# Lookup
## A SEARCH SERVER

Design Document

Shauryadeep Chaudhuri | May 18, 2016

# Lookup

Lookup is divided into 3 different modules

1. Warehouse : A custom DataStore which stores documents as JSON Documents

2. Engine: The Module responsible for finding documents in the warehouse based on queries of the user.

3. Server: The Module which captures requests of the user and passes it to the Engine Module after minimal processing.

## Warehouse

This is the datastore of Lookup, which is responsible for management of data documents.

The Documents are of 4 types, 3 of which are explicitly visible to the user.

**Index:** This is similar to a database.

**Schema:** This is similar to a table of a database.

**Entry:** This is similar to a record/tuple of a database.

**Property:** This is similar to Search Indexes of Database. On the User end this is referred to as field. Users can only delete it, once it has been created.

Index, Schema and Entry are used so that data belonging to different categories can be segregated.

Property is a field that belongs to a schema. Every Schema has a list of fields/properties associated with it. The property is not explicitly generated by the user, rather it is implicitly generated and updated with addition of each entry.
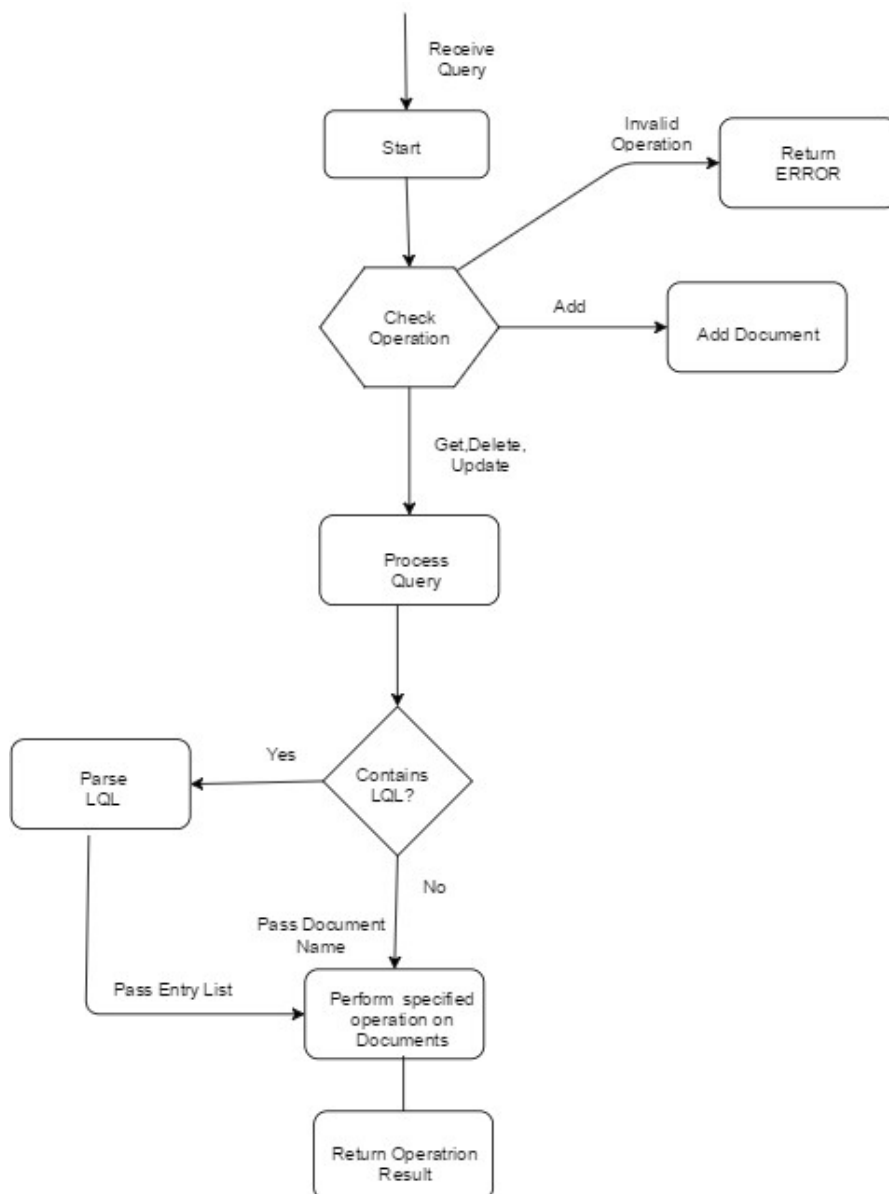
Each property has its own separate document containing list of values present in the database and entries associated with those values.

Properties are used for Faster Searching within the Warehouse and also enables Full Text Search for String Fields.

# Engine

This is the engine that is used for processing documents from the Warehouse. The JSON Query passed by the user is used to deduce what type of document the user is requesting for.

If the User has provided the document name, it is directly fetched from the Warehouse and processed upon (Added, Updated, Deleted or Retrieved). If the user has provided a Lookup Query Language query then it is passed to a parser which decodes the query and returns the Entries for further processing.

# Server

The Server module intercepts requests by the user, understands what kind of request it is and passes it to the Engine Module.

There are 3 URL handlers in Lookup

1. Request Handler

2. URL Handler

3. URL Query Handler


## Request handler

RequestHandler intercepts requests to the root URL of Lookup, and passes it to the engine. This handler is mainly built for requests which originate from ReST Client. The 4 ReST methods -> GET, POST, PUT, DELETE work with this handler.

## URL Handler

UrlHandler intercepts only GET Requests with document information given in the URL itself. This is provided for document retrieval, if anyone wishes to look up documents via browser. It generates a query which the understood by the Engine and passes it.

An example URL which it would handle is:-

> http://localhost:7123/MyFirstIndex/MyFirstSchema/entry1

## URL Query Handler

Url Query Handler intercepts GET Requests for URLs that contain a Query to search for Entries. If a LQL is present in the URL then this handler intercepts the query, otherwise it goes to URLHandler.  Like UrlHandler it also generates a query understood by Engine and passes the generated query.

An example URL which it would handle is :-

http://localhost:7123/MyFirstIndex/MyFirstSchema/query= ExField1>8 OR ExField2 has paul,mom) AND ExField3==99