Tech Review:
Amazon Comprehend Medical

Content:

1. Individual Details:
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2. Overview:
Amazon Comprehend is a natural-language processing (NLP) service provided by AWS that utilizes machine learning to extract valuable insights and relations in text data. Amazon offers a more specialized service for medical data - Amazon Comprehend Medical. Amazon Comprehend Medical is a natural language processing (NLP) service that utilizes machine learning that has been pre-trained to understand and uncover health data from unstructured medical text data, such as notes from doctors, prescriptions, diagnoses, or medical reports. This is a HIPAA-eligible service.

3. Features:
Few features of Amazon Comprehend Medical are listed below:
- Uncover medical information from unstructured medical text such as doctors' notes, various reports like clinical trial or radiology reports
- Identify connection between extracted health information and connect it to medical ontologies (standardized medical knowledge bases) such as ICD-10-CM, RxNorm, and SNOMED CT
- It provides APIs for processing and coding unstructured medical text at a lower cost
- It provides patient data privacy solutions and protected health information (PHI) with a HIPAA–eligible service

4. Benefits:
Few benefits of Amazon Comprehend Medical are listed below:
- **Simple, powerful NLP integration into the applications**: It provides APIs to build text analysis capabilities into the applications for powerful and precise natural language processing.

- **Accuracy**: It uses deep learning technology to precisely analyze text data. Its models are continually trained with new data across multiple domains to improve precision.
- **Scalability**: It identifies information from multiple documents, making speedy insights into patient health and care feasible.
- **Integrate with other AWS services**: Amazon Comprehend Medical works seamlessly with other AWS services such as Amazon S3 and AWS Lambda. So, the complete AWS suite of services can be utilized to form a strong pipeline for supporting the text analysis, storage of information, access control etc.
- **Low cost**: As with the most AWS Cloud services, customers must only pay for the documents analyzed with no minimum fees or upfront cost to the service or commitment

5. Comparison:

Amazon Comprehend Medical vs Microsoft Text Analytics for Health:
Both services provide an effective solution for analysis of unstructured health data. The accuracy of both the systems is approximately 80%+ for entity and relation extraction. API response from both the services has a reasonable object structure with not of much significant difference. Cost seems to be the main differentiator between the two services due to the different sizes in the pricing units while having the same cost per character. Also, Amazon Comprehend Medical is bundled with the free tier for the first 3 months of using the service.

6. Conclusion:

Amazon Comprehend Medical is out-of-the-box solution to extracting valuable insights and relations in medical unstructured text data thereby providing quick insights into patient health and care feasible. It can be utilized for use cases such as clinical research, Patient case management, Ontology (standardized medical knowledge bases) linking, Medical billing and healthcare revenue cycle management. Amazon Comprehend Medical can also be integrated with other AWS services

7. References:

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