* **What is Amazon Kendra?**

Amazon Kendra is an intelligent search service which is highly accurate and enables the users to perform search in datasets using natural language. It gives a human-like interactive experience by returning specific answers to asked questions. Its scalability is high which allows it to meet performance demands. Also, it offers easy integration with AWS services like Amazon S3, Amazon Lex leading to quicker solutions. Kendra allows users to ask the following types of queries, or questions:  
• Factual queries - These are simply who, when, what, or where queries, like Who is off duty tomorrow? or Where is that toy kept? The responses are fact-based and precise but the question must explicitly state it.   
• Descriptive queries – These are the queries whose replies could range from a word, sentence, passage, to a complete reference document describing the answer like How to you connect wire of Wi-Fi router? or How is life insurance scheme launched for poor families?.  
• Keyword based queries – These are the queries that don’t have clear intent and scope. Like homeaddress. Here 'address' could have varied meanings, but Kendra infers the intent and returns relevant information aligned with the address of home specifically. It uses deep learning to achieve this.

* **Benefits of Amazon Kendra:**

Amazon Kendra has the following benefits:  
• Accuracy – Usually the traditional searching service offerings use keyword searches where the output is based on simple keyword matching and ranking, Kendra understands the content and context of user query. It goes beyond and returns the most relevant line, snippet, word or document by using machine learning in the backdrop.   
• Simplicity – It gives a console as well as API for managing the document set that are to be searched. The search API is used to integrate Kendra in client applications like websites and mobile apps.  
• Connectivity – It has ability to connect to third-party data sources for providing search functionality across document sets in different environments.  
• User Access Control – It delivers a secure search of enterprise level by authenticating and authorizing users for gaining access.

* **Document types supported:**  
  Amazon Kendra can index many types of documents. Attributes can be associated with documents to provide information such as the source URI and the author of a document. An index can include both structured and unstructured text, plain text documents. Every index can contain several documents and several types of documents like-  
  • Frequently asked questions and answers  
  • HTML files  
  • Microsoft PowerPoint presentations  
  • Microsoft Word documents  
  • PDFs
* **Associating attributes:**
* **Custom attributes-** A document has attributes associated with it like what is inside the document structure. Like, each of your documents might contain title, body text, and author. One can also add your own custom attributes of your documents.
* **Mapping-** Before you can use a document attribute in a query, it must be mapped to a database field. Like, the header attribute should be mapped to \_document\_header.
* **Filtering-** One can use document attributes to filter responses and to make faceted search suggestions. For eg, you can filter a response to only return a specific version of a document, or can filter searches to only return tax documents that match the search term.
* **Manual tuning-** You can also use document attributes to manually tune the query response. Like, to increase the importance of the title field, one can increase the weight that Amazon Kendra gives to it when doing search operation.
* **Multiple Data sources supported:**  
  A *data source* is where the documents are stored for indexing. The index is then synchronized automatically with the data source index so that all the updations, deletions are reflected in the index while searching. The supported data sources are:

|  |  |  |  |
| --- | --- | --- | --- |
| Amazon S3 buckets | Confluence instances | Google Workspace Drives | Amazon RDS for MySQL,PostgreSQL databases |
| Confluence cloud | Custom data sources | Microsoft OneDrive for Business | Microsoft SharePoint |
| Salesforce sites | ServiceNow instances | Amazon Kendra web crawler | Confluence server |

* **Intelligent queries:**
* **NLP support-** For getting answers, users query an index. Users should use natural language in their queries. The response of request contains information, such as the title, excerpt, and location of doc in the index that provide the most suitable answer.
* **Relevancy of search query-** Kendra makes use of all the information that is provided around documents, it means not just the contents of it, but also metadata associated with it to return relevant responses.
* **Filtering-** A query can also contain criteria for how to filter the response so that Amazon Kendra returns only documents that satisfy the filter criteria
* **Relevance tuning-** You can influence the results of a query by tuning the relevance of individual fields in the index. Tuning updates the importance of a field on the results.
* **Access control on documents in an index:**  
  The following token-based user access control are supported:  
  • Open ID  
  • JWT with a shared secret  
  • JWT with a public key  
  • JSON  
  The search results are filtered based on user ID provided by the customer’s search application, and document ACLs collected by the Kendra connectors during crawl/indexing time.
* **Direct addition of questions and answers to Kendra index:**  
  Questions and answers can be added directly to an index using the console or the CreateFaq operation. The data for the FAQ is put in a file that you store in an Amazon Simple Storage Service (Amazon S3) bucket. The following file formats are supported as input for FAQs:  
  • **Basic CSV file** – It is .csv file in which every row comprises of a question and its corresponding answer. Also, one can add an optional URL for extra details about the answer.  
  • **Custom CSV file** – It is a .csv file containing questions, answers, and headers defining custom attributes which are then used to facet, display, and sort the FAQ replies.   
  • **JSON** – It is a JSON file that containing questions, answers, custom and access control attributes.

The Amazon Kendra Developer Edition has most of the features of Amazon Kendra at a lower cost and is ideal to explore how Amazon Kendra indexes documents and to develop applications. But one should not use the Developer Edition for a production application as the Developer Edition does not provide any guarantees of latency or availability. It is suggested to use Amazon Kendra Enterprise Edition when indexing of entire enterprise document library is required in production environment. The following is the comparison table.

|  |  |
| --- | --- |
| **Amazon Kendra Developer Edition** | **Amazon Kendra Enterprise Edition** |
| Up to 5 indexes with up to 5 data sources each. | Up to 5 indexes with up to 50 data sources each. |
| 10,000 documents or 3 GB of extracted text. | 100,000 documents or 30 GB of extracted text. |
| Approximately 4,000 queries per day or 0.05 queries per second. | Approximately 8,000 queries per day or 0.1 queries per second. |
| Runs in 1 availability zone (AZ) – see Availability Zones (data centers in AWS regions) | Runs in 3 availability zones (AZ) – see Availability Zones (data centers in AWS regions) |