MAMgo Dev Manual

# Entities

MAMgo is a search engine, composed of entities that make up the entire system. The following are the elements in MAMgo:

**Database**

The name of the database used is ‘search’, and is composed for four tables:

* doc\_links – storing each download HTML document’s details
* tag\_index – storing the terms and their number of occurrence in each HTML document’s tags
* pos\_index – storing the terms and their position respective of the tag number in each HTML document’s tags
* queries – storing the list of queries entered by users, each having a count of times searched for

**Crawler**

Crawler is standalone, and so can work irrespective of any other entity in the system. The crawler works indefinitely and therefore should be manually stopped by admin.

**Indexer**

Indexer requires the database entity to be active. The indexer does not work indefinitely and halts when all documents available to it are indexed.

**Query Processor**

Query Processor requires the database entity to be active. The query processor works indefinitely and needs to be manually stopped by admin.

**Web UI**

The web UI can operate in two modes – normal and test. The normal mode is the normal operation of this entity, and requires the database entity to be active and the query processor entity to be running. The test mode is the test version of this entity, and only requires the database entity to be active.

The web UI is an even based entity, and so its code or parts of it runs based on the user’s usage of the system.

# Operation

* The crawler works indefinitely, crawling and downloading HTML documents from the World Wide Web into a folder.
* The indexer works by indexing all the HTML documents download from the crawler into the database, terminating upon indexing all documents.
* The query processor works indefinitely, and listens to a specified port, awaiting to receive a query search entered by the user in the web UI, to process it and create VIEW having the result set of the details of the required HTML documents to display to the user. The query processor responds back to the web UI confirming completion of operation.
* The web UI awaits the user to enter a query search into the search bar. Upon receiving one, the web UI sends query as a string over a port to the query processor, and awaits a response. Upon receiving a response from the query processor, it reads the result set in the VIEW created by the query processor, and displays the HTML document’s details as search records to the user
* The ranker…

# Justifications

***Indexing only the <title>, <h1, h2…h6>, <b>, <em>, <body> tags***

* <title> tag to keep record of what the HTML document is about in the first place
* <h1, h2…h6>, <b> and <em> tags to keep record of the importance of plaintext of those tags are in the HTML document
* <body> tag because it will cover the entire content of the HTML document.

NOTE

The <head> tag is not included because this tag is only meant to store information and metadata about the HTML document, but what interests the indexer is just the content

***Using a VIEW, and not sending the result set as an array over the port***

The following are the reasons:

* It’s better to keep the data where they originally are i.e. in the database instead of reading it, storing it as an array and sending the array to the web UI
* Fetching all the result set into an array would consume a lot of memory, compared to later on at the web UI taking parts of it only till the user indirectly requests for more
* Sending a very large array over a port could take a lot of time thereby keeping the port occupied, thus making the service unavailable during that period for other users