

Project Brief Document: Customer Feedback Analysis Project

1. Project Overview

Project Title: Customer Feedback Analysis Using Web Scraping and Sentiment Analysis

Project Duration: 4 Weeks

Project Type: Data-Driven Business Insights

Project Framework: Agile (Scrum-based)

Objective: This project aims to collect and analyze customer feedback from e-commerce platforms, social media, and review sites to derive actionable insights that can improve business decision-making. The project will leverage **web scraping**, **data engineering**, **sentiment analysis**, and **business analytics** to identify customer satisfaction trends and provide recommendations for business improvement.

2. Project Goals and Deliverables

Goals:

- Develop a web scraping pipeline to collect customer feedback from multiple online sources.
- Clean, preprocess, and categorize the data for sentiment analysis.
- Use **Natural Language Processing (NLP)** techniques to determine customer sentiment (positive, neutral, or negative).
- Create **interactive dashboards** and **reports** summarizing insights from customer feedback.
- Provide **business recommendations** based on the findings.

Key Deliverables:

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- **Scraped and Cleaned Data:** A dataset containing customer reviews, ratings, and comments from various sources ().
- **Sentiment Analysis Report:** A breakdown of customer sentiment trends.
- **Business Insights & Recommendations:** Key findings with actionable suggestions for business improvement.
- **Dashboard & Visualizations:** Graphical representation of customer sentiment, issues, and trends.
- **Final Presentation:** Summary of project insights delivered to stakeholders.

3. Project Roles and Responsibilities

This project involves a **cross-functional team** of professionals, each contributing to specific aspects of the analysis.

1. Data Engineers

- **Responsibilities:**
 - Identify and scrape customer feedback data from e-commerce sites, review platforms, and social media.
 - Use tools such as **Scrapy, BeautifulSoup, Selenium**, and **API requests**.
 - Clean, preprocess, and structure the raw data for analysis.
 - Store the scraped data in a database or cloud storage for easy access.

2. Data Analysts

- **Responsibilities:**
 - Perform **Exploratory Data Analysis (EDA)** to understand customer trends.
 - Identify patterns and anomalies in feedback data.
 - Develop **interactive dashboards** using **Tableau, Power BI, or Matplotlib**.
 - Provide statistical summaries and trends to support sentiment analysis.

3. Data Scientists

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- **Responsibilities:**

- Implement **Natural Language Processing (NLP)** for sentiment analysis.
- Use libraries such as **NLTK, TextBlob, VADER, or Transformers**.
- Train machine learning models (if necessary) to classify customer sentiment.
- Optimize models for **accuracy and precision**.

4. Business Analysts

- **Responsibilities:**

- Translate data insights into **business-friendly reports**.
- Identify key business problems and recommend actionable solutions.
- Work with stakeholders to understand key pain points in customer experience.
- Assist in developing strategies based on the findings.

5. HR Analysts

- **Responsibilities:**

- Analyze employee-related feedback from job review sites.
- Correlate customer feedback with employee satisfaction metrics.
- Identify potential HR or training-related improvements based on customer interactions.
- Develop recommendations for HR teams to enhance customer service training.

6. Agile Project Managers

- **Responsibilities:**

- Facilitate **Agile sprints, stand-up meetings, and retrospectives**.
- Track project progress and ensure timely delivery of milestones.
- Ensure seamless collaboration across teams.
- Mitigate roadblocks and optimize workflow.

4. Agile Project Timeline (4 Weeks)

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Week	Tasks
Week 1: Data Collection	- Web scraping setup and data extraction - Store scraped data in a structured format - Initial data cleaning and preprocessing
Week 2: Data Preprocessing & EDA	- Deep cleaning, handling missing values, removing noise - Exploratory Data Analysis (EDA) - Identify sentiment trends and key feedback themes
Week 3: Sentiment Analysis & Insights	- Apply NLP models for sentiment classification - Generate insights and trends from sentiment analysis - Build visual dashboards and reports
Week 4: Business Insights & Presentation	- Finalize key findings and actionable recommendations - Prepare a final report and dashboard - Deliver a stakeholder presentation

5. Tools & Technologies

Category	Tools
Web Scraping	Scrapy, BeautifulSoup, Selenium
Data Storage	MySQL, PostgreSQL, Google Cloud, AWS S3
Data Analysis	Pandas, NumPy, Matplotlib, Seaborn
NLP & Sentiment Analysis	NLTK, VADER, TextBlob, Scikit-learn, Transformers
Visualization	Tableau, Power BI, Matplotlib, Seaborn
Agile Management	Jira, Trello, Monday.com

6. Expected Outcomes

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- **Customer Sentiment Report:** A detailed report on how customers perceive the business.
- **HR & Employee Insights:** If applicable, a summary of HR-related feedback trends.
- **Data-Driven Recommendations:** Clear, actionable steps for businesses to improve customer satisfaction and service quality.
- **Intern Development:** Hands-on experience in **data engineering, analytics, business analysis, and agile project management**.

7. Success Metrics

- **Accuracy of Sentiment Analysis Models** (Target: >85%)
- **Number of Insights Extracted** (Target: At least 10 key insights)
- **Completion of Deliverables** (Timely delivery of dashboards, reports, and presentations)
- **Intern Feedback** (Assess the learning experience and practical application of skills)

8. Conclusion

The **Customer Feedback Analysis Project** will provide valuable insights to businesses while offering interns hands-on experience in real-world **data science, analytics, and business decision-making**. By leveraging **web scraping and sentiment analysis**, the project will help organizations enhance customer satisfaction and service strategies, ensuring competitive business growth.

Next Steps:

- Kickoff meeting with all team members.
- Assign specific tasks based on expertise.
- Set up collaborative tools (Slack, Jira, GitHub, Google Drive).
- Begin sprint planning and execution.