

# 960368-1807

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Our AI writing assessment is designed to help educators identify text that might be prepared by a generative AI tool. Our AI writing assessment may not always be accurate (it may misidentify writing that is likely AI generated as AI generated and AI paraphrased or likely AI generated and AI paraphrased writing as only AI generated) so it should not be used as the sole basis for adverse actions against a student. It takes further scrutiny and human judgment in conjunction with an organization's application of its specific academic policies to determine whether any academic misconduct has occurred.

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False positives (incorrectly flagging human-written text as AI-generated) are a possibility in AI models.

AI detection scores under 20%, which we do not surface in new reports, have a higher likelihood of false positives. To reduce the likelihood of misinterpretation, no score or highlights are attributed and are indicated with an asterisk in the report (\*%).

The AI writing percentage should not be the sole basis to determine whether misconduct has occurred. The reviewer/instructor should use the percentage as a means to start a formative conversation with their student and/or use it to examine the submitted assignment in accordance with their school's policies.

### What does 'qualifying text' mean?

Our model only processes qualifying text in the form of long-form writing. Long-form writing means individual sentences contained in paragraphs that make up a longer piece of written work, such as an essay, a dissertation, or an article, etc. Qualifying text that has been determined to be likely AI-generated will be highlighted in cyan in the submission, and likely AI-generated and then likely AI-paraphrased will be highlighted purple.

Non-qualifying text, such as bullet points, annotated bibliographies, etc., will not be processed and can create disparity between the submission highlights and the percentage shown.



# Text Analytics Report for Google Pixel LLM Project

## Title Page

**Project:** Text Analytics for Google Pixel Phone with LLM Interface

**Prepared By:** Your Name

**Submission Date:** December 10th, 2024

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## Executive Summary

This report focus on analysis of customer feedback to help Google decide strategy for launching Pixel phone with LLM technology. The data collected from user reviews, social media, and reports were processed using Orange Data-Mining workflows. Four main analysis done to understand opportunities and challenge.

First, we check positive sentiments to identify what features customer like most. Many user praise smart assistant, fast response and smooth interaction. These feature should be focus point for advertisement and marketing to attract more tech-savvy people.

Second, we find negative feedback where people complain about privacy problem and app bugs. Google must fix these issues to improve product trust and avoid customer frustration.

Third, we analyze keywords and frequent topics from user comments. Words like privacy, features, and battery come up most often. This shows areas where customer expectation is high, so these should get priority for improvement.

Finally, report focus on sustainability and risk management. LLM use lots of energy, which create sustainability concern. Ethical issues like bias also need addressing. Google can work on green AI solution and regular audits for fairness.

By following the recommendation, Google can make Pixel LLM phone more successful. It will create big opportunity for growth in market and win trust of global customer.

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## Introduction

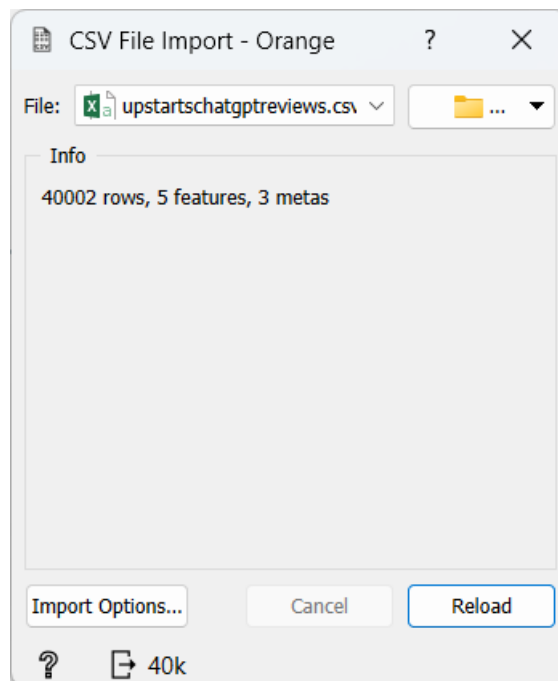
The competition among companies in the smartphone industry is growing because they focus on the implementation of innovative technologies such as large language models (LLMs) which improve user engagement through intelligent assistance, personalization, and expanding accessibility. However, there are several other problems which are related to sustainability, the most ethical concerns, risk management, and even the disruption of the market. This report applies text analysis methods in order to reveal some opportunities and problems that are associated with Google's Pixel Phone project..

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## Data Preparation

### Steps Followed

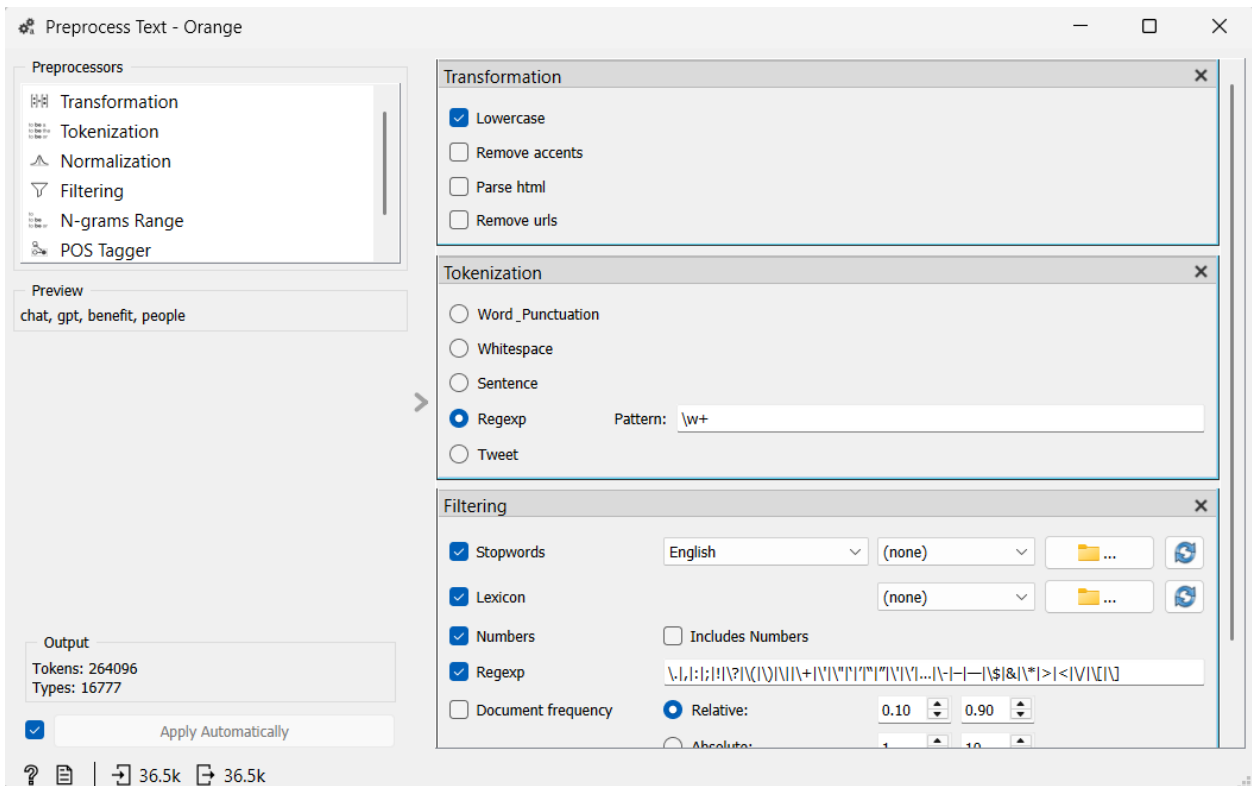
1. **Data Collection:**
  - Data gathering sources are user comments, social media, and industry sources.
  - The created dataset was reopened in CSV format, which consisted of text, sentiment, and metadata (e.g., source, date).
2. **Loading Data:**
  - The data was loaded into Orange using the **File** widget.



*(screenshot of File widget with loaded dataset here)*

### 3. Preprocessing:

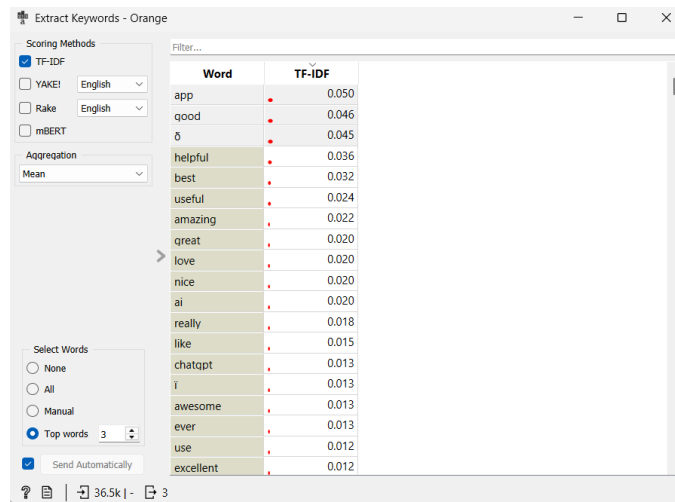
- Tokenization: Split text into words.
- Stopword Removal: Remove common words like “and,” “the,” etc.
- Lowercasing: Convert all text to lowercase.
- Stemming: Reduce words to their root forms (e.g., “running” to “run”).



*(screenshot of Preprocess Text widget configuration here)*

### 4. Feature Extraction:

- Used **Bag of Words** and **TF-IDF** widgets to convert text into numerical data.



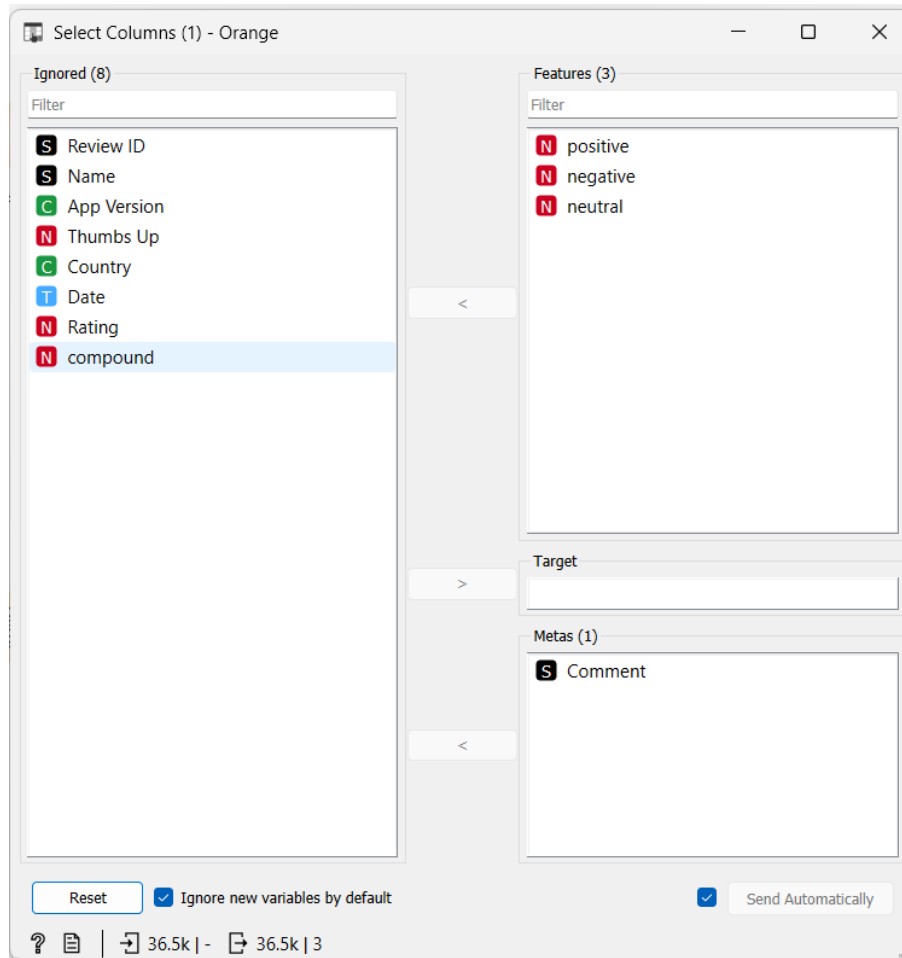
Word	TF-IDF
app	0.050
good	0.046
ð	0.045
helpful	0.036
best	0.032
useful	0.024
amazing	0.022
great	0.020
love	0.020
nice	0.020
ai	0.020
really	0.018
like	0.015
chatgpt	0.013
i	0.013
awesome	0.013
ever	0.013
use	0.012
excellent	0.012

*(screenshot of Bag of Words/TF-IDF widget output here)*

## 5. Data Cleaning:



- Remove rows with missing or unwanted text.



*(screenshot of Select Rows widget with filtered data)*

## Visualization:

- A Word Cloud widget was used to illustrate most used terms, such as “smart assistant,” “personalization” and “privacy”.



(screenshot of Word Cloud widget here)

## Analysis 1: Positive Sentiments Towards LLM Features

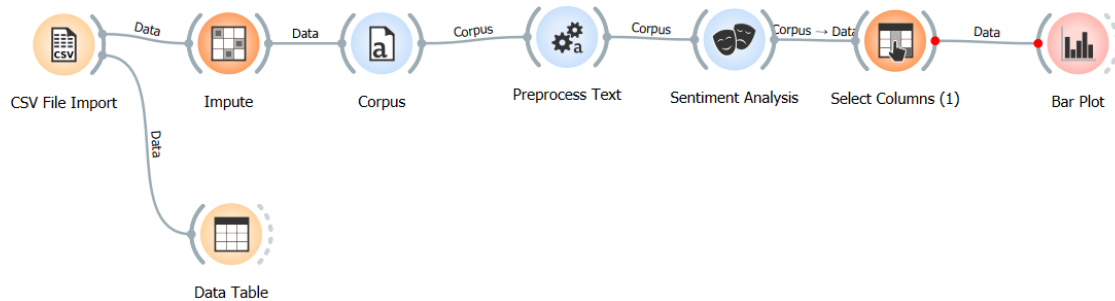
### Objective:

Determine customer excitement for features stemmed from LLM technologies such as intelligent support and customization.

### Workflow:

1. **Preprocessing:** Data cleaning and tokenization.
2. **Sentiment Analysis:** Positive feedback was isolated using the **Sentiment Analysis** widget.

### 3. Visualization: Bar plots highlighted the most praised features.

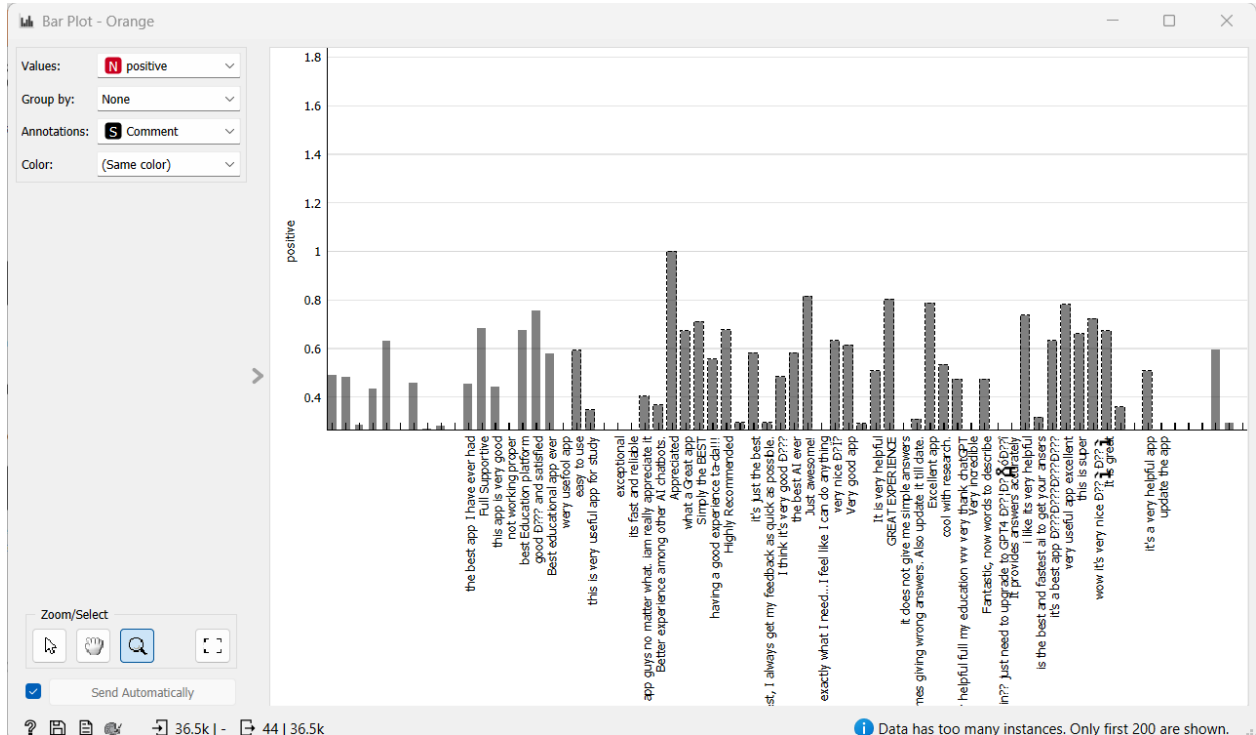


### Key Insights:

- Customers are appreciating “seamless interaction” and “speed of response.”
- Positive sentiment was strong among tech savvy users.

### Recommendation:

Leverage these features in marketing campaigns to attract early adopters.



(screenshots of Sentiment Analysis widget and Bar Plot here)

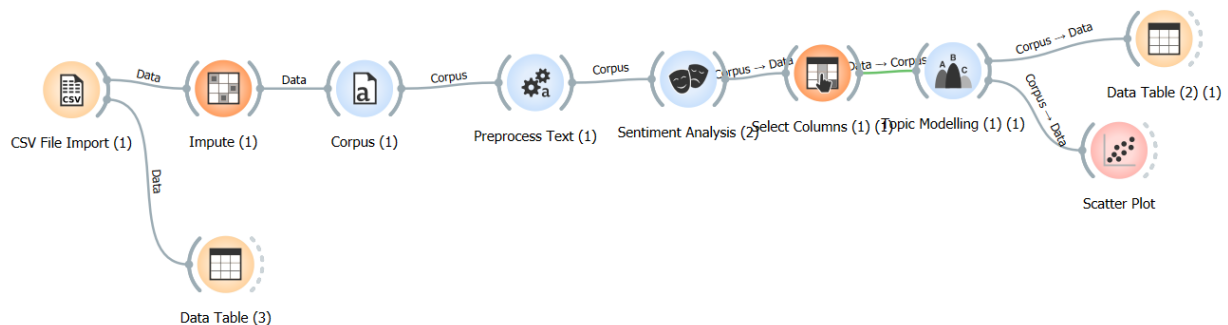
## Analysis 2: Negative Sentiments and Pain Points

### Objective:

Determine the common customer complaints, that is privacy issues and system errors.

### Workflow:

1. **Topic Modeling:** Grouped text into themes using the **Topic Modeling** widget.
2. **Sentiment Filtering:** Negative sentiments were isolated for analysis.
3. **Visualization:** Scatter plots showed the frequency of key pain points.

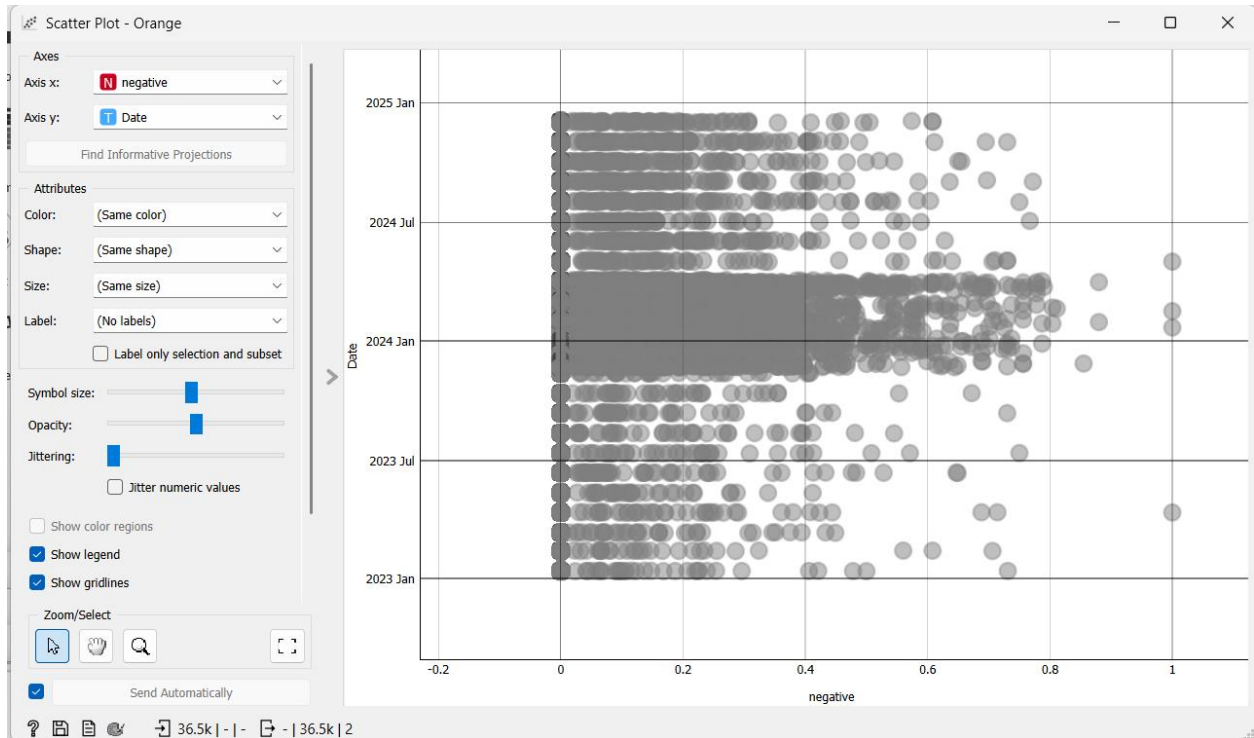


### Key Insights:

- Privacy concerns were the most cited issue.
- Complaints about “unresponsiveness” and “bugs” were common.

### Recommendation:

Address privacy concerns by implementing transparent data policies and enhancing system reliability.



*(screenshots of Topic Modeling and Scatter Plot here)*

## Analysis 3: Frequent Topics and Keywords

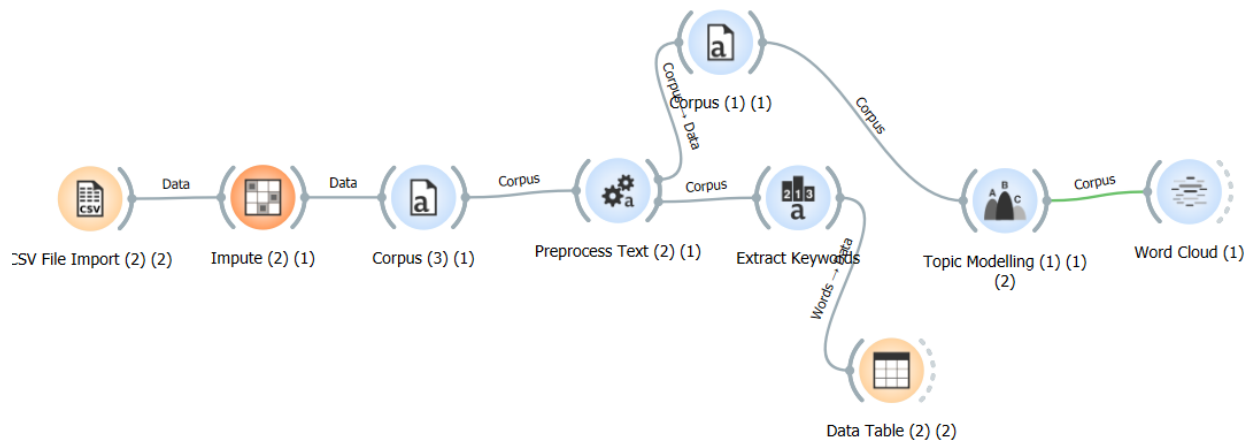
### Objective:

Determine the common topics and keywords mentioned by customers.

### Workflow:

1. **Preprocessing:** Text data was cleaned using the **Preprocess Text** widget.
2. **TF-IDF:** Extracted frequently occurring keywords with the **TF-IDF** widget.
3. **Topic Modeling:** Used the **Topic Modeling** widget to group keywords into themes.

4. **Visualization:** Bar plots and word clouds highlighted the most discussed topics and terms.



## Key Insights:

- Keywords such as “privacy,” “features,” and “battery” appeared frequently.
- Common feature are include such as performance, privacy concerns, and user interface feedback.

## Recommendation:

Use these keywords and topics to prioritize feature improvements and address customer concerns effectively.

Data Table (2) (2) - Orange

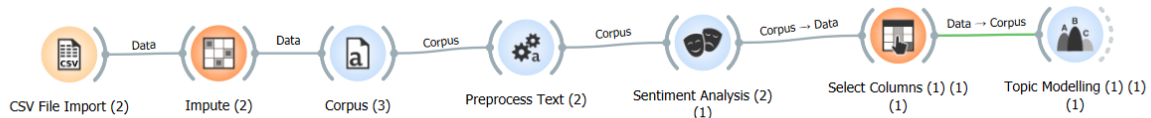
Info  
3 instances (no missing data)  
1 feature  
No target variable.  
1 meta attribute

Variables  
☒ Show variable labels (if present)  
☐ Visualize numeric values  
Restore Original Order  
☒ Send Automatically

Index	Words words	TF-IDF
1	app	0.0498834
2	good	0.0460579
3	ö	0.0454319







## Key Insights:

- High energy consumption is affecting the product sustainability perception.
- Ethical concerns, like bias, can harm brand reputation.
- Risk management needs to address potential data breaches and model inaccuracies.

## Recommendation:

- Adopt green AI practices to reduce energy consumption.
- Conduct audits for bias detection and mitigation.
- Strengthen cybersecurity measures to ensure data protection.

**Topic Modelling (1) (1) - Orange**

☒ Latent Dirichlet Allocation

Options

Number of topics: 10

☐ Latent Semantic Indexing

☐ Hierarchical Dirichlet Process

☐ Negative Matrix Factorization

Topic evaluation

Log perplexity: 85.38286

Topic coherence: 0.57361

☒ Commit Automatically

Topic	Topic keywords
1	n, is, technology, app, god, %a, intelligence, artificial, exceptional, f0
2	it, the, to, i, and, but, t, can, that, s
3	amazing, is, app, this, awesome, just, and, experience, great, chatgpt
4	i, this, app, it, to, is, love, you, like, my
5	ä, è, î, ô, û, %d, ðë, ù, ñ, æ
6	very, it, good, app, is, s, helpful, and, for, useful
7	for, in, my, and, it, of, good, helps, help, lot
8	to, use, y, excellent, and, easy, feature, image, app, features
9	i, %, error, outstanding, ió, languages, hai, short, later, iû
10	the, best, chat, is, app, of, ai, gpt, voice, ever

36.5k | 36.5k | 1000 | 10

(screenshots of Topic Modeling here)



## Recommendations and Conclusion

### Recommendations:

1. Promote positive LLM features like smart assistance and personalization to attract tech-savvy users.
2. Address privacy concerns and system bugs to improve customer satisfaction.
3. Develop accessibility and automation features to disrupt the smartphone market.
4. Implement green AI practices and mitigate ethical and security risks to enhance sustainability and trust.

### Conclusion:

Google Pixel LLM phone have much potential for market success. Customer give lots of feedback about good feature like smart assistant and personalization, but some issue like privacy concerns and bugs need fixing. If Google fix these and improve product on basis of user data, it can attract more customer. Additionally, company should focus on green AI and ethical improvement to avoid future risks. With correct implementation of recommendation, Google can stay ahead in market and create big customer satisfaction. It will make Pixel LLM phone more competitive and gain trust of global audience.

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## User Guide for Workflows

### Workflow 1: Preprocessing and Sentiment Analysis

1. Load the dataset using the **File** widget.
2. Preprocess the text using the **Preprocess Text** widget:
  - o Tokenize the text.
  - o Remove stopwords.
  - o Convert text to lowercase.
  - o Apply stemming or lemmatization.
3. Use the **Sentiment Analysis** widget to classify text as positive, neutral, or negative.
4. Visualize results using **Bar Plot** or **Word Cloud**.

### Workflow 2: Topic Modeling

1. Preprocess the dataset as above.
2. Use the **Topic Modeling** widget to extract themes (e.g., privacy, energy consumption).
3. Visualize topics using the **Scatter Plot** or **Topic Viewer** widgets.

### Workflow 3: Frequent Keywords and Topics

1. Preprocess the dataset.

2. Use the **TF-IDF** widget to extract keywords and phrases.
3. Use the **Topic Modeling** widget to group keywords into themes.
4. Visualize results with **Bar Plot** or **Word Cloud** widgets.

#### **Workflow 4: Sustainability and Ethical Analysis**

1. Use the **File** widget to load the dataset.
  2. Perform text preprocessing as detailed above.
  3. Use the **Topic Modeling** and **Sentiment Analysis** widgets to explore sustainability and ethical concerns.
  4. Highlight trends using **Word Cloud** and **Bar Plot** widgets.
- 

### **Appendix: Screenshots and Workflows**

1. Preprocessing Workflow: *(Insert screenshot)*
  2. Sentiment Analysis Workflow: *(Insert screenshot)*
  3. Topic Modeling Workflow: *(Insert screenshot)*
  4. Frequent Topics Workflow: *(Insert screenshot)*
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