



PetFinder.my

# Cluster Analysis

By Emily Manne-Nicholas

# What is PetFinder.my?

- Malaysia's largest online database for pet adoptions
- Facilitates communication between advocates, adopters, rescues, fosters, and donors.
- Educates public about pet welfare



A screenshot of the PetFinder.my website. The header features the logo and navigation links like Home, Find A Pet, Forum, WAGazine, Classifieds, Medical, Mobile App, and More. Below the header, there are two large stats boxes: one for 'Homeless' (16788) and one for 'Happy' (44611). To the right, there are two sections: 'There are 8,898 homeless doggies here.' featuring a photo of a white dog named Josie, and 'There are 7,330 neglected kitties here.' featuring a photo of a white cat named Pandan. At the bottom left, there's a promotion for 'KindMeal.my' with a discount offer of -20%.

## About the Raw Data

- Made available via Kaggle competition
- 14993 Cats and Dogs
- Data on appearance, age, health status, location, price, etc.



# Goal

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Understand characteristics associated with faster cat adoptions

- Adoption Time:
  - 0 – Same day
  - 1 – 1<sup>st</sup> week (1 – 7 days)
  - 2 – 1st month (8 – 30 days)
  - 3 – 2nd & 3rd month (30 – 90 days)
  - 4 – No adoption after 100 days



# Scope of Clustering Study:

\*Solo cats/kittens only (4,943 or 33%)

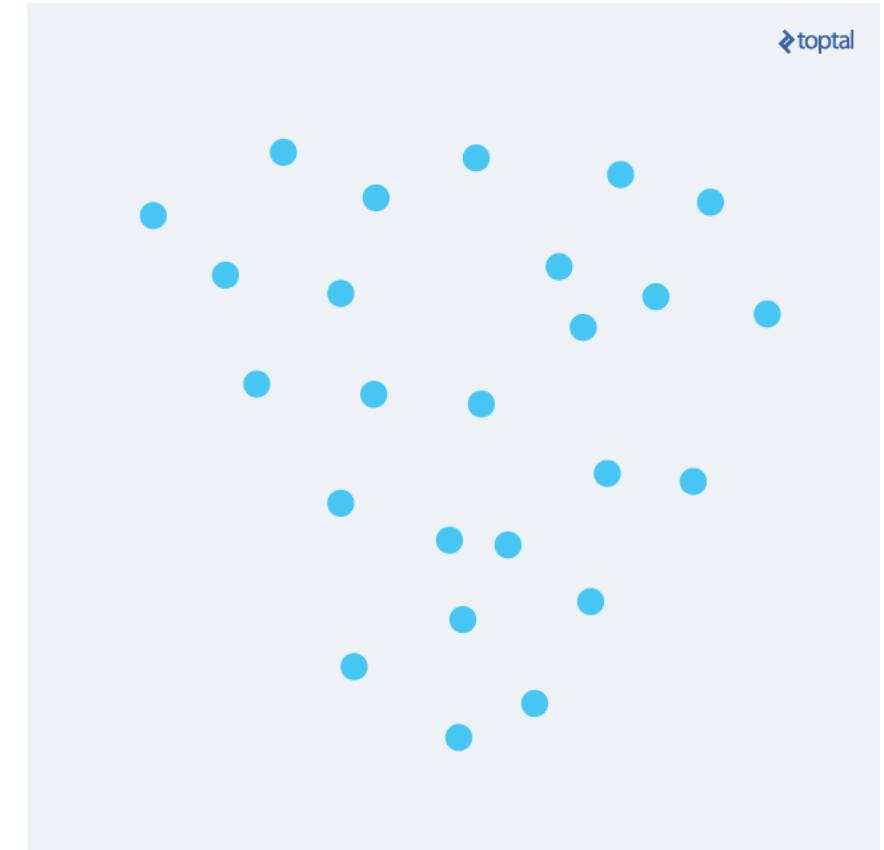
Binary feature subset:

- Age (< 2 mo.?)
- Sex (M/F?)
- Coloring (bicolor?)
- Location (Selangor?)
- Price (free?)
- Breed (purebred?)
- Rescue popularity (top 10?)
- Name (has name?)
- Photo/Video (has photo?)
- Health (injured?)

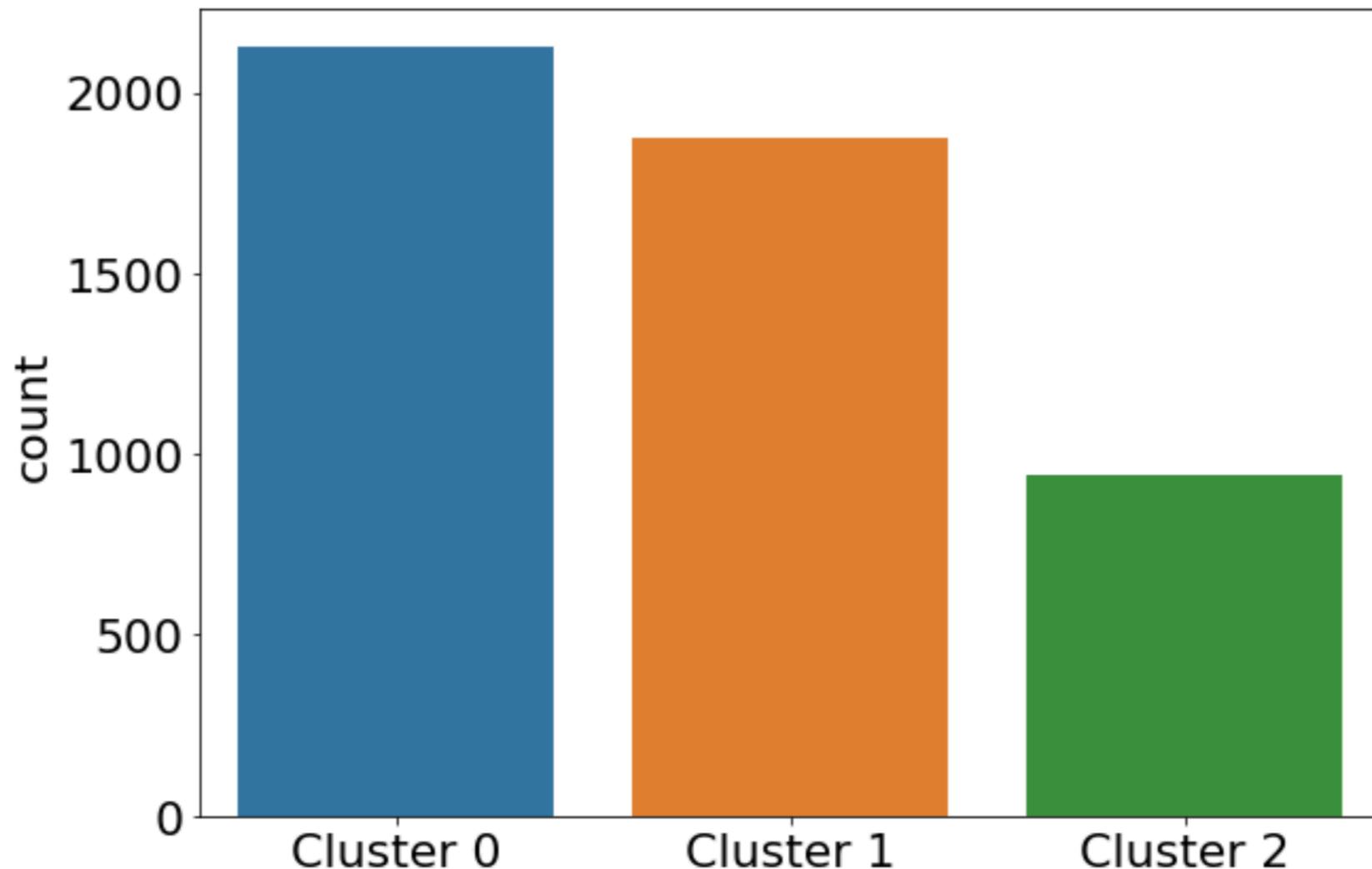


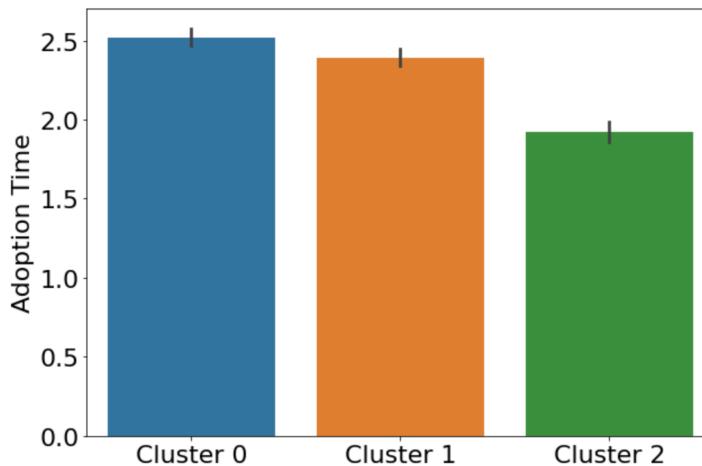
# The Clustering Technique: Affinity Propagation

- Iteratively sends messages between data points
- Evidence accumulates for exemplars (points that represent cluster members well) and cluster membership of each data point.

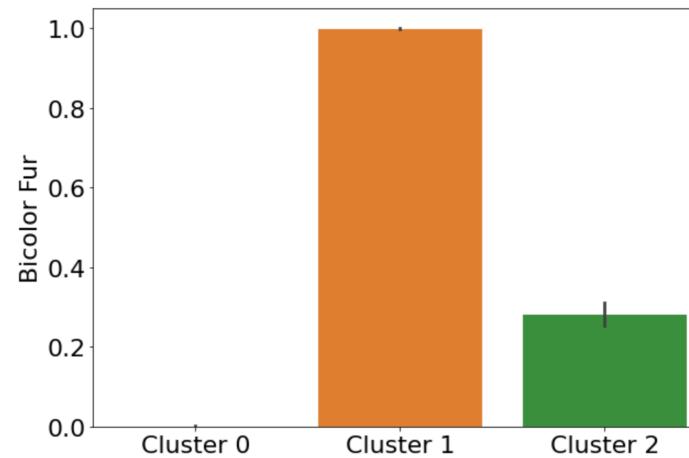


# Clustering Results - Membership

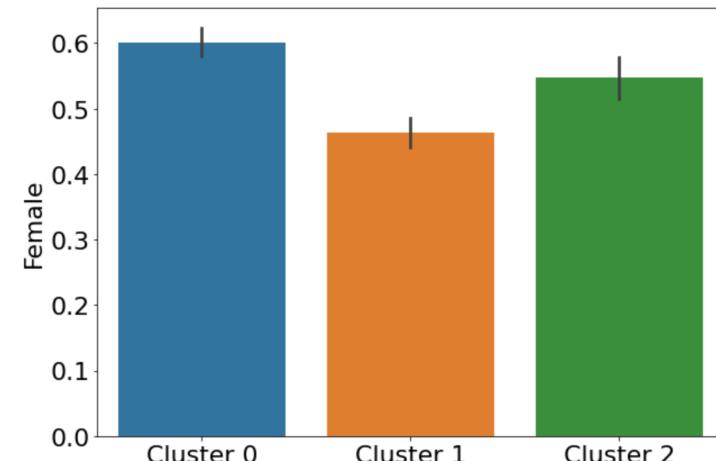
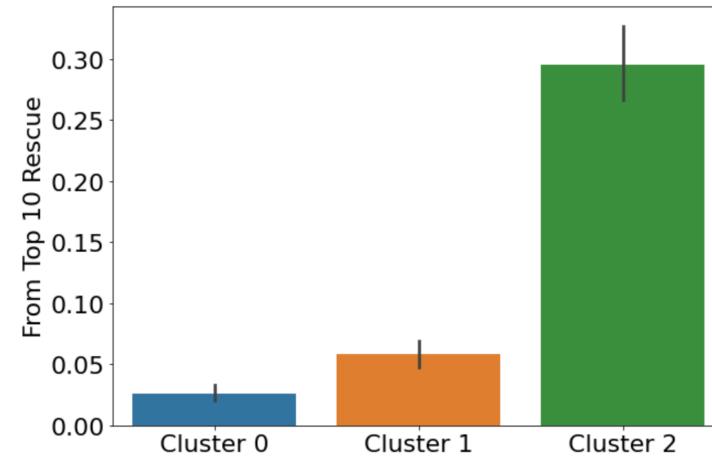
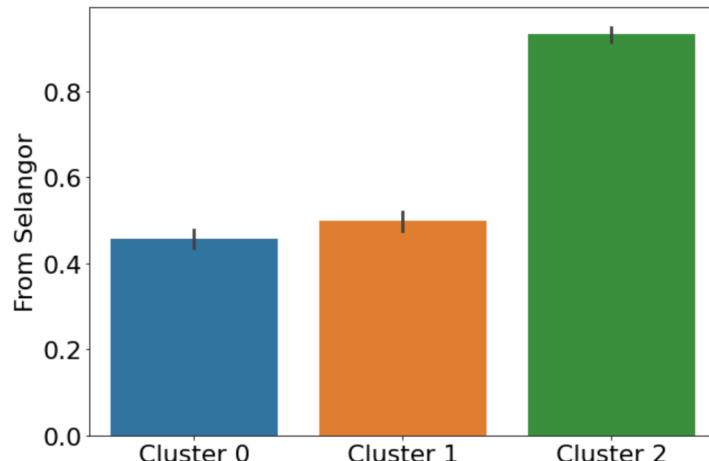
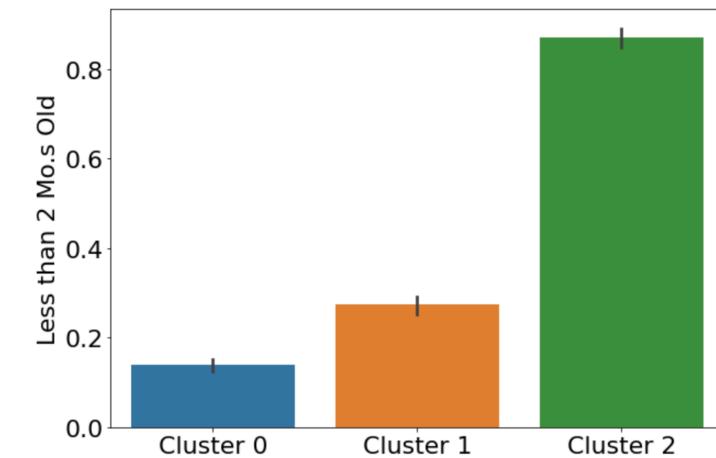




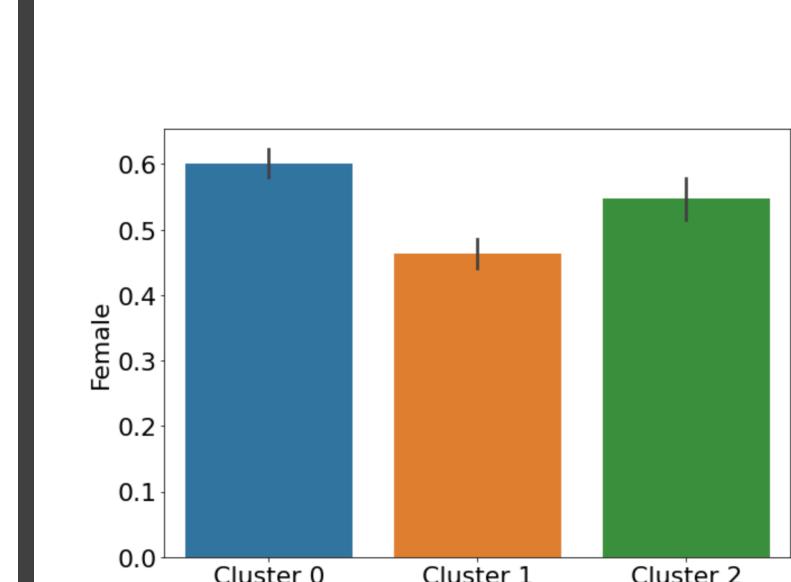
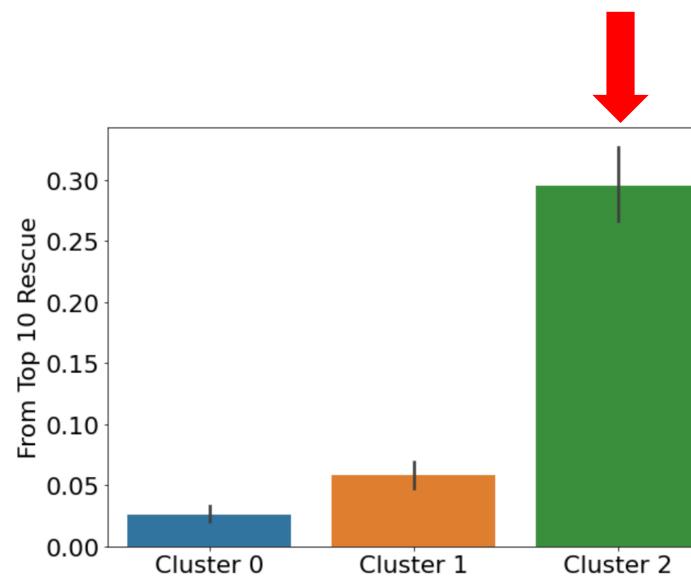
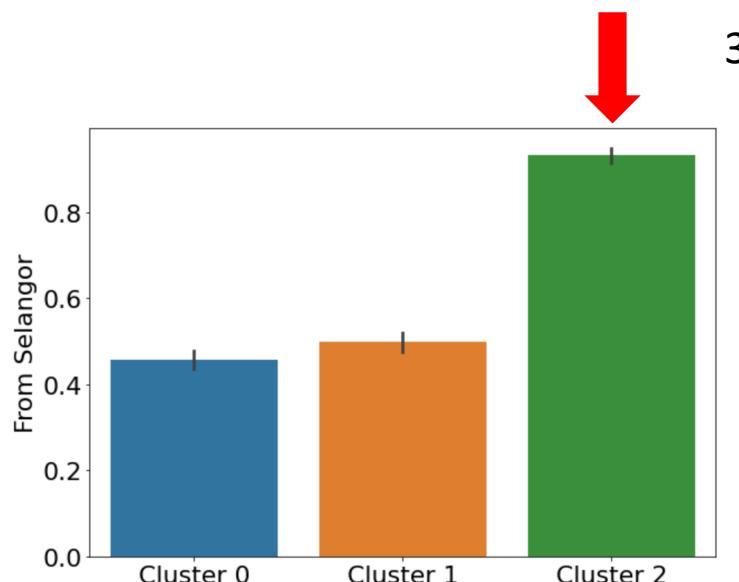
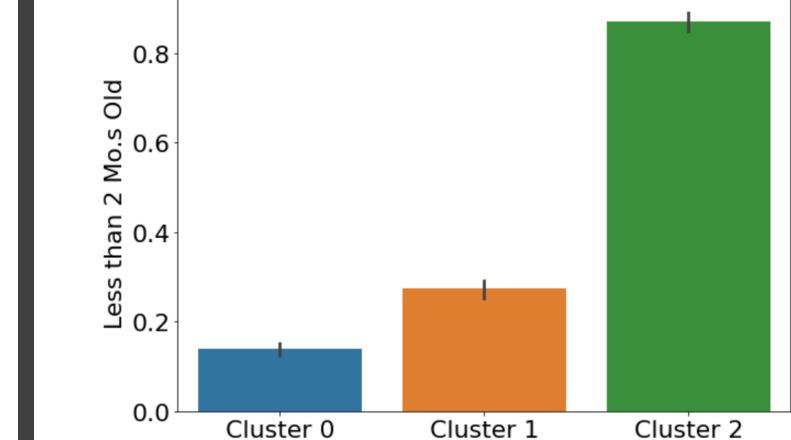
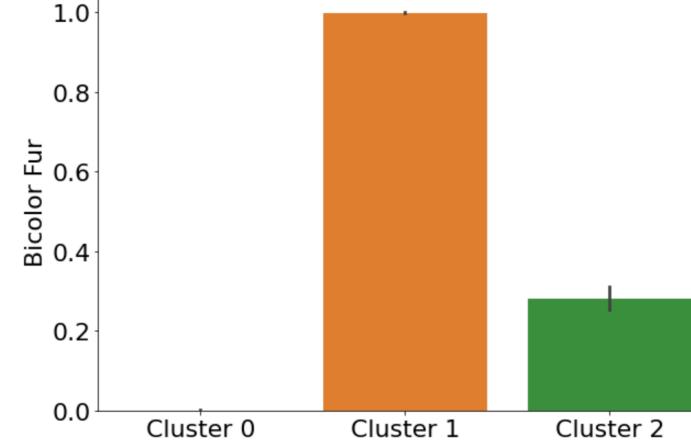
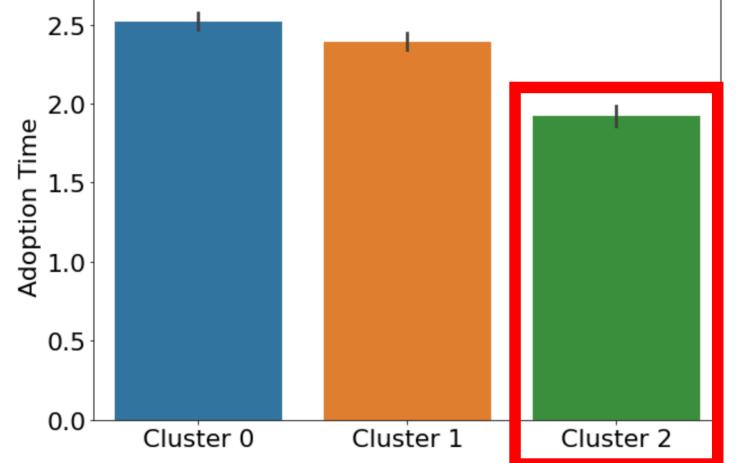
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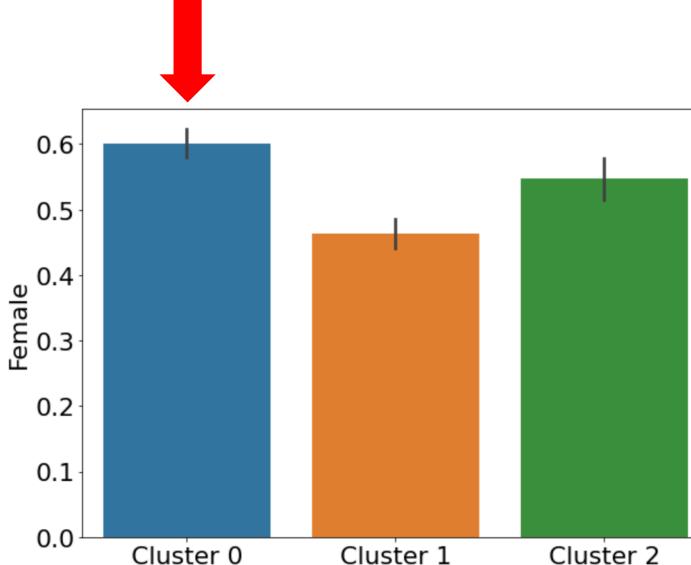
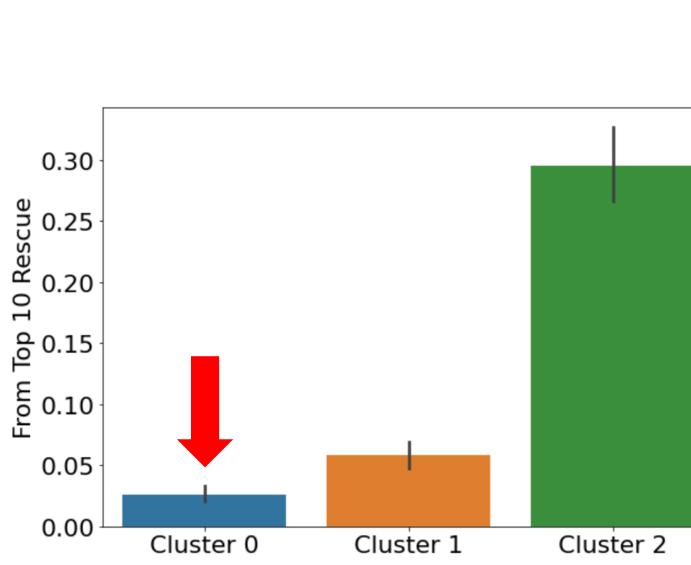
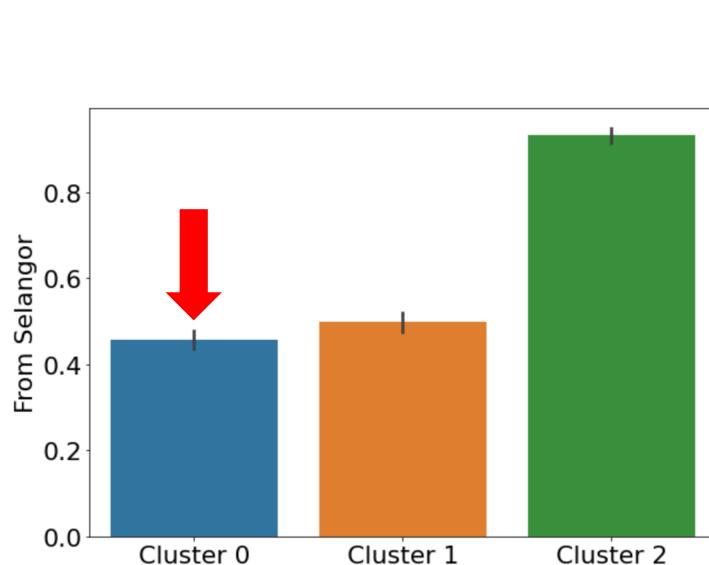
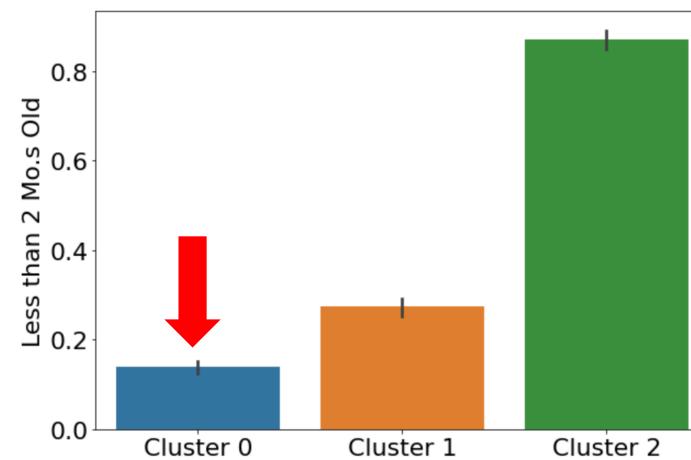
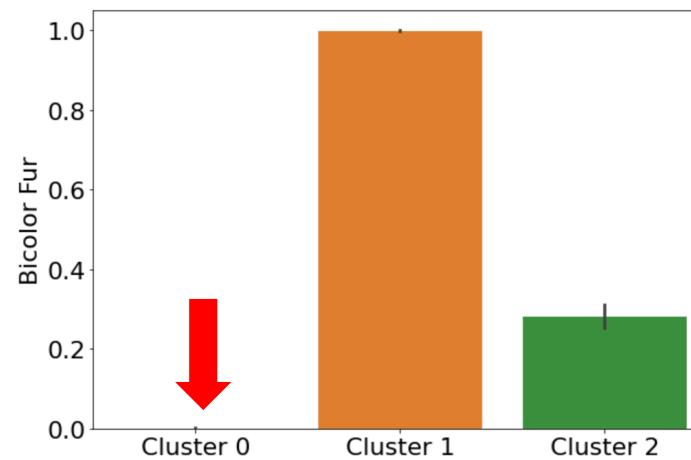
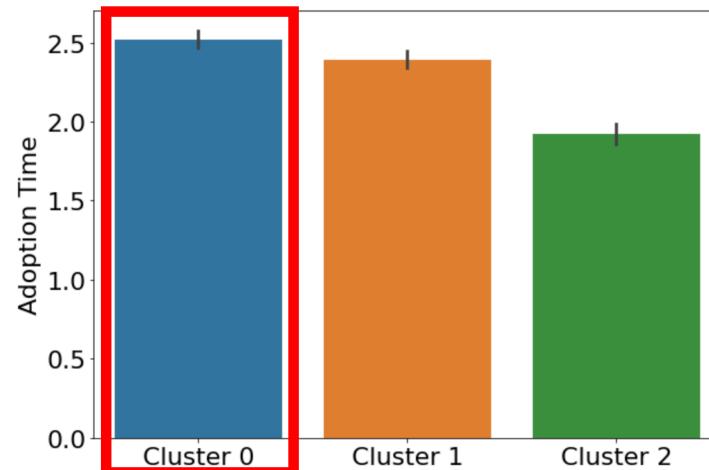


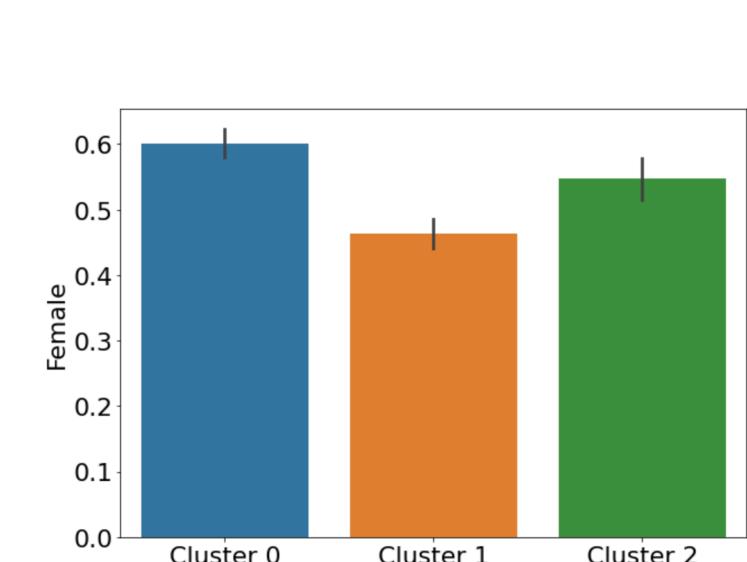
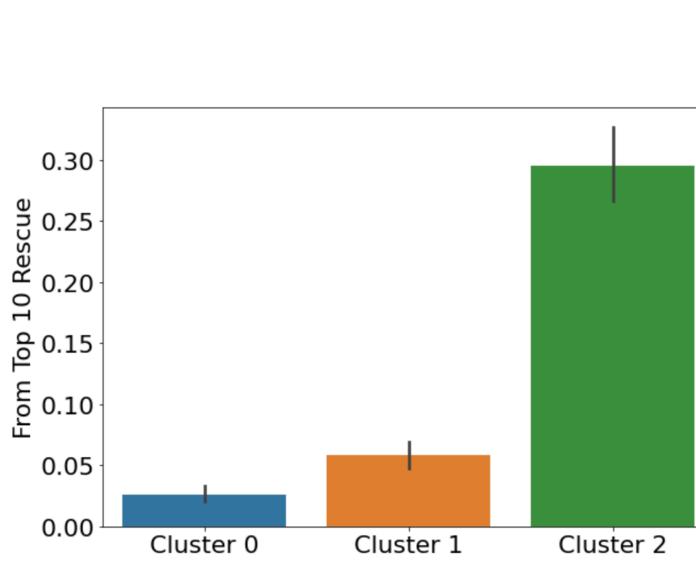
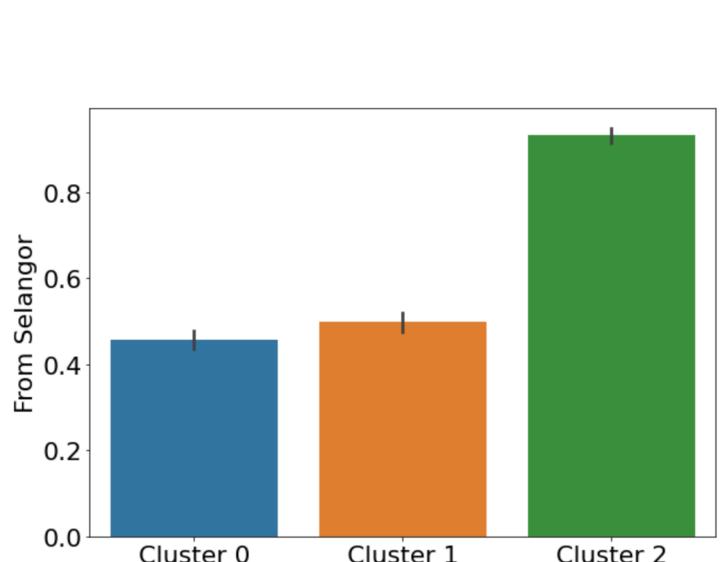
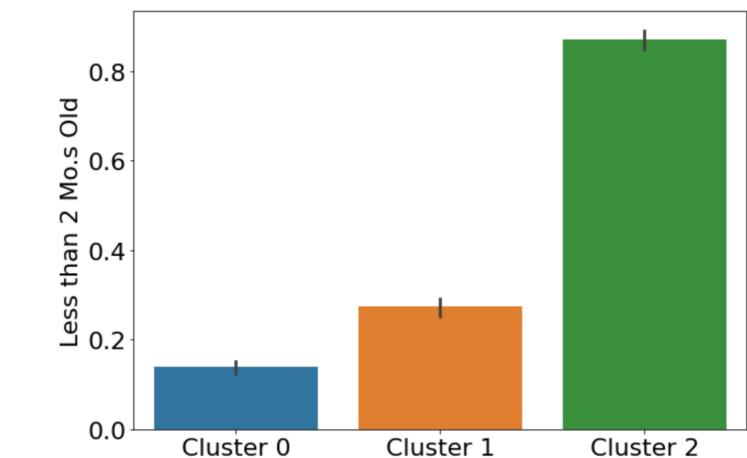
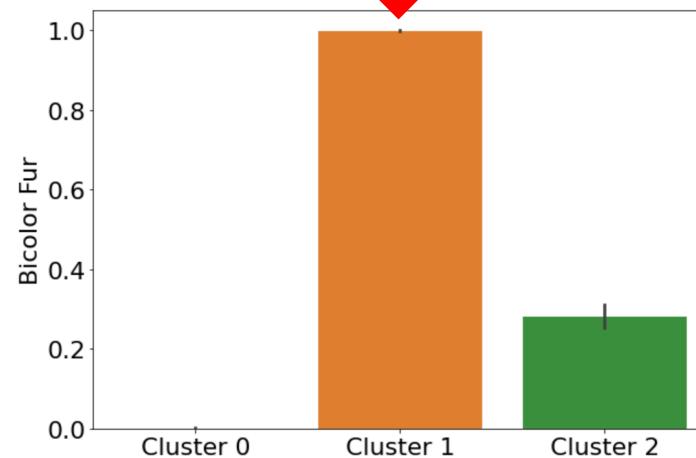
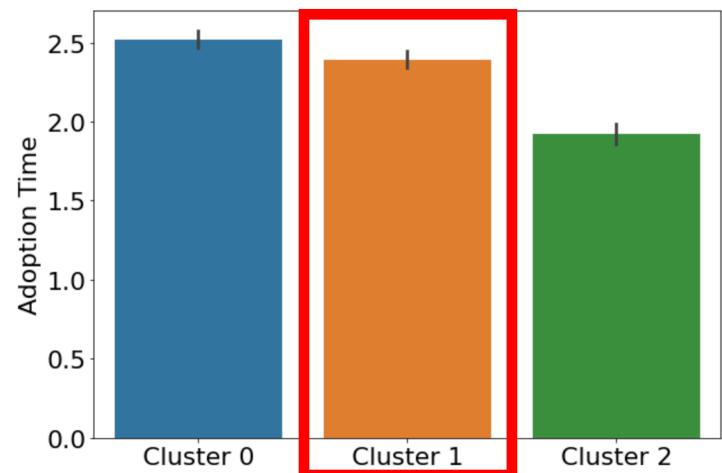
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# Takeaways

- Faster adoptions associated with:
  - Younger than two months
  - From Selangor/popular rescue
- Slower adoptions associated with:
  - Solid color fur
  - Older
  - Not from Selangor or popular rescue
  - Female

## Potential Lessons for...

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- Rescues:
  - Feature older animals with solid colors more
  - Adjust fee?
  - Expand popular rescues into less populous states
- Adopters:
  - Adopt solid color, older, female
  - Donate to smaller rescues



# Limitations and Future Work

- Could broaden analysis to:
  - Dogs and multiple animals
  - Mixed data types
  - Petfinder.com US