

Twitter Sentiment Analysis

Using NLP to Understand Public Sentiment on Social Media

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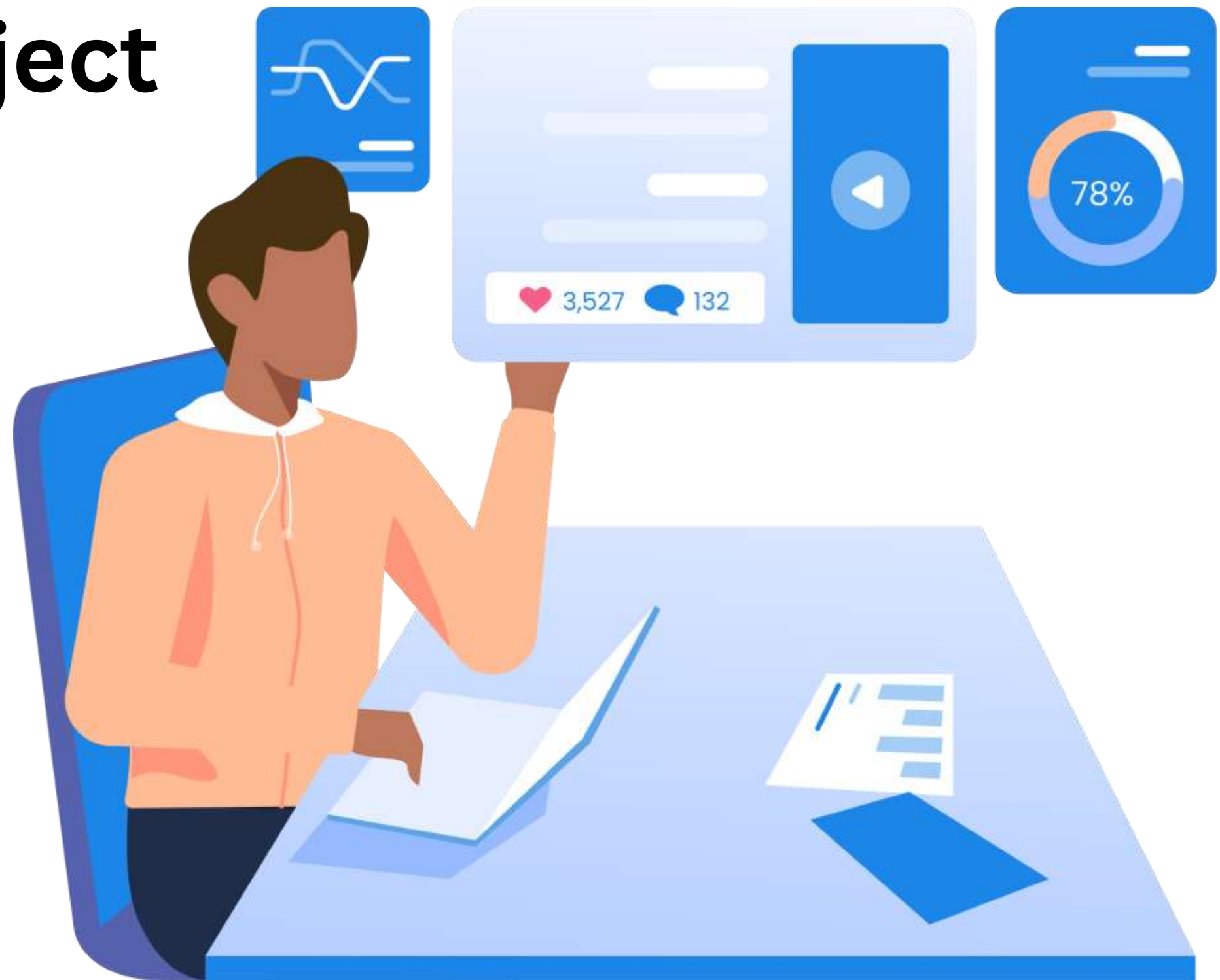
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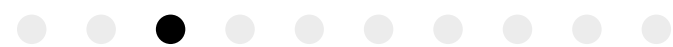
Purpose of the Project

- Businesses rely on public perception.
- Twitter is a goldmine of real-time customer opinions.
- Our goal: Use machine learning to automatically classify tweet sentiment about Apple and Google.



Why This Matters to Apple & Google

- Customer sentiment directly influences brand loyalty and market share.
- Understanding what customers say—and how they feel—guides better product, marketing, and service decisions.
- Real-time insights results in faster decisions.



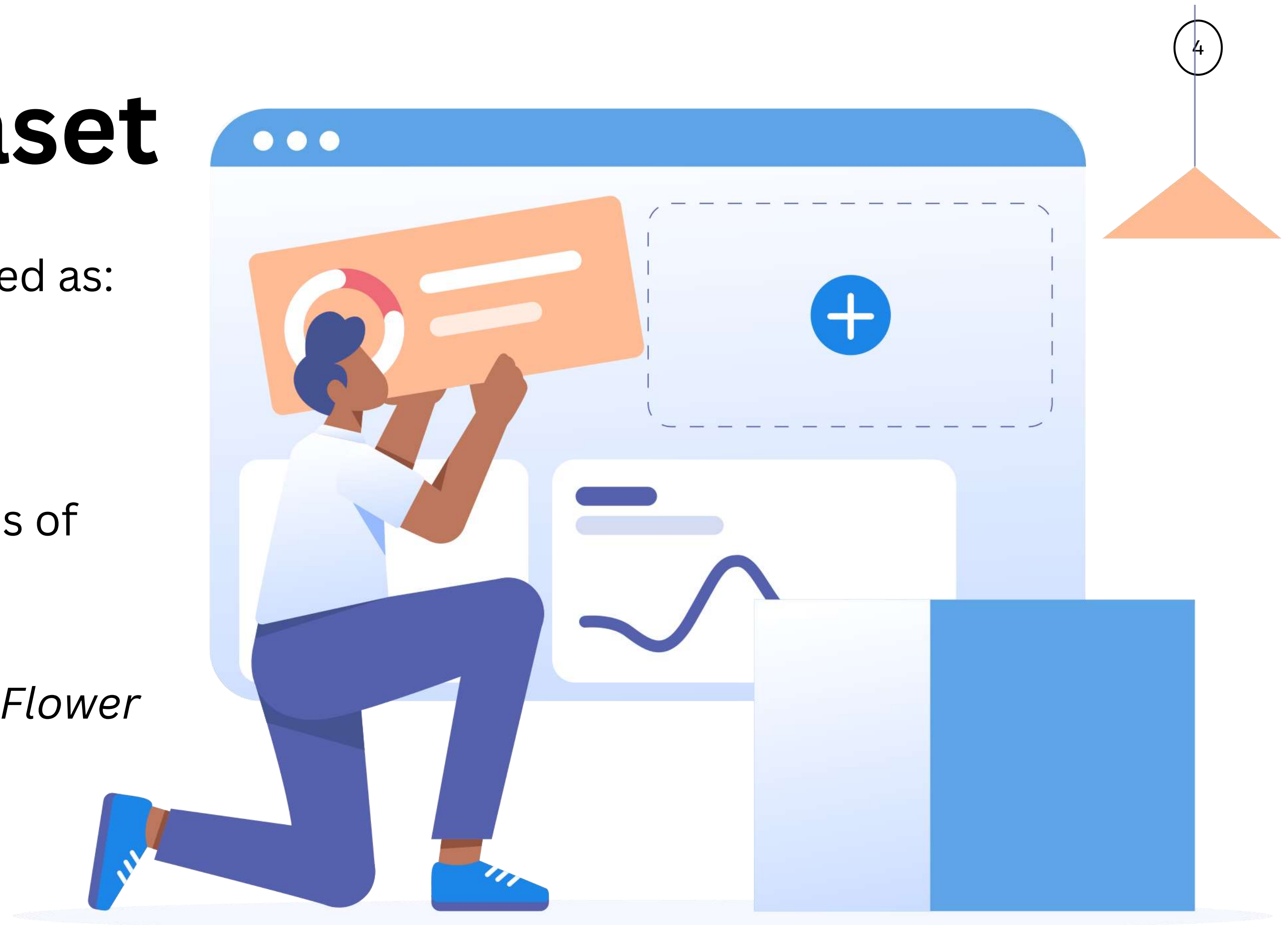
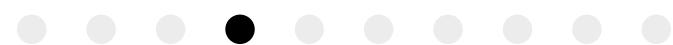
The Dataset

9,000+ tweets labeled as:

- 😊 Positive
- 😐 Neutral
- 😡 Negative

Focused on mentions of Apple and Google products.

Data Source: CrowdFlower via data.world



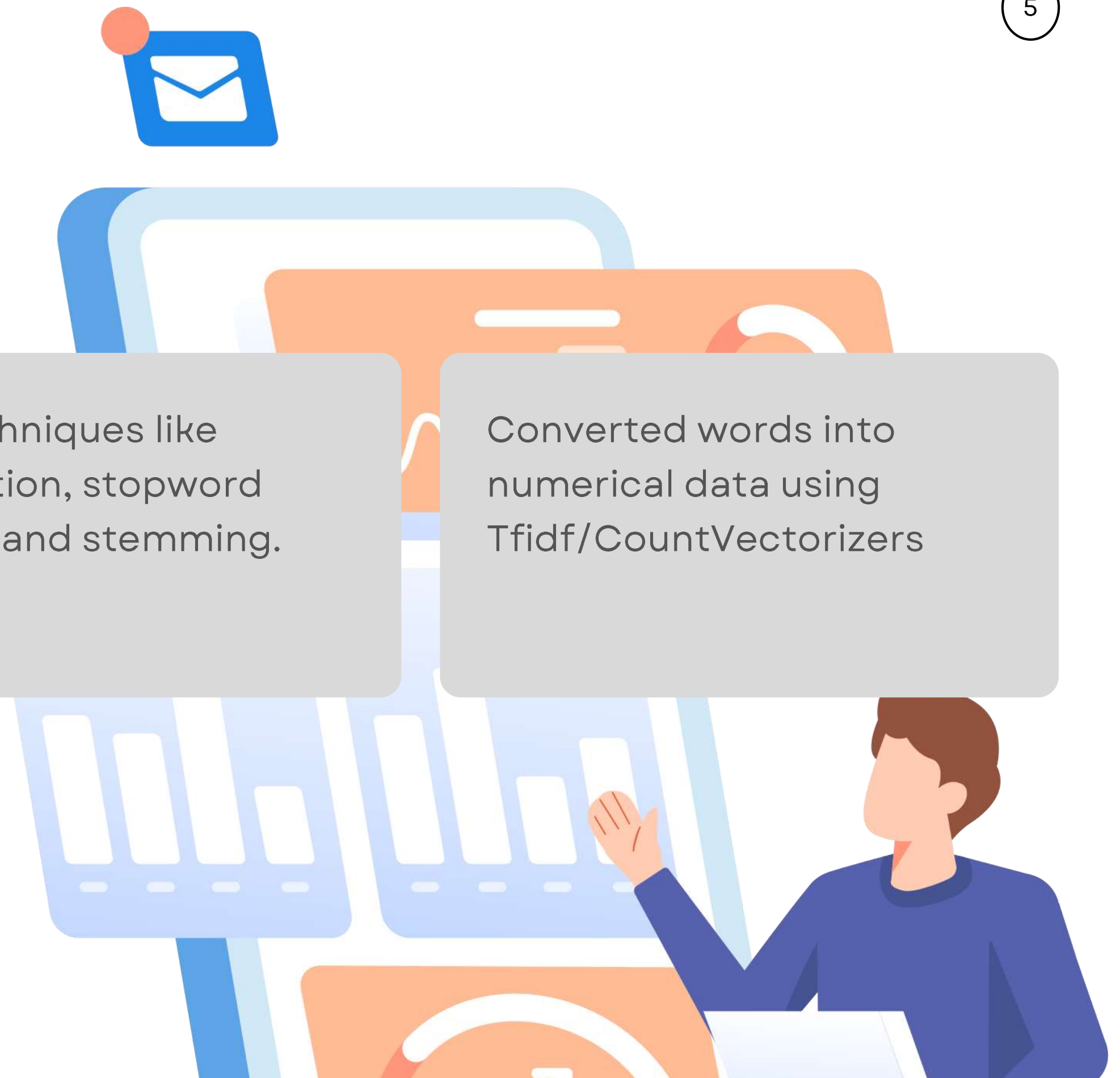
How We Prepared the Tweets

Removed noise: URLs, hashtags, emojis, user mentions.

Cleaned text and standardized formatting.

Used techniques like tokenization, stopwords removal, and stemming.

Converted words into numerical data using Tfidf/CountVectorizers



Modelling Approach

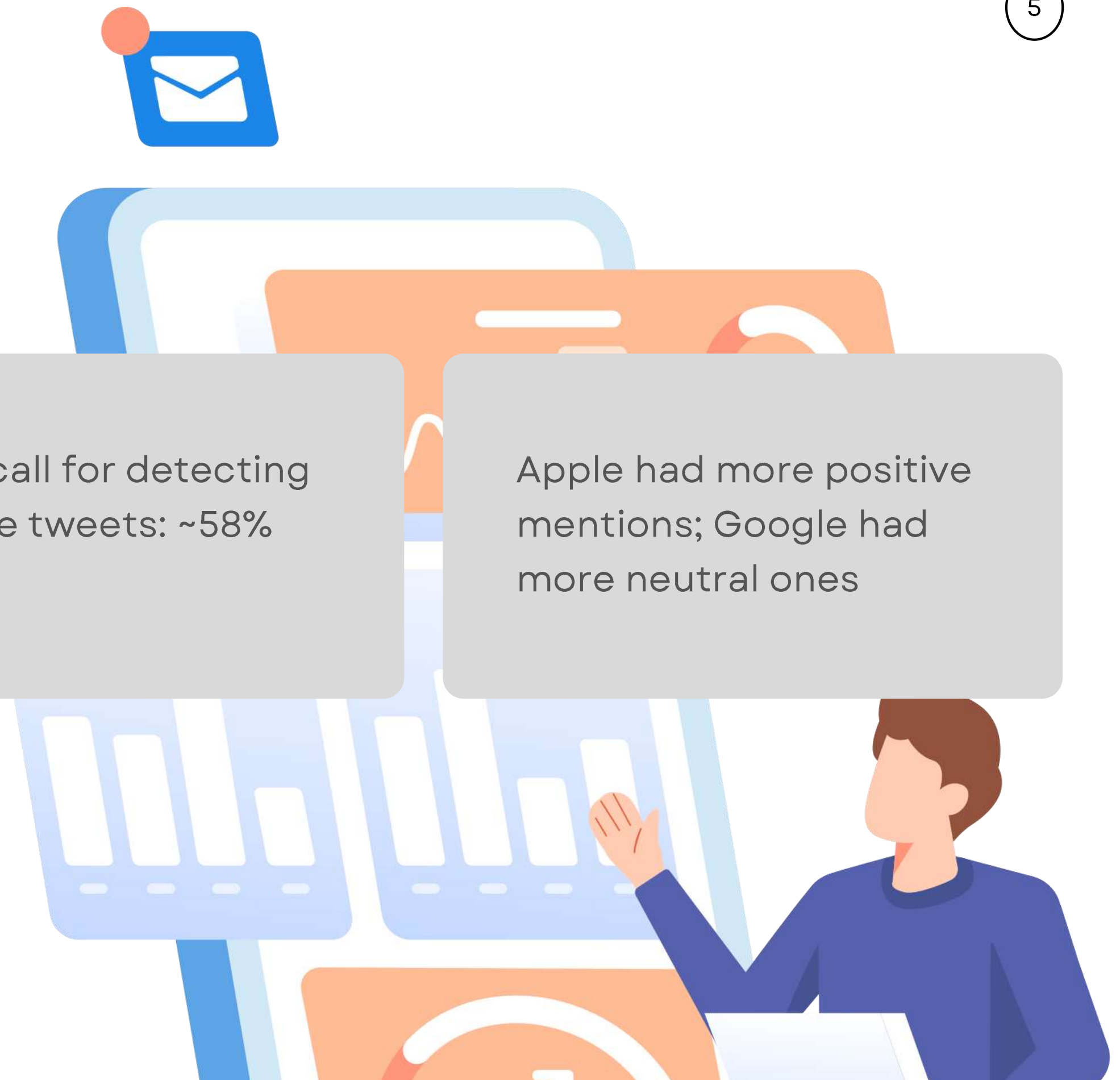
	Binary Classification	Multiclass Classification
Goal	Classify tweets as Positive or Negative	Classify tweets as Positive, Neutral, or Negative
Models Used	Logistic Regression, Naive Bayes	SVM, KNN, Neural Network (MLP)
Handling Imbalance	SMOTE + class weights	RandomOverSampler + class weights
Performance	High accuracy (~85%), well-balanced	Lower accuracy (~50–60%), struggled with minority class
Use Case	Quick alert on sentiment trends	Detailed view of public mood

What Did We Find?

Binary models worked well (>85% accuracy). Multiclass models struggled due to many neutral tweets

Best recall for detecting negative tweets: ~58%

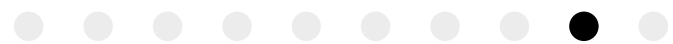
Apple had more positive mentions; Google had more neutral ones



Business Recommendation

What Can Apple & Google Do With This?

- Monitor public sentiment daily with automated tools.
- Focus on improving areas mentioned in negative tweets.
- Track competitor sentiment for strategic positioning.



Thank you for your attention

Any Questions?

