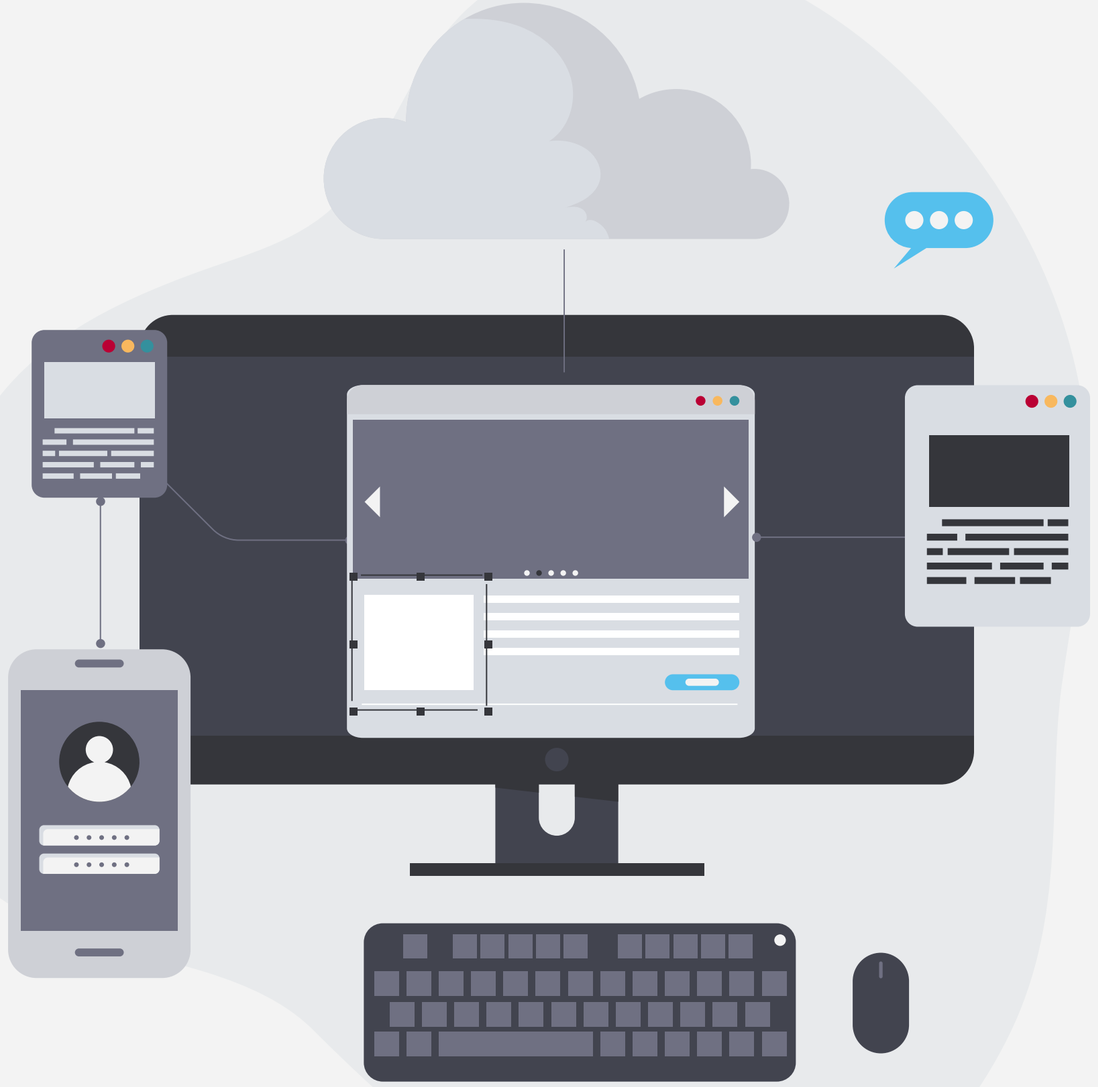
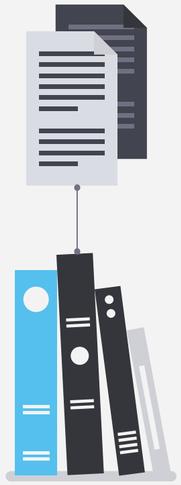
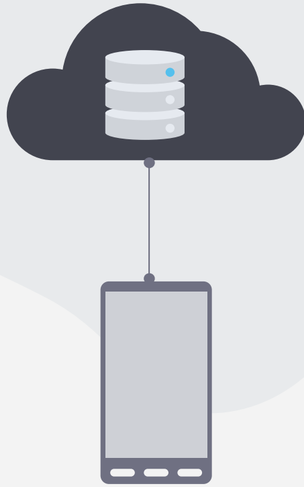
Twitter Sentiment Analysis for Apple Products

By group 11 DSFT-13



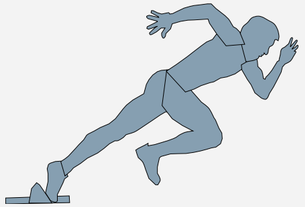




Transforming How We Listen to Customers

- Automated system to classify Twitter sentiment in real-time

- Focus on catching customer complaints quickly



- Enables faster response to product issues

Why We Need This Solution

The Challenge We Face

- Thousands of daily mentions about Apple products on Twitter
- Manual sentiment analysis is slow and inconsistent
- Critical complaints get missed or delayed

Our Automated Solution

- Real-time Twitter sentiment classification
- Enables faster response to issues
- Focus on catching complaints automatically

- ***Business Value:*** *Improved customer satisfaction & product quality*

What We Set Out to Achieve

- **Primary Objective:** Catch customer complaints automatically

OUR TARGETS:

>45% Negative Recall | Achieved: 50%

- Catch nearly half of all complaints

Handle Imbalanced data

- Focus on rare but critical feedback

Real-Time Preprocessing

- Instant analysis of thousands of tweets

Deliver Actionable Insights

- Product teams can trust and act on results

Our 5-Step Analysis Journey

1

Data Preparation

- Cleaning 9,093 tweets
- Removing special characters
- Standardizing text format.

2

Feature engineering

- Transforming text into signals
- Identifying key words
- Creating sentiment indicators

3

Model Selection

- Choosing the right approach for sentiment
- Testing multiple algorithms
- Selecting best performer for our data

4

Handling Imbalance

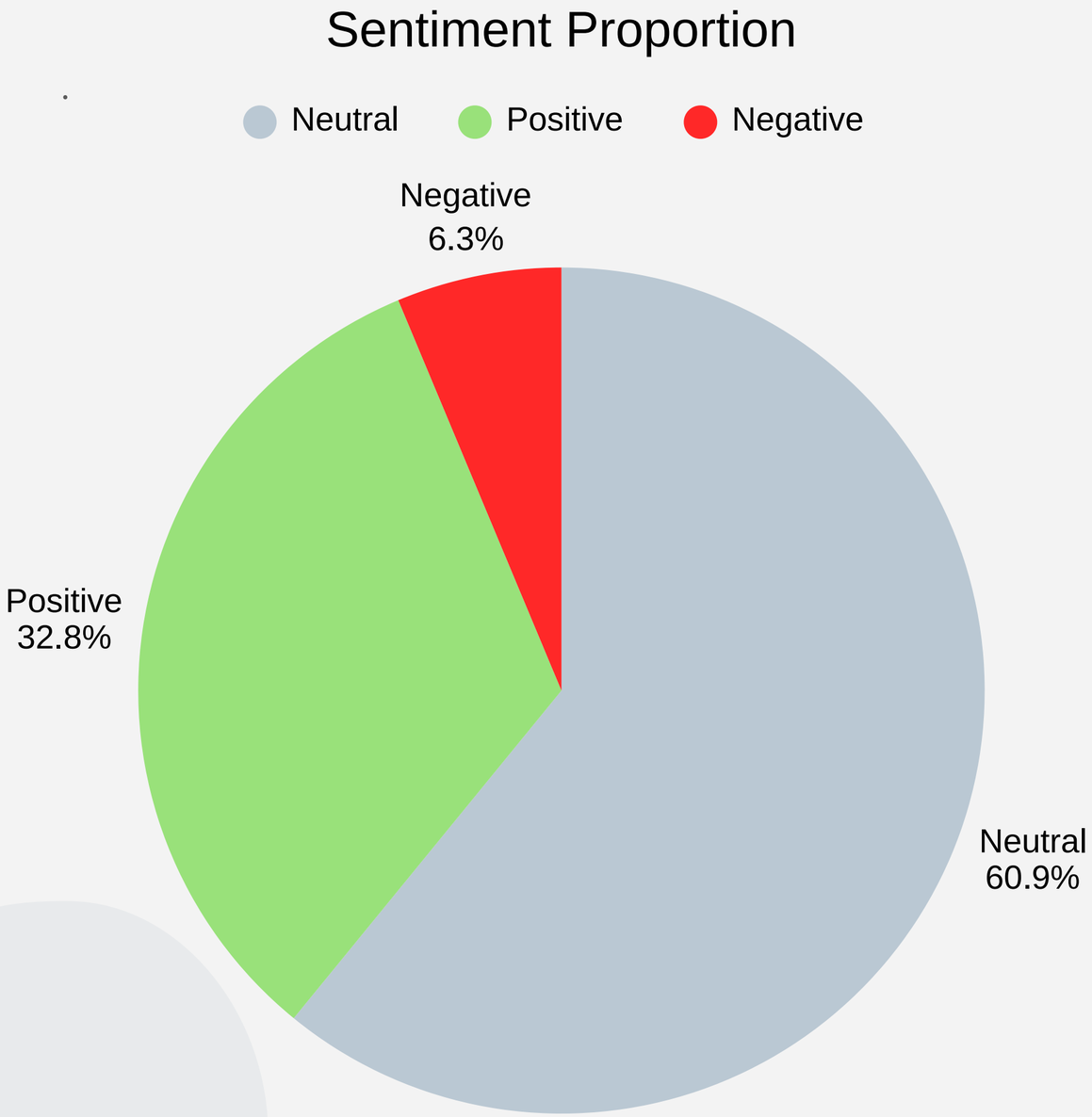
- Special focus on rare but critical complaints
- Addressing the 7% negative tweet challenge

5

Performance Evaluation

- Measuring against business targets
- Evaluating recall and accuracy
- Validating real-world performance

The critical 6%: where the Business value lives



Key Insights:

- 61% Neutral tweets
- 33% Positive feedback
- 6% Negative = Customer Complaints

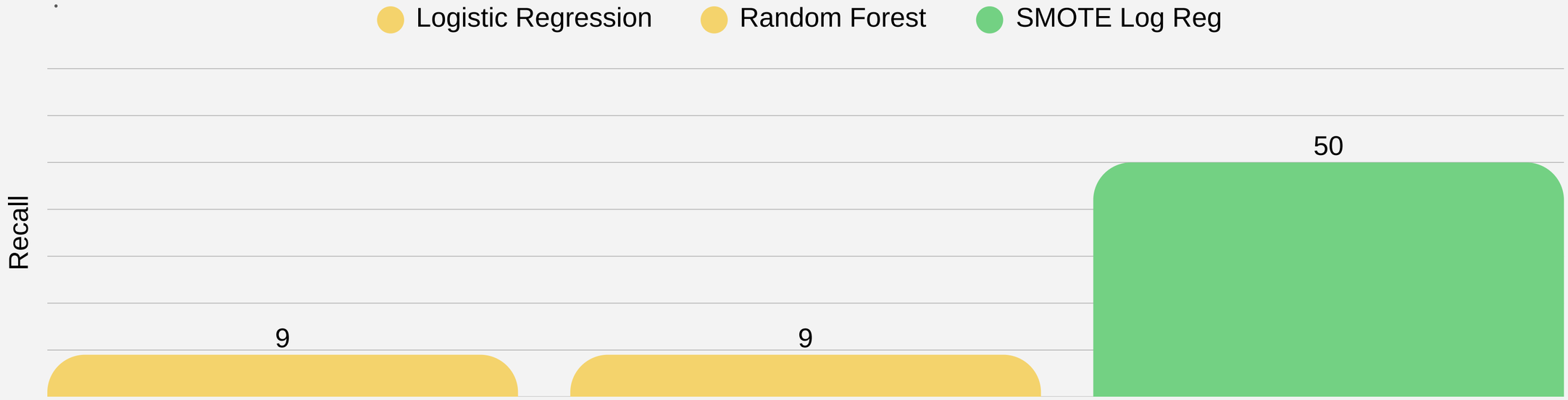
Business Impact:

- The rare 570 negative tweets (6% of total) represent our biggest opportunity for customer satisfaction improvement

Data:

- 9,093 human-labeled tweets from CrowdFlower

Choosing the Right Approach: Why SMOTE Won



Logistic Regression

- Catches 9 out of 100 customer complains
- Biased towards majority classes (94% of data)

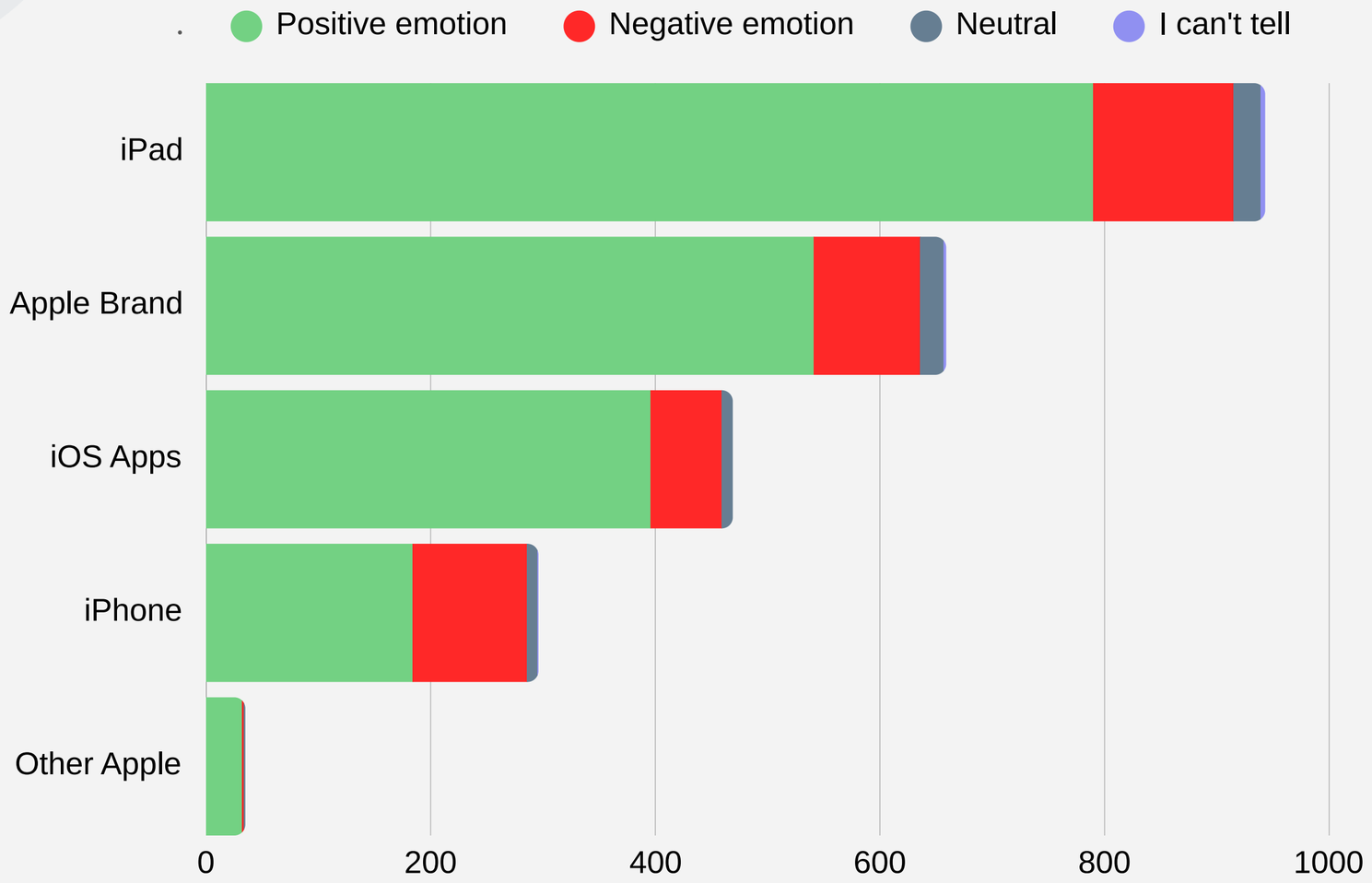
Random Forest

- Also catches 9 out of 100 complains
- Still struggled with the 6% imbalance challenge

SMOTE Log Regression

- Always catches 50% of all complains
- Handles class imbalance effectively
- Balanced performance across metrics

Business Impact: Targeted Product Insights



Priority actions:

iPhone:

- Urgent attention needed
- 34% of tweets are complaints
- Focus on core functionality

iPad:

- Monitor and maintain
- High volume, moderate complaints
- Continue current quality

iOS Apps:

- Success story
- 84% positive sentiment
- Expand successful features

- *Targeted product insights drive high-impact improvements in customer satisfaction.*

Recommendations: From Insights to Impact

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Immediate Actions

Integrate real-time monitoring
Set up automated alerts
Team training on dashboard

Strategic Focus Areas

iPhone: Address core functionality issues
iPad: Maintain quality, monitor trends
iOS Apps: Expand successful features

Longterm Value

Quarterly model updates
Platform expansion (Instagram, Reddit)
Product launch sentiment tracking

Our Evolving Customer Intelligence

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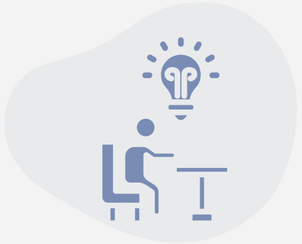


Current Capabilities

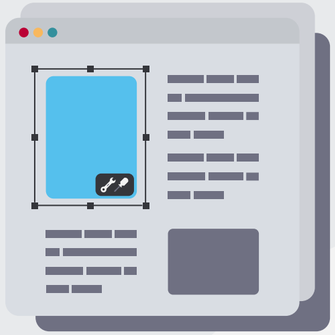
Twitter sentiment
Real-time analysis
Product-specific insights
50% complaint recall

Next Phase Development

Q1 2026: Instagram + Reddit integration
Q2 2026: Predictive analytics prototype
Q3 2026: Global sentiment expansion

Future Vision:

Multi-platform monitoring
Predictive issue detection
Automated response system
Global market intelligence



Thanks!

Do you have any questions?
Github: https://shorturl.at/U40et