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Arabic Sentiment Analysis

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Introduction

1. Sentiment Analysis

What makes sentiment analysis different from other analysis is that it is automatic.

All of the opinions and data that is gathered from your customers is based on the language they use when they talk about your product. So, if they are referring to your product or business in a positive, negative or neutral way, you will know about it through sentiment analysis.

In order to find these opinions, data-miners use a method called Natural Language Processing (NLP). NLP is basically a system that is built to extract opinions from text and tell the difference between all the words, automatically

2. Sentiment Analysis important

Sentiment analysis is one of the most important tools that allow owners of products and services to optimize marketing, which is carried out in various ways through:

- Targeting them directly to the target group with their needs and thus satisfying their desires. Expanding the scope of their audience by integrating more customers with competitors by knowing and targeting their purchasing behavior and the extent of their acceptance and satisfaction with the various services and products provided to them.
- E-marketing is one of the most important tools in dealing with different customers, and the "presence before others" strategy is one of the most important features of the scramble between companies to attract customers to them.

- Correction of the path: Sentiment analysis can be used as a tool to correct services or products offered to customers without directly disclosing it, thus attracting their attention and increasing their loyalty.

- Communication bridge: The sentiment analysis tool is a communication bridge with customers so that they can communicate with them and know their problems or obstacles, or even messages of thanks, praise and compliments for what is presented.

3. Sentiment Analysis Examples

1- Brand Monitoring

Customers love being heard.

Every time a customer mentions your brand name, you should be listening. Because each time they mention you, it gives your company the chance to get a glimpse of their sentiment towards your brand and your products.

2. Improving Your Customer Support

Did you know that more than 25% of customers drop a product or brand after ONE bad customer service experience?

With the rise of social media, forums, and opinions, that one bad experience has the ability to cost your business over and over again.

3. Tracking Your Employees' Feedback

Mining the opinions of your employees is something a lot of companies overlook.

By analyzing employee surveys and segmenting them, you can weed out key problems in your company and workforce. This allows your employees to be heard, which is crucial for any company.

You will also be able to track their work satisfaction levels and flag urgent problems that need to be addressed in your company.

4.Social Media Monitoring

Social media monitoring is another way businesses are currently using sentiment analysis to keep track of what customers are saying.

By digging into all of your customer's social media opinions about your brand, you are also able to automatically categorize issues of urgency so you can deal with them straight away.

4. The main challenges in Sentiment Analysis (in general)

There are several defined elements in a piece of text that factor into sentiment analysis: the object, the attributes, the opinion holder, the opinion orientation, and the opinion strength.

Object: The product, service, individual, organization, event or topic being analyzed.

Example: iPhone

Attributes: The specific components and properties of the object

Component examples: battery, touch screen, headphone jack

Property examples: size, weight, processing speed

Opinion holder: The person or organization who's expressing the sentiment

Example: the person who purchased the iPhone

Opinion orientation (polarity): The general position of the opinion

Examples: positive, negative or neutral

Opinion strength: The level, scale or intensity of the opinion

Examples: ecstatic > joyous > happy > contented

To obtain complete, accurate and actionable information from a piece of text, it's important to not only identify each of these five elements individually but to also understand how they work together to provide the full context and sentiment.

Because keyword processing only identifies the sentiment reflected in a particular word, it typically fails at providing all of the elements necessary to understand the complete context of the entire piece.

Natural language processing uses machine learning and data mining to provide a more complete picture, but the inherent complexity of language makes it difficult to ensure algorithms accurately analyze tone and context. Factors that limit these algorithms include grammatical nuances, implied meaning from facial expressions and body language, misspellings, ambiguity, and regional or cultural variations in language.

5. The main challenges in Arabic Sentiment Analysis

Sentiment analysis is the process of detecting positive or negative sentiment in text. It's often used by businesses to detect sentiment in social data, gauge brand reputation, and understand customers

6. The general architecture of Sentiment Analysis system

Sentiment Analysis Challenges Sentiment analysis is one of the hardest tasks

in natural language processing because even humans struggle to analyze

sentiments accurately. Data scientists are getting better at creating more accurate

sentiment classifiers, but there's still a long way to go. Let's take a closer look at

some of the main challenges of machine-based sentiment analysis:

1. Subjectivity & Tone

2. Context & Polarity

3. Irony & Sarcasm

4. Comparisons

5. Emojis

6. Defining Neutral

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│    Data     │ ───▶ │  Preprocessing  │ ───▶ │   Machine   │
│ Collection  │      │    of Data      │      │  Learning   │
│             │      │                 │      │  Algorithm  │
└─────────────┘      └─────────────────┘      └──────┬──────┘
                                                     │
┌─────────────────┐      ┌──────────────────┐        │
│  Presentation   │ ◀─── │    Sentiment     │ ◀──────┘
│  of Results     │      │  Classification  │
└─────────────────┘      └──────────────────┘
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