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Discover Insights and Relationships in Text Using Amazon Comprehend

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Abstract-- Cloud Computing is an emerging, rapidly developing and excellent promising technology. It describes computation, software, data access, and storage services that do not require end-user knowledge of the physical location and configuration of the system that delivers the services. Cloud computing is a natural evolution of the widespread adoption of virtualization, service, autonomic and utility computing. Amazon Web Services (AWS) offers reliable, scalable, and inexpensive cloud computing services and supports many services which are very much useful for the users; Amazon Comprehend is one of them.

Keywords-- *Amazon Comprehend, Natural Language Processing, Text Processing*

I. INTRODUCTION

Amazon Comprehend is a natural language processing (NLP) service that uses machine learning to find insights and relationships in text. There is a treasure trove of potential sitting in your unstructured data. Customer emails, support tickets, product reviews, social media, even advertising copy represents insights into customer sentiment that can be put to work for your business. Amazon Comprehend uses machine learning to help you uncover the insights and relationships in your unstructured data. The service identifies the language of the text; extracts key phrases, places, people, brands, or events; understands how positive or negative the text is; analyzes text using tokenization and parts of speech; and automatically organizes a collection of text files by topic. You can also use Auto ML capabilities in Amazon Comprehend to build a custom set of entities or text classification models that are tailored uniquely to your organization's needs. For extracting complex medical information from unstructured text, you can use Amazon Comprehend Medical. The service can identify medical information, such as medical conditions, medications, dosages, strengths, and frequencies from a variety of sources like doctor's notes, clinical trial reports, and patient health records. Amazon Comprehend is fully managed, so there are no servers to provision, and no machine learning models to build, train, or deploy.

II. BENEFITS

A. Get better answers from your text

Amazon Comprehend can discover the meaning and relationships in text from customer support incidents, product reviews, social media feeds, news articles, documents, and other sources. For example, you can identify the feature that's most often mentioned when customers are happy or unhappy about your product.

B. Organize documents by topics

Amazon Comprehend can analyze a collection of documents and other text files (such as social media posts) and automatically organize them by relevant terms or topics. You can then use the topics to deliver personalized content to your customers or to provide richer search and navigation.

C. Train models on your own data

You can easily extend Amazon Comprehend to identify specific terms, such as policy numbers or part codes. You can also extend Comprehend to classify documents and messages in a way that makes sense for your business, like customer support inquiries by request or social media posts by product. Adding this customization requires no machine learning expertise. You simply provide your labels and a small set of examples for each, and Comprehend takes care of the rest.

D. Support for general and industry specific text

Powered by state-of-the-art machine learning models, Amazon Comprehend can discover insights from unstructured text like social media posts, emails, and web pages. Amazon Comprehend Medical also identifies medical information, such as medication and medical conditions, and determines their relationship to each other (e.g., medicine dosage and strength).

How it works

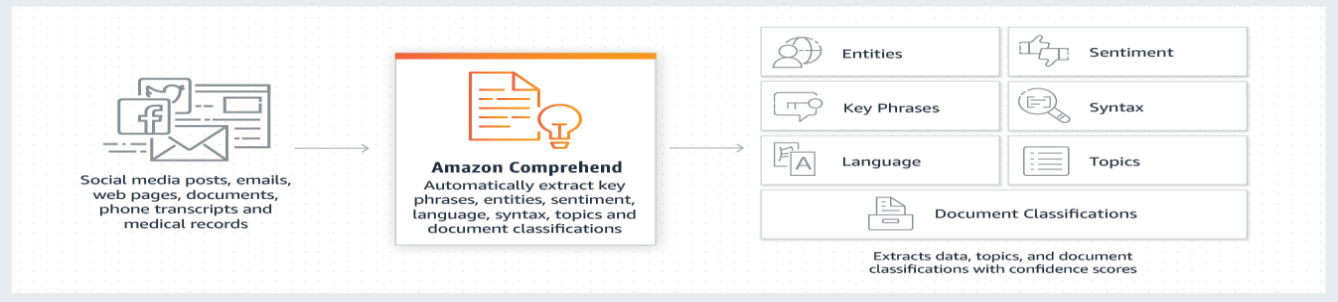

Figure: 1

III. USE CASES

A. Voice of customer analytics

You can use Amazon Comprehend to analyze customer interactions in the form of support emails, social media posts, online comments, telephone transcriptions, etc., and discover what factors drive the most positive and negative experiences. You can then use these insights to improve your products and services.

Example: Call center analytics

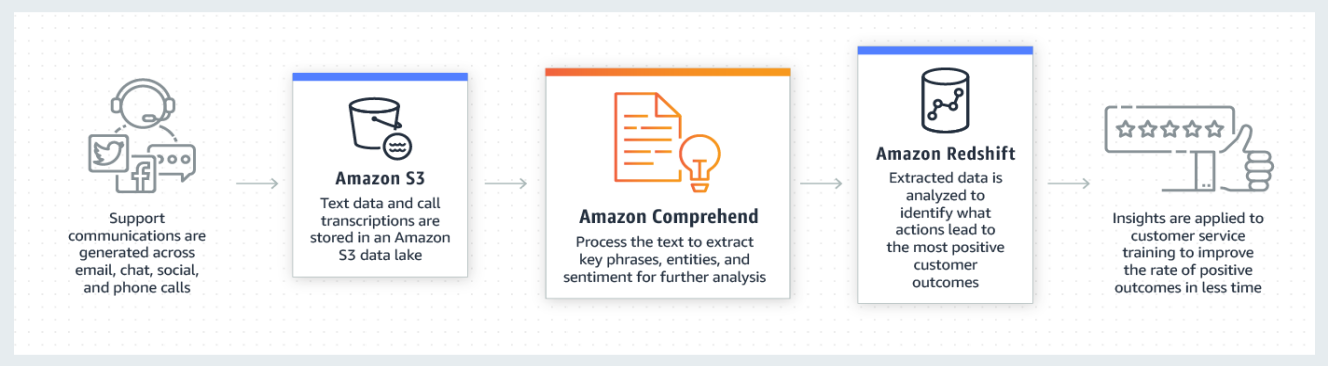

Figure: 2

B. More accurate search

You can use Amazon Comprehend to provide a better search experience by enabling your search engine to index key phrases, entities, and sentiment. This enables you to focus the search on the intent and the context of the articles instead of basic keywords.

Example: Index and search product reviews

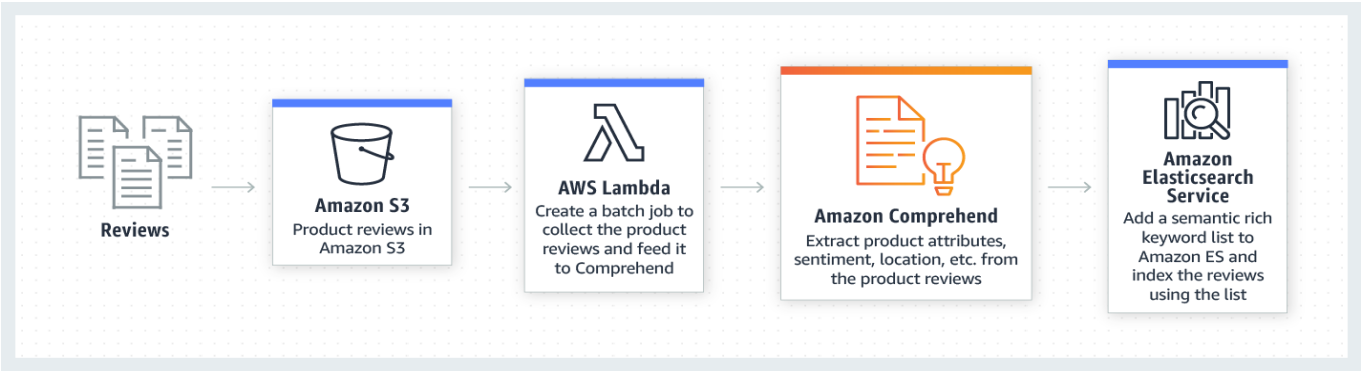

Figure: 3

C. Knowledge management and discovery

You can use Amazon Comprehend to organize and categorize your documents by topic for easier discovery, and then personalize content recommendations for readers by recommending other articles related to the same topic.

Example: Personalize content on a website

Figure: 4

D. Classify support tickets for better issue handling

Use custom classification to automatically categorize inbound customer support documents, such as online feedback forms, support tickets, forum posts, and product reviews based on their content. For example, account cancellation requests, billing problems, change of address, etc. Then, use custom entities to automatically extract relevant information like part numbers, loyalty tiers, and product names to quickly route documents the team best equipped to solve the customer problem and improve overall customer satisfaction.

Example: Customer support ticket handling

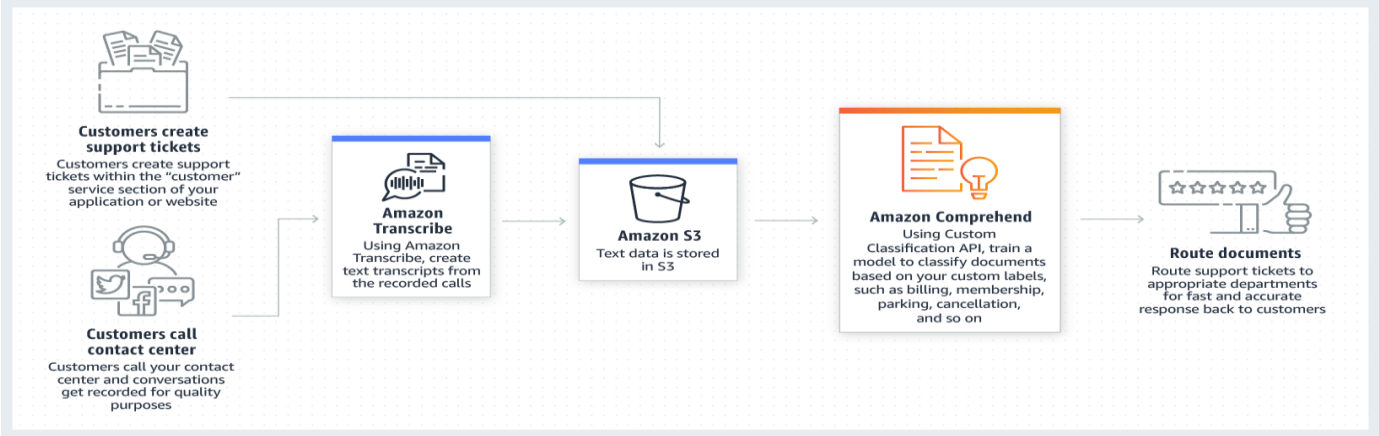

Figure: 5

E. Perform Medical Cohort Analysis

In oncology, it is critical that the right selection criteria are quickly discovered to recruit patients for clinical trials. Amazon Comprehend Medical understands and identifies complex medical information found in unstructured text to help make indexing and searching easier. You can use these insights to identify recruit patients to the appropriate clinical trial in a fraction of the time and cost from manual selection processes.

Example: Clinical trial recruitment

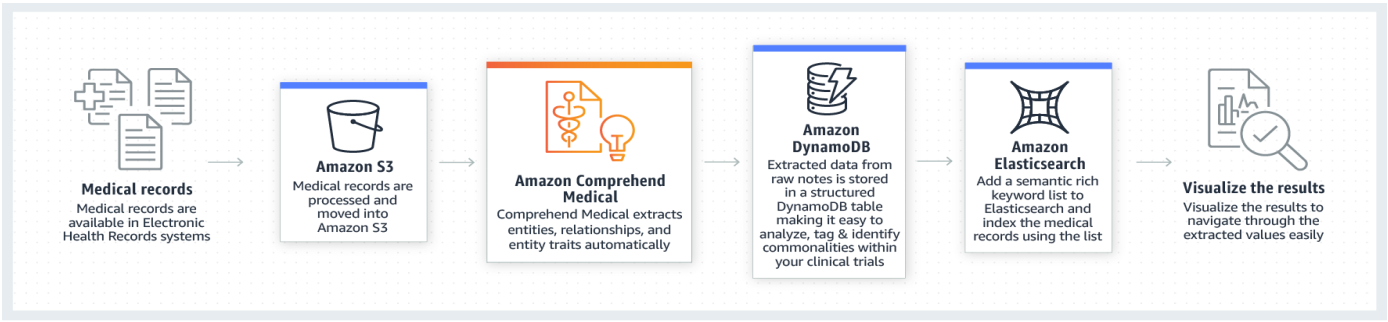

Figure: 6

CONCLUSION

Amazon Comprehend is a natural language processing (NLP) service that uses machine learning to discover insights from text. Amazon Comprehend provides Key phrase Extraction, Sentiment Analysis, Entity Recognition, Topic Modeling, and Language Detection APIs so you can easily integrate natural language processing into your applications.

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