## HASHTAG RECOMMENDATION SYSTEM

CREATING EFFICIENT AND RESOURCE-CONSCIOUS IMAGE-BASED HASHTAG RECOMMENDATIONS WITH THE HELP OF MACHINE LEARNING

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#### Introduction



- Hashtags are a popular approach for labeling images on social media platform.
  - •As users share millions of images daily on social media, the need for efficient hashtag recommendations becomes important.

#### Related Work

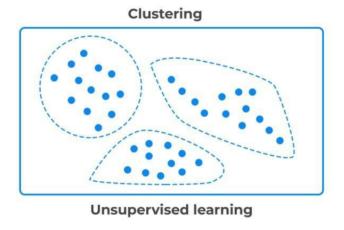
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#### Supervised vs. Unsupervised Learning

# Classification

Supervised learning



Supervised Machine Learning vs Unsupervised Machine Learning

#### Supervised Machine Learning

- •input samples (images in this case) are paired with their corresponding output labels (hashtags).
- The model learns the relationships between the input features (image characteristics) and the output labels (hashtags) during the training process.
- •Once the supervised model is trained, it can predict hashtags for new, unseen images.

- Feature Extraction: extract meaningful features from images without the need for labeled training data
- •Clustering: By grouping similar images together based on extracted features, unsupervised learning helps identify patterns and structures within the dataset.

Unsupervised
Machine
Learning
Algorithms

#### Performance Analysis

#### •Confusion Matrix:

A confusion matrix breaks down the predicted and actual classifications into different categories.

• The confusion matrix consists of four components:

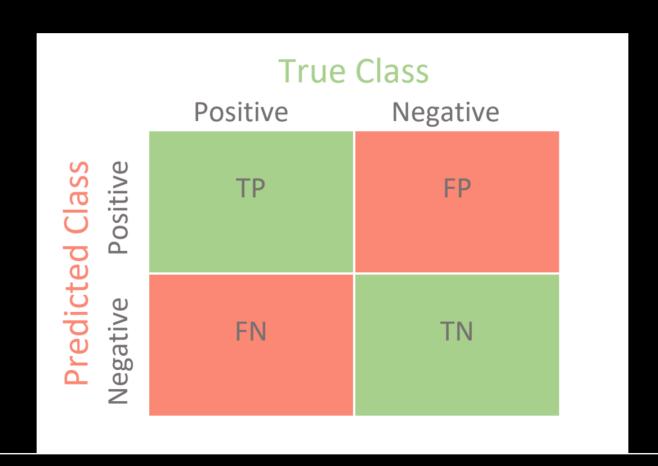
True Positive (TP): Instances where the model correctly predicts a relevant hashtag.

True Negative (TN): Instances where the model correctly predicts a non-relevant hashtag.

False Positive (FP):Instances where the model incorrectly predicts a relevant hashtag

False Negative (FN):Instances where the model incorrectly predicts a non-relevant hashtag

## Confusion Matrix



#### Result Showing

•Following is a demo website deployed in order to show the prediction results from an image

#### **Hashtag Predictor**

The Hoshtog Predictor is a model that predicts hashtags for images.



enimal Nove Fanimales Npetsagram Fanimals Kanimallovers Fanimallace Apet Apetstagram Fanimalcrossing Firstagramenet Nanimallover Faute
Instagood #zoo#animallovers #animallover #animalsofinstagram #animales #animalphotography #animalights #animalighds #animaladdicts
mallove #animali #animalplanet #animalart #animalprint #animalsco #animalesco#animalsofig #animalsmood #animalcrossing #animalliberation
sulphotos Vanimalslover Fanimalfacts Nanimalwelfare Fanimalcrossity Panimalette Nanimaldiawing Vanimalvideo Vanimale Ppets Panimalprint Fanimal
#apetoftheday #apetscorner #animalkingdom #animalsofinstagram #apetsofinstagram #apets of instagram #instatag

Upload New Picture

Predict

#### Study Limitations

•Apart from all the methodologies included in this study, it still remains an interest for future investigations.

• Further endeavors might overcome some of the underlying challanges of this study.

## Thank You