

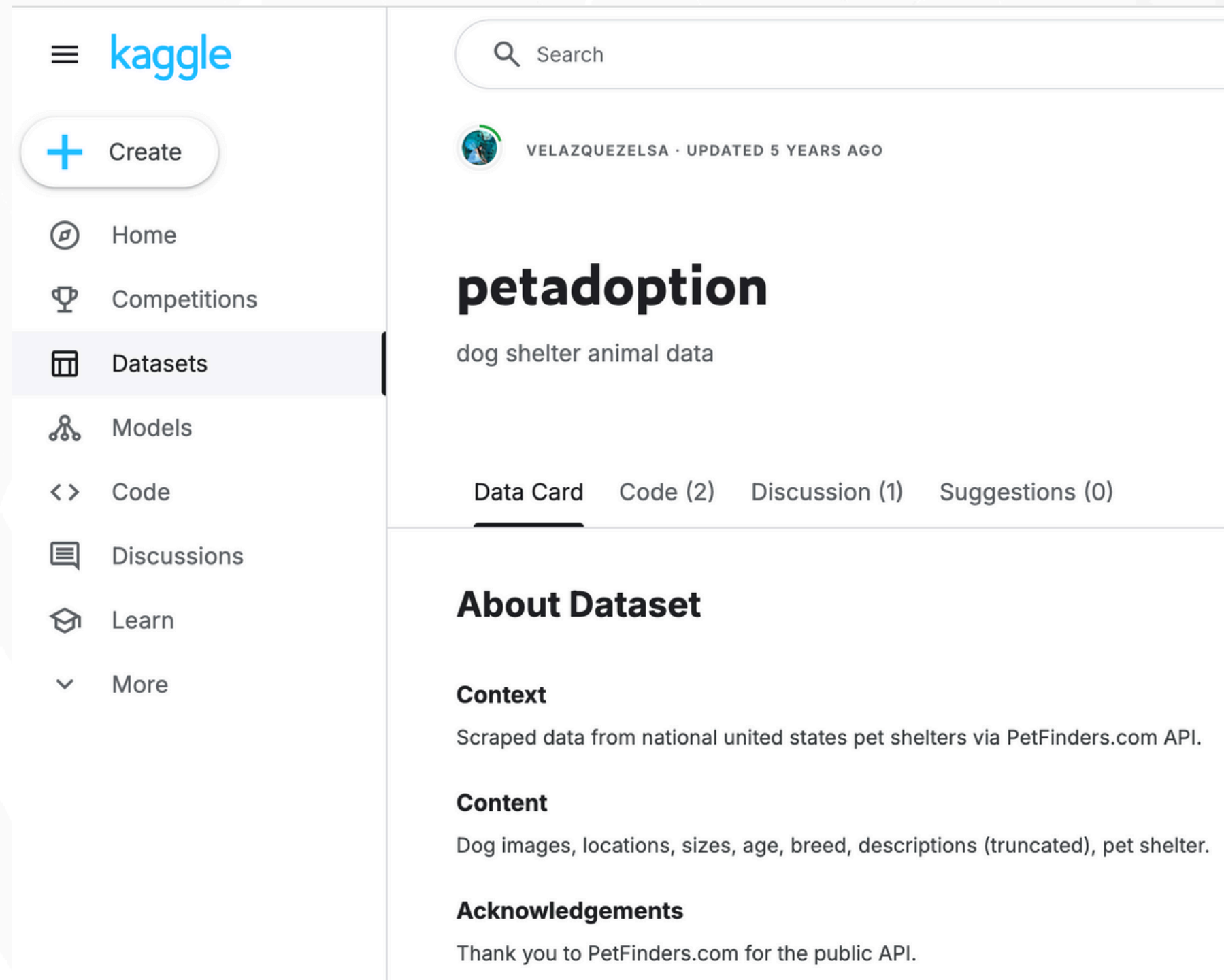


CMGT 540
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WHAT MAKE A DOG MORE LIKELY TO BE ADOPTED?

Insights from Pet Adoption Data

DATASET OVERVIEW



The screenshot shows the Kaggle interface for the 'petadoption' dataset. The left sidebar contains navigation options: Home, Competitions, Datasets (selected), Models, Code, Discussions, Learn, and More. The main content area features a search bar, the dataset title 'petadoption' by user 'VELAZQUEZELSA' (updated 5 years ago), and a description 'dog shelter animal data'. Below this are tabs for 'Data Card' (selected), 'Code (2)', 'Discussion (1)', and 'Suggestions (0)'. The 'About Dataset' section includes:

- Context:** Scraped data from national united states pet shelters via PetFinders.com API.
- Content:** Dog images, locations, sizes, age, breed, descriptions (truncated), pet shelter.
- Acknowledgements:** Thank you to PetFinders.com for the public API.

- **Source:** Kaggle
- **URL:**
<https://www.kaggle.com/datasets/velazquezelsa/petadoption>
- **Number of total responses:** 772
- **Missing data:** Some entries originally marked as “None” were treated as system-missing values in SPSS, indicating no information was recorded by the shelter. These missing values were excluded from composite calculations to ensure the accuracy and reliability of the analysis.

KEY VARIABLES

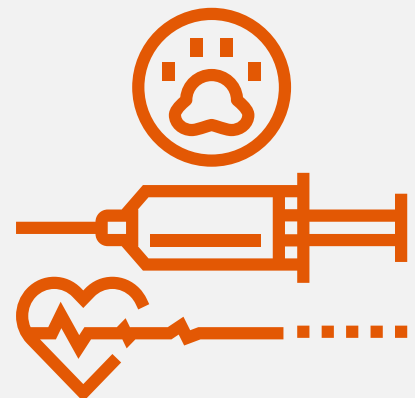


- ID Number
- Type of Animals: DOG!
- Adoption Status
- Gender
- Age
- Size
- House trained
- Spayed & neutered
- Current Vaccination intake
- Friendliness with children, cats and dogs

WHY THIS MATTERS?

**Approximately
6.3 million**

companion animals enter U.S.
animal shelters nationwide
every year



Estimated 1 million

Shelter animals are
euthanized annually due
to overcrowding and lack
of resources.

Effective communication strategies
can improve adoption rates.

By identifying what traits matter
most to adopters, professionals can:

- ✓ Target messaging more effectively
- ✓ Optimize adoption campaign content
- ✓ Craft emotionally engaging stories
that convert interest into action

ACTIVITY TIME



Variable Name	Description	Values/Coding
Age	Age group of the dog	1 = Baby, 2 = Young,
Gender	Gender of the dog	1 = Male, 2 = Female
Size	Size category of the dog	1 = Small, 2 = Medium, 3 = Large
House_trained	Whether the dog is house-trained	1 = Yes, 2 = No
Spayed_Neuterred	Spayed or neutered status	1 = Yes, 2 = No
Shots_current	Vaccination status	1 = Yes, 2 = No
Friendly_children	Friendly with children	1 = Friendly, 2 = Not Friendly, Blank = Not recorded
Friendly_dogs	Friendly with other dogs	1 = Friendly, 2 = Not Friendly, Blank = Not recorded
Friendly_cats	Friendly with other cats	1 = Friendly, 2 = Not Friendly, Blank = Not recorded
Adoption Status	Adoption status	1 = Adopted, 2 = Not Adopted
Species	Type of animal	DOG

ARE HOUSE-TRAINED DOGS MORE LIKELY TO BE ADOPTED?

Case Processing Summary

	Valid		Cases Missing		Total	
	N	Percent	N	Percent	N	Percent
house_trained * status	722	100.0%	0	0.0%	722	100.0%

house_trained * status Crosstabulation

Count		status		Total
		1	2	
house_trained	1	176	70	246
	2	330	146	476
Total		506	216	722

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.380 ^a	1	.538		
Continuity Correction ^b	.282	1	.596		
Likelihood Ratio	.382	1	.537		
Fisher's Exact Test				.550	.299
Linear-by-Linear Association	.380	1	.538		
N of Valid Cases	722				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 73.60.

b. Computed only for a 2x2 table

- Test: Chi-square
- Result: $\chi^2(1) = 0.38$, $p = .538 \rightarrow$ Not significant

Interpretation

There was no statistically significant relationship between being house-trained and being adopted. While house-trained pets had slightly higher adoption rates, this difference is likely due to chance.

ARE DOGS THAT ARE FULLY MEDICALLY READY MORE LIKELY TO BE ADOPTED?

Case Processing Summary

	Valid		Cases Missing		Total	
	N	Percent	N	Percent	N	Percent
medical_readiness * status	722	100.0%	0	0.0%	722	100.0%

medical_readiness * status Crosstabulation

Count		status		Total
		1	2	
medical_readiness	2.00	353	117	470
	3.00	89	62	151
	4.00	64	37	101
Total		506	216	722

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	16.772 ^a	2	<.001
Likelihood Ratio	16.389	2	<.001
Linear-by-Linear Association	11.505	1	<.001
N of Valid Cases	722		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 30.22.

- Test: Chi-square
- Result: $\chi^2(2) = 16.77, p < .001 \rightarrow$ Statistically significant

Interpretation

Pets with higher levels of medical readiness (i.e., vaccinated and/or spayed/neutered) were significantly more likely to be adopted. Adoption rates clearly increased with medical preparedness.

IF SIZE, AGE, AND FRIENDLINESS ARE USED TO PREDICT DOG ADOPTION, WHICH FACTOR(S) CONTRIBUTE MOST SIGNIFICANTLY TO THE ADOPTION OUTCOME?

Classification Table^{a,b}

Observed		Predicted		Percentage Correct
		status 1	status 2	
Step 0	status 1	373	0	100.0
	status 2	109	0	.0
Overall Percentage				77.4



Classification Table^a

Observed		Predicted		Percentage Correct
		status 1	status 2	
Step 1	status 1	360	13	96.5
	status 2	84	25	22.9
Overall Percentage				79.9

- **Test:** Logistic Regression
- **Result:** The model was statistically significant, $\chi^2(3) = 59.92, p < .001$.
- **Accuracy improved:** from 77.4% → 79.9%

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	59.918	3	<.001
	Block	59.918	3	<.001
	Model	59.918	3	<.001

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1 ^a	size	.216	.172	1.576	1	.209	1.241
	age	.402	.126	10.266	1	.001	1.496
	Friendliness_avg	2.259	.410	30.340	1	<.001	9.578
	Constant	-5.179	.618	70.240	1	<.001	.006

Result

- Age was a significant predictor (B = 0.402, SE = 0.126, p = .001, Exp(B) = 1.50)
- Friendliness was also a significant predictor (B = 2.259, SE = 0.410, p < .001, Exp(B) = 9.58)
- Size was not a significant predictor of adoption (p = .209)

- AGE: EXP(B) = 1.496
 - This means that for every one-unit increase in age category, the odds of being adopted increase by 49.6% (1.496 - 1 = 0.496 or +49.6%).
- Friendliness_avg: Exp(B) = 9.578
 - This means that for every one-point increase in friendliness score, the odds of being adopted increase by 857.8% (9.578 - 1 = 8.578 or +857.8%).
- Size: Exp(B) = 1.241 (Not statistically significant)
 - Although not statistically significant (p = .209), the Exp(B) suggests that for every one-unit increase in size (e.g., from small to medium), the odds of being adopted would increase by 24.1% (1.241 - 1 = 0.241 or +24.1%)

DO PETS OF DIFFERENT SIZES HAVE DIFFERENT FRIENDLINESS SCORES? HOW ABOUT ITS EFFECT SIZE?

ANOVA

Friendliness_avg	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.537	2	.269	4.045	.018
Within Groups	31.813	479	.066		
Total	32.351	481			

ANOVA Effect Sizes^{a,b}

Friendliness_avg		Point Estimate	95% Confidence Interval	
			Lower	Upper
Friendliness_avg	Eta-squared	.017	.000	.043
	Epsilon-squared	.013	-.004	.039
	Omega-squared Fixed-effect	.012	-.004	.039
	Omega-squared Random-effect	.006	-.002	.020

A one-way ANOVA showed a statistically significant difference in friendliness scores across pet size groups, $F(2, 479) = 4.05, p = .018$, with a small effect size ($\eta^2 = .017$). Only about 1.7% of the variation in friendliness scores can be explained by pet size.



Yes, there is a statistically significant difference in friendliness between different pet sizes.



However, size has some influence on friendliness — but it's not the main factor.

ACTIONABLE INSIGHTS

**What the shelters
should do to boost
dog adoption
success?**



Emphasize Medical Readiness in Messaging



Showcase Friendliness with Visual Cues



Promote Young Dogs While Supporting Seniors



Address Size Stereotypes with Storytelling



DISCUSSION



WHAT CHARACTERISTICS ATTRACT YOU MOST WHEN YOU WANT TO ADOPT A DOG?

THANK YOU!

