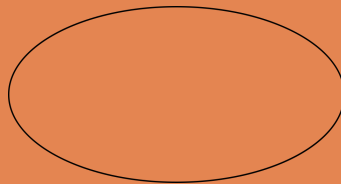




# I WANT TO BE PAWPULAR!



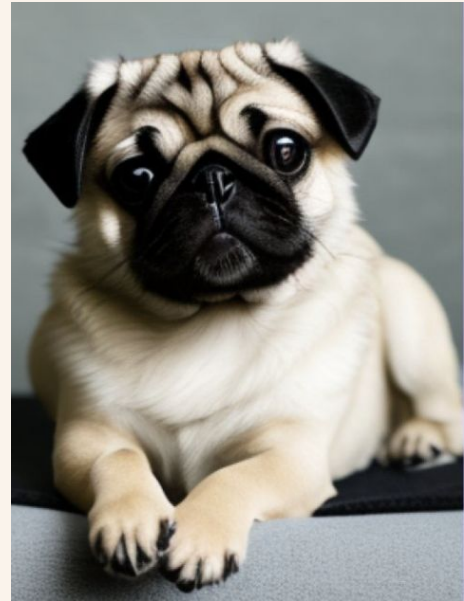
## BOOSTING PET ADOPTION RATES WITH MACHINE LEARNING

Guoquan Lin, Otto Gaulke, Yen Chen Hsu, Wei-Chun Chang, Joyce Wu





**I am cute and I know it  
but do you know it?**





## Business situation:

PetFinder.my is a prominent animal welfare platform based in Malaysia, dedicated to rehoming strays, supporting rescuers, and leveraging technology for animal welfare. As of December 2023, the platform boasts **200,000 featured pets** and has successfully facilitated **70,000 adoptions**.

## But:

Despite the substantial number of pets on the platform, increasing adoption rates for stray and shelter animals remains a challenge.



# We are here to help!



Using **Deep Neural Network** to predicts the "Pawpularity" of pet photos on PetFinder's platform, we aimed to **enhance the visual appeal** of pet photos, thereby increasing the likelihood of adoption.

**now I am cute  
and you know it!**



# About Pawpularity...

**9912  
Raw  
Images**



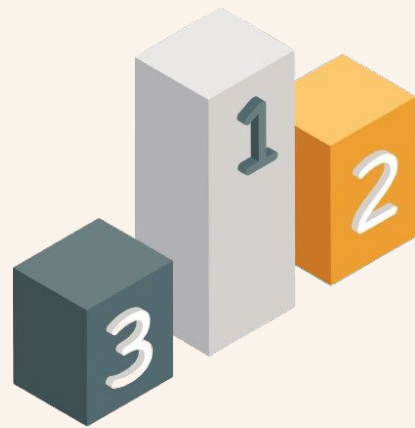
**12  
Binary  
Features**

Subject Focus

Eyes  
Face  
Near

Action  
Accessory  
Group  
Collage

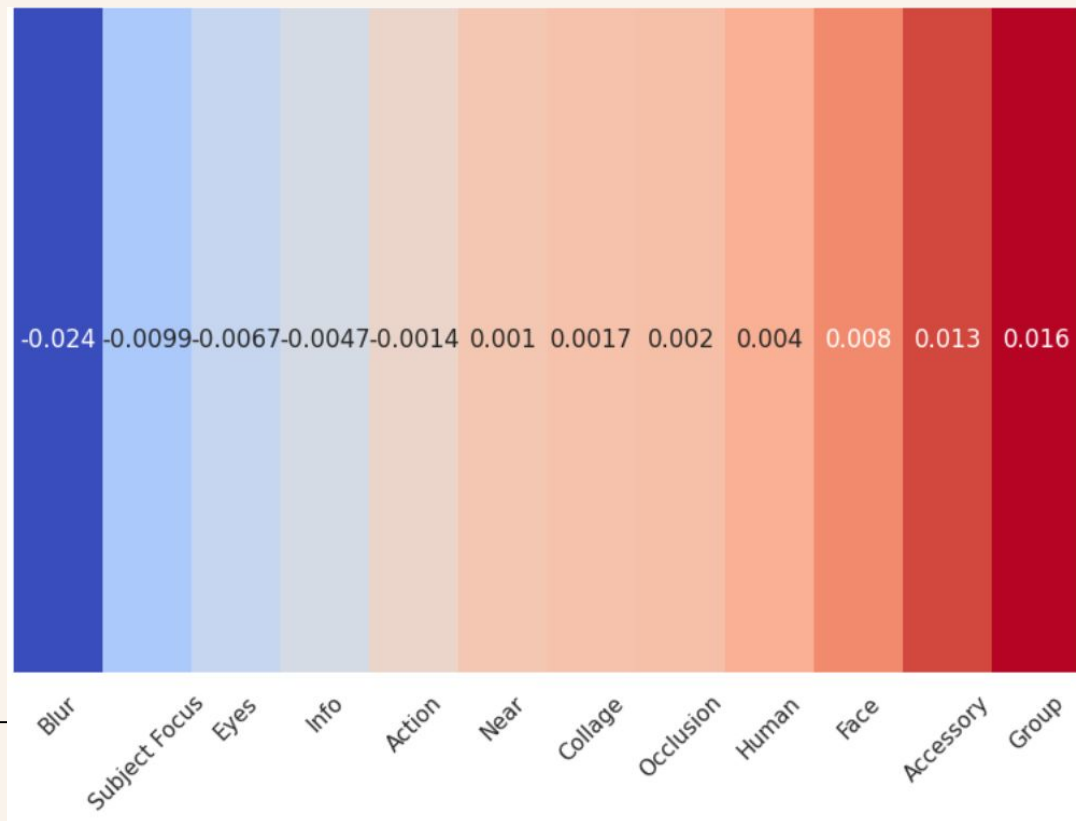
Human  
Occlusion  
Info  
Blur



**Pawpularity Score**

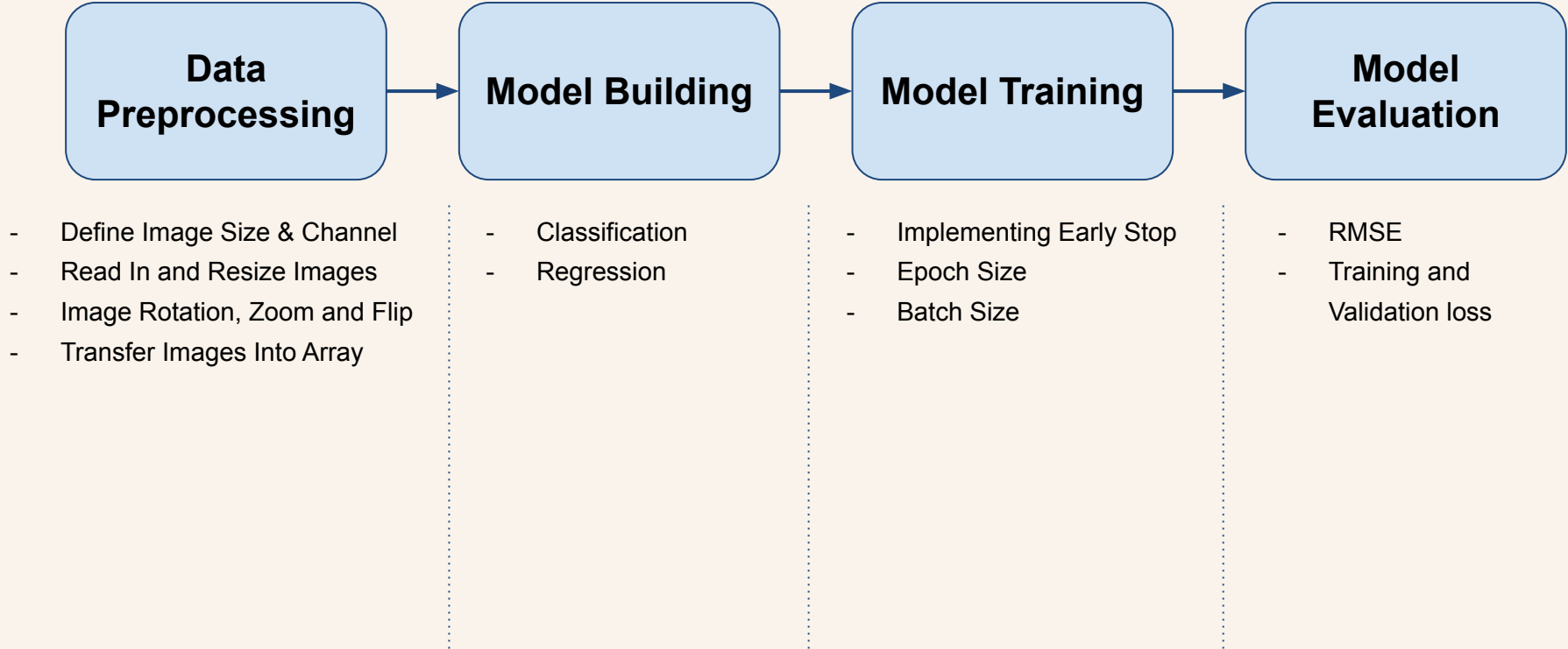
mean score: 38.4  
ranging from 0~100

# Feature Correlation with Pawpularity Score



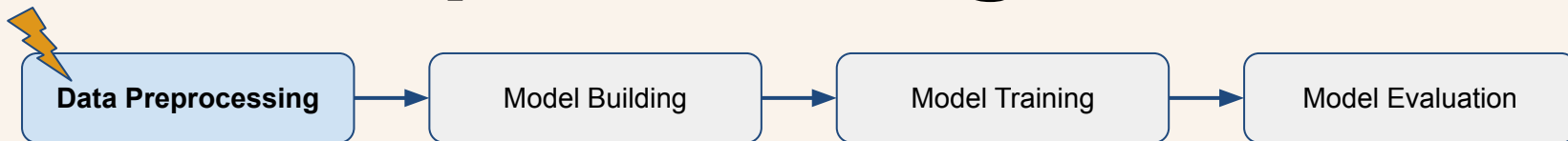
?

# Decision Process





# Data Preprocessing

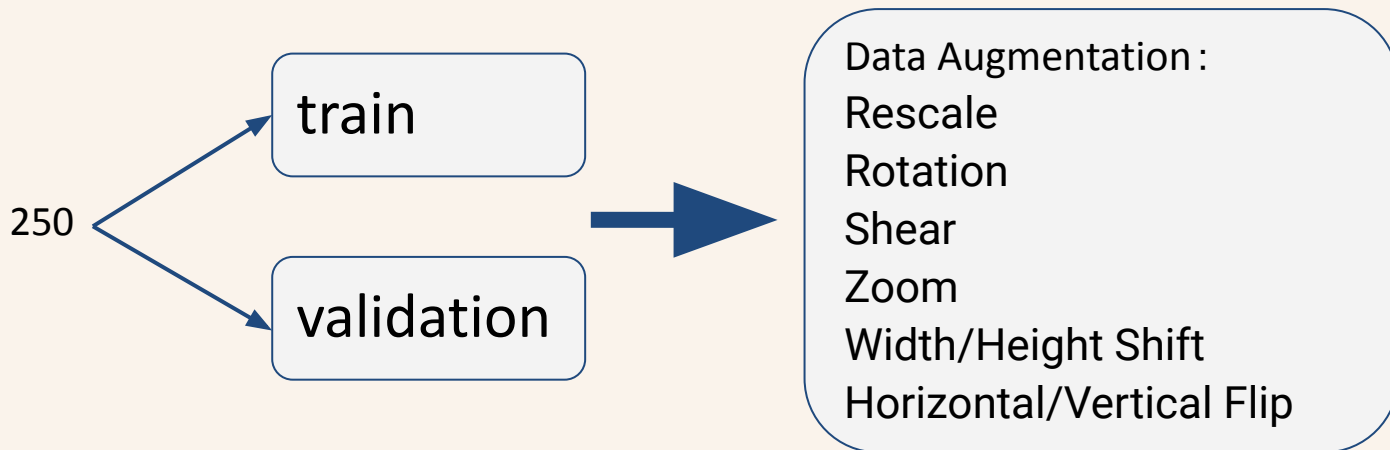


- Define Image Size & Channel
- Read In and Resize Images
- Image Rotation, Zoom and Flip
- Transfer Images Into Array

250

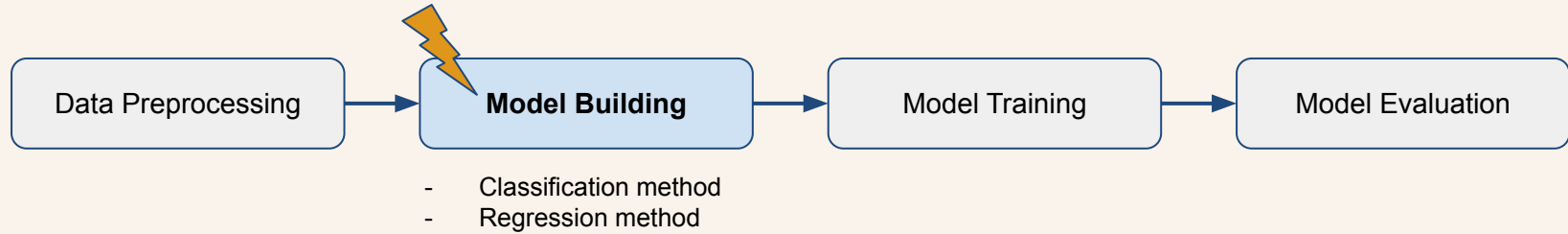


channel =3 (color image)

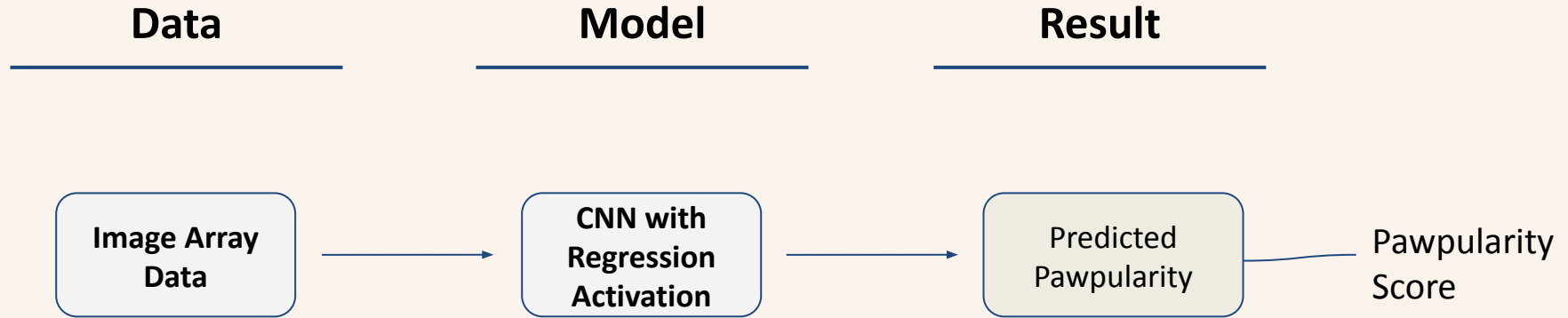




# Model Building



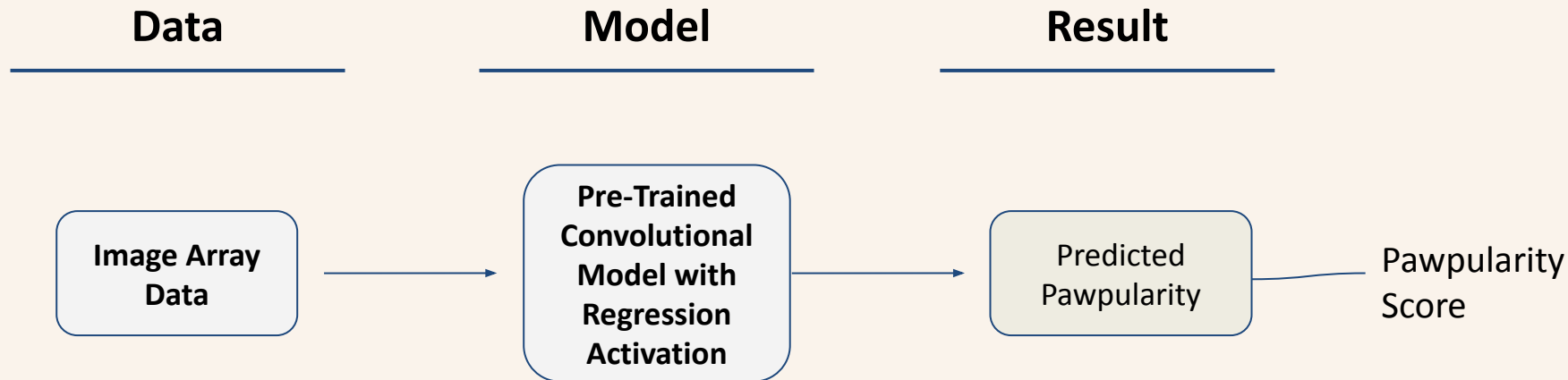
# Regression



We build our own custom convolutional model and assess its performance.

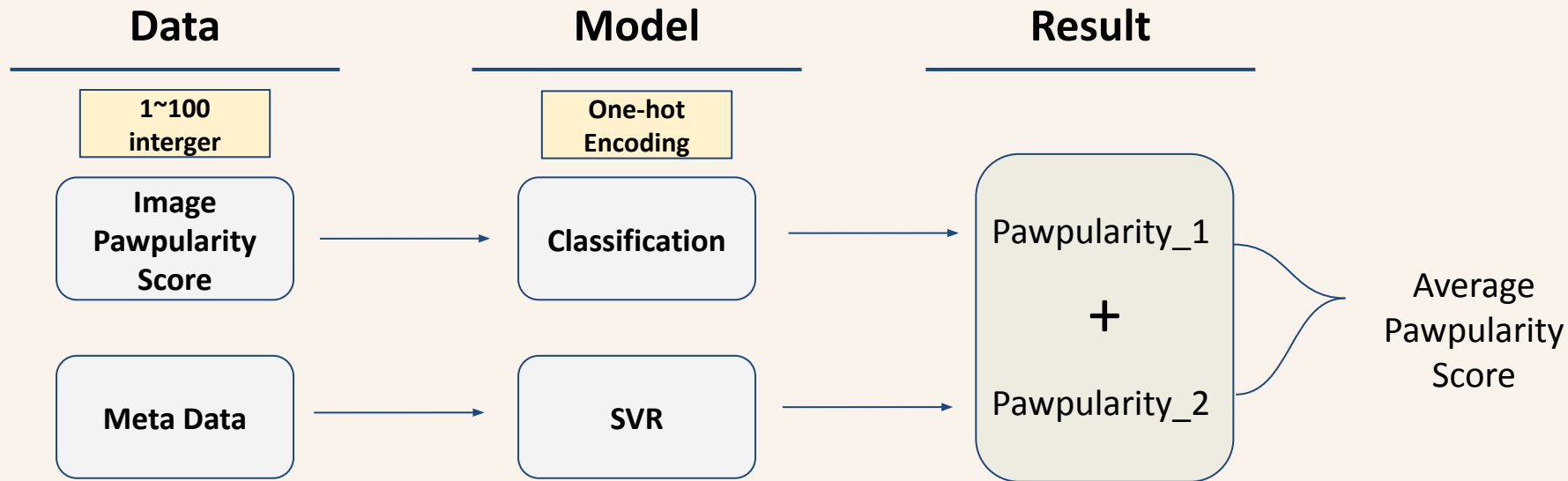
# Regression

- InterceptionResNet
- EfficientNet (b1-7)
- XceptionNet

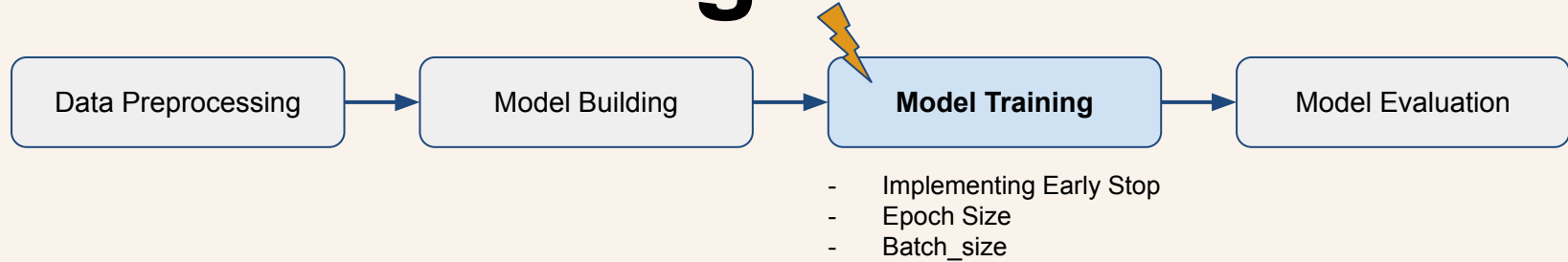


We try several pre-trained convolutional models and add our own hidden dense layers and assess the performances.

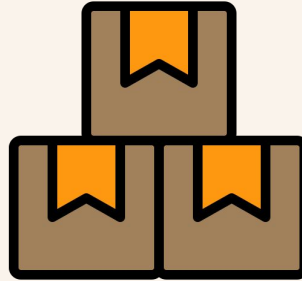
# Classification



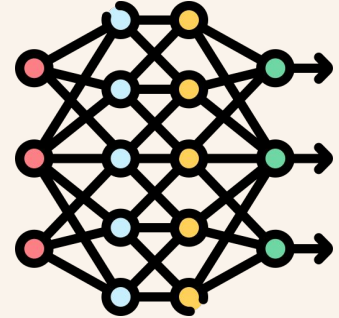
# Model Training



Avoid overfitting  
->Implemented early stop

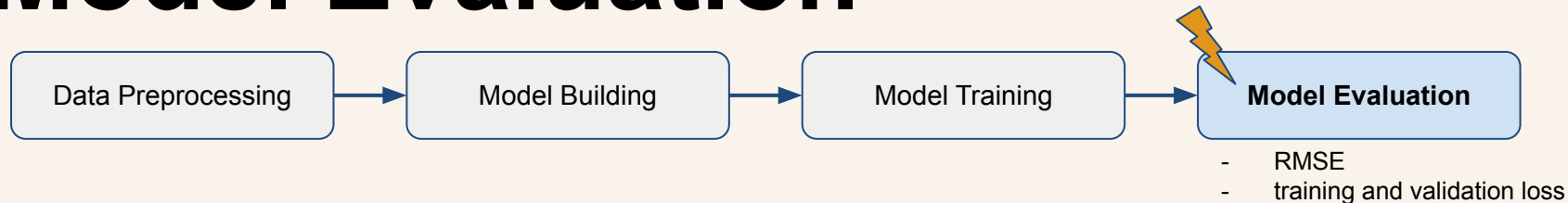


Explore batch size

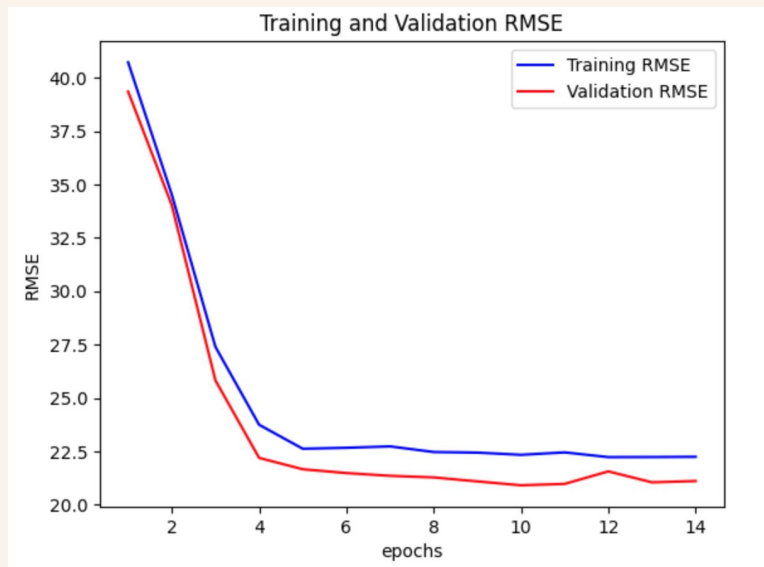


Explore epoch size

# Model Evaluation



**Root Mean Square Error:**  
calculation of **how far off our predicted pawpularity score is** different from the correct pawpularity score value



# Solution

Our model uses convolutional neural networks to predict pet pawpularity scores.

**Our Model RMSE: 20**

As a result, PetFinder.my can see which photos are the cutest and evaluate the qualities that make them cute, which will help them advertise more pets effectively.

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# Thank You!



**"ThAnK yOu!"**



**"Tanks!"**



**"i thank you!"**