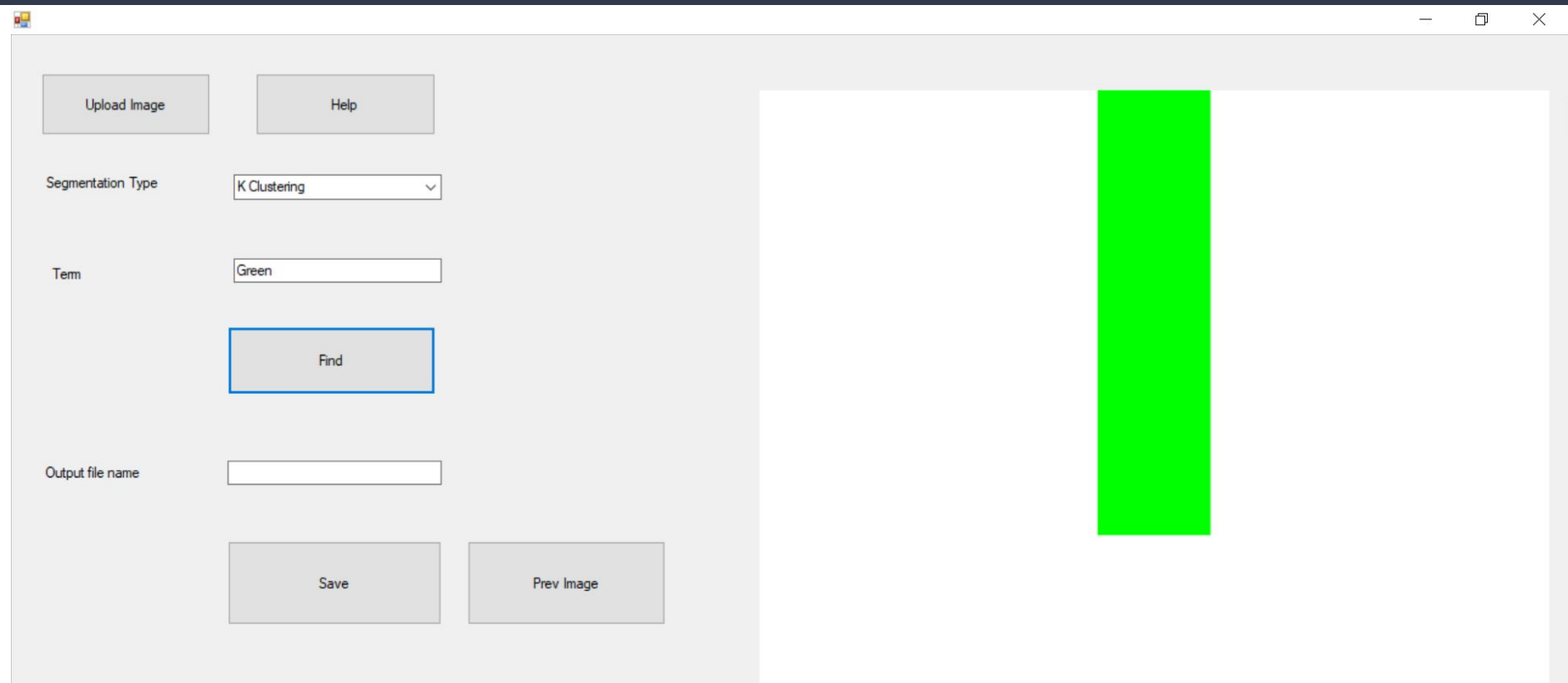
# Laplacian Edge Detection



# Interface: Before

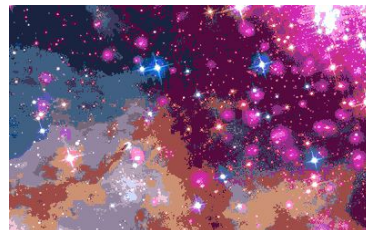
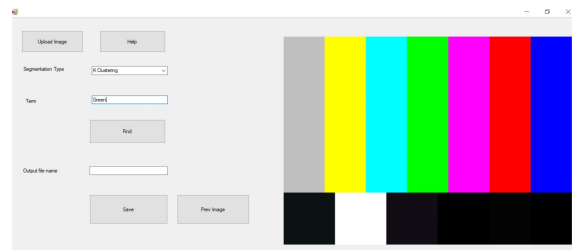


# Interface: After



# Final Product

- Interface that takes in an image
- User can choose between K-means clustering and edge detection
- For edge detection, displays the image after edge detection and is like a “filter”
- For KMC, user can enter a search query, which connects to the Google API, with mixed results



**Demo**

Thank you !  
I love image  
segmentation!

