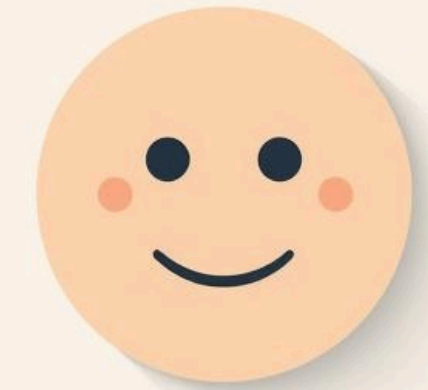



# Amazon Review Sentiment Analysis

ARTI 402 - PROGRAMMING FOR AI

Abdulrahman Alaamri  
Abdullah Alsubaie



# Project Goal & Problem Statement

- **The Problem:** E-commerce sellers face thousands of reviews. Manually reading them to find product defects is impossible.
  - **The Objective:** Build an AI tool to automatically classify sentiment (Positive, Neutral, Negative) and extract actionable quality control insights.
  - **Target Product:** Apple iPhone 4s (Certified Refurbished).
- 

# The AI Solution

01

## TOOLS

- Python
- Pandas
- TextBlob

02

## CLASSIFICATION LOGIC

- **Negative:** Polarity Score  $< -0.2$
- **Neutral:** Polarity Score between  $-0.2$  and  $0.2$
- **Positive:** Polarity Score  $> 0.2$

03

## PROCESS

Imported dataset → Filtered for iPhone 4s →  
Applied Sentiment Analysis → Visualized Results.

# Data Overview

Amazon\_Unlocked\_Mobile.csv (131.88 MB)

DetailCompactColumn

6 of 6 columns

Product Name	Brand Name	Price	Rating	Reviews	Review
The name of the Product. e.g. Sprint EPIC 4G Galaxy SPH-D7	Name of the parent company. e.g. Samsung	Price of the product. (Max: 2598, Min: 1.73, Mean: 226.86)	Rating of the product ranging between 1-5	Description of the user experience	Number of the review 645, Mean
4410 unique values	Samsung <div><div>16%</div><div>16%</div></div> <div>Other (282922)68%</div>	<div><div></div><div>1.732.8k</div></div>	<div><div></div><div>15</div></div>	162492 unique values	0
"CLEAR CLEAN ESN" Sprint EPIC 4G Galaxy SPH- D788*FRONT CAMERA*ANDROID*SLIDE 8*QWERTY KEYBOARD*TOUCH S...	Samsung	199.99	5	I feel so LUCKY to have found this used (phone to us & not used hard at all), phone on line from som...	1
"CLEAR CLEAN ESN" Sprint EPIC 4G Galaxy SPH- D788*FRONT CAMERA*ANDROID*SLIDE 8*QWERTY KEYBOARD*TOUCH S...	Samsung	199.99	4	nice phone, nice up grade from my pantech revan. Very clean set up and easy set up. never had an and...	0
"CLEAR CLEAN ESN" Sprint EPIC 4G Galaxy SPH- D788*FRONT CAMERA*ANDROID*SLIDE 8*QWERTY KEYBOARD*TOUCH S...	Samsung	199.99	5	Very pleased	0
"CLEAR CLEAN ESN" Sprint EPIC 4G Galaxy SPH- D788*FRONT CAMERA*ANDROID*SLIDE 8*QWERTY KEYBOARD*TOUCH S...	Samsung	199.99	4	It works good but it goes slow sometimes but its a very good phone I love it	0
"CLEAR CLEAN ESN" Sprint EPIC 4G Galaxy SPH- D788*FRONT CAMERA*ANDROID*SLIDE 8*QWERTY KEYBOARD*TOUCH S...	Samsung	199.99	4	Great phone to replace my last phone. The only thing is the volume up button does not work, but I do...	0
"CLEAR CLEAN ESN" Sprint EPIC 4G Galaxy SPH- D788*FRONT CAMERA*ANDROID*SLIDE 8*QWERTY KEYBOARD*TOUCH S...	Samsung	199.99	1	I already had a phone with problems... I know it stated it was used, but dang, it did not state that...	1
"CLEAR CLEAN ESN" Sprint EPIC 4G Galaxy SPH- D788*FRONT CAMERA*ANDROID*SLIDE 8*QWERTY KEYBOARD*TOUCH S...	Samsung	199.99	2	The charging port was loose. I got that soldered in. Then needed a new battery so well.. \$188 later (...)	0
"CLEAR CLEAN ESN" Sprint EPIC 4G Galaxy SPH- D788*FRONT CAMERA*ANDROID*SLIDE 8*QWERTY KEYBOARD*TOUCH S...	Samsung	199.99	2	Phone looks good but wouldn't stay charged, had to buy new battery. Still couldn't stay charged long...	0

apple iphone 4s 16gb black

5.0

2 ratings

Electronics

Return Policy

Secure Transaction

Currently unavailable.

We don't know when or if this item will be back in stock.

Ordering to Riyadh - Update location

Add to List

Brand: Apple

Operating system: iOS

CPU model: Apple A5

Memory storage capacity: 16 GB

About this item

Brand: Apple

Color: Black

Operating System Type: iOS

Storage Capacity: 16 GB

Screen Size: 3.5 - 4 inch

Number Of SIM: Single SIM

Rear Camera Resolution: 8 MP & Above

Report an issue with this product

White Friday Sale | Epic Electronics Savings

Split your payment, 0% interest

Expires more

Product details

Product Dimensions : 12.7 x 7.62 x 2.54 cm; 453.59 g

Date First Available : 28 October 2015

Manufacturer : Apple Computer

ASIN : B00NEVY2U

Item model number : A1387

Customer reviews: 5.0

2 ratings

Customers also viewed these products

Apple (Refurbished) iPhone XS (128GB) - Black

Apple (Refurbished) iPhone 11 Pro Max with FaceTime - 256GB, 4G LTE, Midnight Green, Middle East Version

Apple (Refurbished) iPhone 11 (128GB) - Midnight

Apple iPhone 11 (128GB) - Blue

Apple (Refurbished) iPhone 11 (128GB) - Blue

Apple (Refurbished) iPhone 11 Pro Max (256GB) - Sierra Blue (5yr)

Apple (Refurbished) iPhone 11 (128GB) - Green

Product description

Brand: Apple

Color: Black

Operating System Type: iOS

Storage Capacity: 16 GB

Screen Size: 3.5 - 4 inch

Number Of SIM: Single SIM

Rear Camera Resolution: 8 MP & Above

Mobile Phone Type: Smartphone

Cellular Network Technology: 3G

Chipset manufacturer: Apple

Display Size (inch): null

Model Number: A1387

Battery Capacity (mAh): 2000 - 3000 mAh

Fast Charge: 0

Memory MB: 512 MB

Customer Reviews

5 out of 5

2 global ratings

5 star100%

4 star0%

Top reviews from Saudi Arabia

Translate all reviews to English

user: HEP50K1

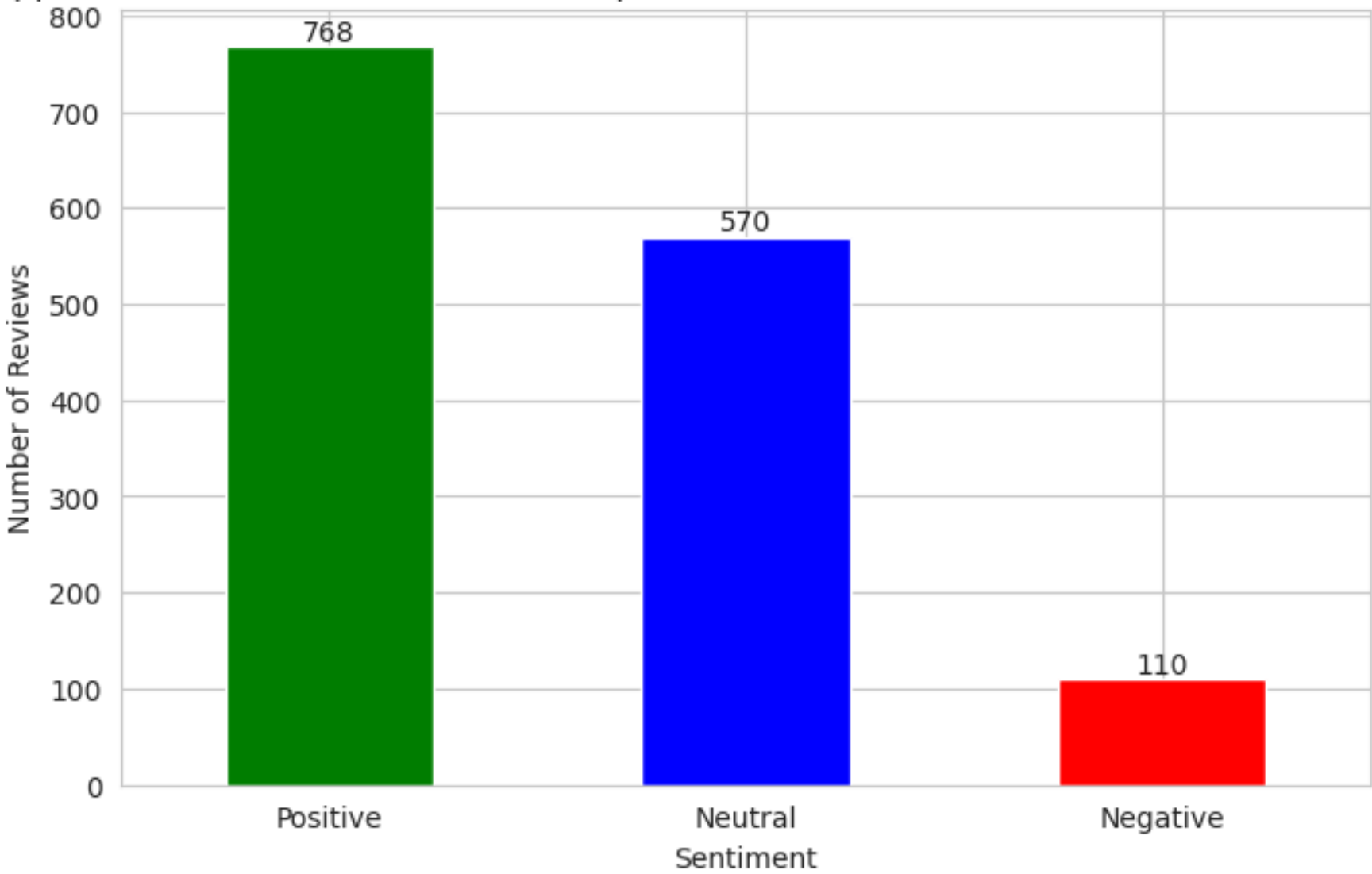
## DATASET

PromptCloud Amazon Unlocked  
Mobile Phones

## VOLUME ANALYZED

1,448 Reviews of iPhone 4s

Apple iPhone 4s 8GB Unlocked Smartphone w/ 8MP Camera, White (Certified Refurbished)



# Analysis Results

## SENTIMENT DISTRIBUTION:

- Positive: 53% (768 reviews)
- Neutral: 39% (570 reviews)
- Negative: 8% (110 reviews)

While the product is generally well-received, the high "Neutral" block is suspicious and warrants investigation.

# Key Insights & Recommendations



## BATTERY FAILURES

"Negative" reviews consistently report dead or bad batteries.

- **Action:** Implement strict battery health testing before shipping.



## HIDDEN DEFECTS

The AI missed broken phones (e.g., "not working") and labeled them "Neutral".

- **Action:** Manually check "Neutral" reviews for functional failures.

# Conclusion & Limitations

## SUMMARY

The AI successfully identified a specific quality control issue (Batteries) in the refurbished stock.

## LIMITATION

TextBlob is Lexicon-based. It struggles with Sarcasm and context.

## FUTURE WORK

Use deep learning models (like BERT) to better catch context and "hidden" negative sentiment.



**ANY QUESTION ?**