Chapter - 7

Administrator Control

7.1 INTRODUCTION
This chapter discusses about various administrator control in detail provided in a new model of meta-search engine. It discusses about dynamic management of individual search engine page URLs. It also discusses dynamic management of stop words through administrator panel. Moreover, it discusses procedure for updation of databases by administrator.

7.2 ADMINISTRATOR LOGIN PAGE AND CONTROL PANEL
Figure 7.1 shows administrator login page in a new model of meta-search engine, which takes input i.e. administrator’s user name and password to access control panel.

![Figure 7.1: Administrator Login Page](image-url)
Figure 7.2 shows administrator home page showing options in control panel for dynamic management of search engine’s URL and stop words dynamically, database updation and merge database of search engines.

![Image of Administrator Home Page]

**Figure 7.2: Administrator Home Page**

### 7.3 Dynamic Management of Search Engine’s URLs in Meta-Search Engine

The new model of a meta-search engine is designed and developed with a database concept for storing search engine’s URLs. Administrator can manage URL of search engines and its components dynamically. In administrator panel basic operations like insert, update, delete and view are provided. To fire user search query a new model of meta-search engine looks in the search engine database for use of search engine URLs for results retrieval. Administrator can manage search engines dynamically. So, this facility offers meta-search engine to have use of N number of search engines and not limited to fixed number of search engines.
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Following figure 7.3 shows first screen for the module manage search engine, which is part of administrator panel in a new model of meta-search engine, which enables administrator to perform various operations to manage search engine URLs and its components like,

i. Insert
ii. Update Root URL
iii. Update Sub URL
iv. Delete Root URL
v. Delete Sub URL
vi. View

![Figure 7.3: First screen of Manage Search Engines module in a new model](image)

i. **Insert operation**

Figure 7.4 shows a screen with sample inputs for the purpose of insertion of search engines root URL like, http:// www.google.co.in/ and its components which takes sub string that is user input for the Web information retrieval for user input search text.
Figure 7.4 shows form for insert operation accepting fields like,

i. Name of search engine, search engine root URL
ii. Search engine URL begin part
iii. Search engine URL end part 1
iv. Search engine URL end part 2
v. Search engine URL start position
vi. Search engine URL page number for page wise search results
vii. Remark for administrator’s use.

![Figure 7.4: Insert operation for manage search engines module with sample inputs on administrator side of a new model](image)

Table 7.1 shows structure of search engine database.

<table>
<thead>
<tr>
<th><strong>Table Name</strong>: list_of_se</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Field Name</strong></td>
</tr>
<tr>
<td>se_id</td>
</tr>
<tr>
<td>se_nm</td>
</tr>
<tr>
<td>root_URL</td>
</tr>
</tbody>
</table>

**Table 7.1: Structure of search engines database**

Designing Model for Meta-Search Engine
Table 7.2 shows structure of database for storage of components of search engine URLs.

<table>
<thead>
<tr>
<th><strong>Table Name:</strong> list_of_se_extn</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Field Name</strong></td>
</tr>
<tr>
<td>se_url_id</td>
</tr>
<tr>
<td>se_id</td>
</tr>
<tr>
<td>url_begin_part</td>
</tr>
<tr>
<td>url_end_part1</td>
</tr>
<tr>
<td>url_end_part2</td>
</tr>
<tr>
<td>start_pos</td>
</tr>
<tr>
<td>page_no</td>
</tr>
<tr>
<td>Remark</td>
</tr>
</tbody>
</table>

**Table 7.2 Database for storing components of search engine URLs**

**ii. Update operation for root URL**

Figure 7.5 shows screen for update operation with existing record in database. So, administrator can view it and take appropriate decision for updation of record. This is for root URL updation only.

If administrator clicks on **Update Root URL** option then new model displays name of search engines and root URLs with search engine Id of all search engines in the search engine database.

So, administrator can view all existing records and perform update operation. This module generates text boxes dynamically based on rows inserted in the database for search engines. So, there is no existence of fixed number of text boxes.
iii. Update operation for sub URL

Figure 7.6 shows screen for update operation with existing record in database. So, administrator can view it and take appropriate decision for updation of record. This is for sub URLs updation only.

If administrator clicks on **Update Sub URL** option then new model displays various components of root URLs of all search engines in the search engine database.

Hence, administrator can view all existing records inserted for search engines and perform update operation. This module generates text boxes dynamically based on rows inserted in the database for search engines.
iv. **Delete operation for root URL**

Figure 7.7 shows a screen for delete operation, which enables administrator to delete root URL if there is no sub URLs of it.

If administrator clicks on **Delete Root URL** option then new model displays name of search engines, root URLs and their id of all search engines in the search engine database along with check box.

Hence, administrator can view all existing records inserted for search engines and perform delete operation. This module displays record with check boxes dynamically based on number of rows inserted in the database for search engines.
v. Delete operation for sub URL

Figure 7.8 shows selection screen for deleting sub URL. It enables administrator to select root URL first and then to delete sub URL.

Figure 7.9 shows delete screen to delete sub URLs under selected root URL. If administrator clicks on **Delete Sub URL** option then new model displays name of search engines, root URLs and their id of all search engines in the search engine database along with check box for selection of root for deletion of sub URLs. So, administrator can view all existing records inserted for search engines and perform select operation first. This module displays available records in the database with check boxes dynamically based on selection of root URL. So, there is no existence of fixed number of check boxes. And allows administrator to perform delete operation of sub URL.
Figure 7.8: Delete operation screen showing for sub URL in a new model, part of manage search engines

Figure 7.9: Delete operation screen showing for sub URL in a new model, part of manage search engines
vi. View operation
Figure 7.10 shows a screen for the view operation with records in database related to root URLs and sub URLs.

![Search Point Administrator](image)

**Figure 7.10:** View operation screen showing for sub URL in a new model, part of manage search engines

7.4 DYNAMIC MANAGEMENT OF STOP WORDS IN META-SEARCH ENGINE

The new model of a meta-search engine is designed and developed with database concept for storing various stop words. Administrator can manage stop words in the new model dynamically. In administrator panel the basic operations like Insert, Update, Delete and View are provided to manage stop words dynamically.

A new model of the meta-search engine includes concept of stop words elimination for specific search results retrieval, because users always enter their queries in natural language including stop words. They are not aware about importance of specific search results. It is desired that users expect specific search results.
In the new model of a meta-search engine, to search specific text by eliminating stop words, first it will look in the database whether search text containing stop words are available in it or not.

If stop words are already in database, then will eliminate all stop words with user input search text and prepares new search text with no stop words. And that will be input to different individual search engine URL.

Following screens represents insert, update, delete and view operations on database of stop words in a developed meta-search engine.

Figure 7.11 shows first screen of manage stop words module in a new model of meta-search engine, which enables administrator to perform various operations like, Insert, Update, Delete and View.

![Figure 7.11: First screen for manage stop words module on administrator side of a new model](image)

**i. Insert operation for stop word**

Figure 7.12 shows user interface for administrator to perform insert operation, which enables administrator to insert stop word in stop word database. Database containing stop words like, ‘is’, ‘a’, ‘an’, ‘that’, etc used
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by meta-search engine to find matches based on user’s choice for specific search if they exists with user input search text. If match found, meta-search engine performs stop word elimination because stop words which are common in natural language with user input search text may lead to return ambiguous results.

![Figure 7.12: Screen for insert operation](image)

Table 7.3 shows structure of database contains stop words.

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Data type / Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>sw_id</td>
<td>mediumint(90) Auto generate</td>
</tr>
<tr>
<td>stop_word</td>
<td>varchar(15)</td>
</tr>
</tbody>
</table>

Table 7.3: Structure of stop word database
ii. Update operation for stop word

Figure 7.13 shows screen of update operation with stop word records available in database. This enables administrator to view existing records available in database and perform update operation.

If administrator clicks on Update option then new model displays stop word along with stop word Id of all stop words inserted for the stop word elimination function of meta-search engine in editable text form. So, administrator can view all existing records and perform update operation. This module generates text boxes dynamically based on rows inserted in the database for stop words. So, there is no existence of fixed number of text boxes.

![Update operation for stop word]

*Figure 7.13: Update operation shows field values retrieved from database*
iii. **Delete operation for stop word**

Figure 7.14 shows screen for delete operation, enables administrator to delete selected number of records at a time. This screen displays all records with check boxes dynamically, enables administrator to select records for deletion.

If administrator clicks on **Delete** option then new model displays stop words and their id of all stop words inserted for the functions of meta-search engine along with check box. So, administrator can view all existing records inserted for stop words and perform delete operation. This module displays record with check boxes dynamically based on number of rows inserted in the database for search engines. So, there is no existence of fixed number of check boxes.

![Image of search point administrator interface](image_url)

*Figure 7.14: Delete operation for manage stop words in a new model*

iv. **View operation for stop word**

Figure 7.15 shows view screen and shows all records related to stop words exists in stop word database.
7.5 UPDATION OF URLs IN META SEARCH ENGINE DATABASE

A meta-search engine is a tool that retrieves the search results of multiple individual search engines as discussed in this thesis. Using a meta-search engine users can search different engines at the same time, so user does not need to conduct the same search several times on different search engine. Meta-search engines do not have their own databases for indexing of the Web information; instead, a meta-search engine sends user input search text to several other search engines, search engines run the search text against their databases of the Web information and return results to the meta-search engine. The meta-search engine then returns consolidated results from all the search engines as discussed.

The problem with existing scenario is, meta-search engines do not have their own databases for indexing purpose like general search engines and takes time for result retrieval as discussed in this thesis. And because of that it causes problem of time out, which is there with mother of meta-search engines “mamma” also. The results are combined from various individual
search engines by meta-search engine. They are displayed on screen based on ranking formula as discussed.

A new model of the meta-search engine includes concept of databases and database updation periodically for effective search results like database updation with common search engines for indexed search results.

In database oriented meta-search engine, to search text based contents first it looks in the database whether search text containing keywords are available in it or not. If user search keywords are already available in database, then it retrieves web information from the database by sending simple query.[30] Otherwise, the new model sends search query to N individual search engines and retrieve search results will be stored in the database and then through procedure web information from database will be displayed on user screen.[30]

Goal of using meta-search engine is to get consolidated web results by sending queries to multiple individual search engine. It is used to have limited number of hits on screen. Dealing with multiple individual search engines for this may retrieve large number of search results with duplicates. Instead let have database containing unique web results for specific search text will help user to get web information in an efficient way. [30]

Communication between engine and database will be faster than communication between engine and the web is true but indexed updation is necessary component for this. So, in addition to this database introduced the method to fulfil requirement of periodical updating of search records in the database (records in search engine wise database as well as merged database) which runs queries and update indexed results periodically in the database like updating database of common search engines.

**Purpose of Indexing**

The purpose of storing an index is to optimize speed and performance in finding relevant documents for a search query. Without an index, the search engine would scan every document, which would require considerable time
and computing power. [83] For example, while an index of 10,000 documents can be queried within milliseconds, a sequential scan of every word in 10,000 large documents could take hours. [83]

In existing scenario, meta-search engines reuse the indices of other services and do not store local index, whereas cache-based search engines permanently store the index along with the associated details. Unlike full-text indices, partial-text services restrict the depth indexed to reduce index size. Larger services typically perform indexing at a predetermined time interval due to the required time and processing cost, while agent-based search engines index in real time. [83]

Recently, the need of information retrieval is especially increasing in corporations, universities and so on. In such organizations, it is very important to use fresh information. However, conventional search engines, which users usually use, spend very long term, e.g. one month, to update indexes of all documents because search engines are centralized systems. In centralized search engines, a www crawler collects documents from worldwide servers, and an indexer generates their indexes. Because of this, it is difficult for centralized search engine to satisfy the requirement. [84]

Organic listings of search engine are updated after long periods of time, the paid listings in it are updated much more regularly. Here, one can decide to perform a ranking check once per month, due to the fact that search engines normally update their ranking around the period of time. This check leads to new decisions; the result shows whether the measures of optimization have been successful, if not, they should be improved. It also shows if the results remain the same over a longer period of time or if an update is needed. [85]

Figure 7.16 shows new meta-search engine model with update database control.
Designing Model for Meta-Search Engine

**Figure 7.16: Meta-search engine model with update database control**

Fig.7.17 shows PHP code for MySQL query, which updates indexed search results in meta search engine database.

```
select keyword from "$senms." where DATEDIFF(NOW(),updated_at)>5
```

**Figure 7.17: Update query for searched results**

Designed and implemented administrator side administrator panel manages various databases of meta search engine. Developed module to update searched and indexed search results periodically. By clicking on single menu button administrator can update links in database effectively. Figure 7.17 shows update query to update searched links, if difference of last updated date and current date is greater than 5; then updates records.
Figure 7.18 shows screen with option labelled **Update Database**, by clicking on it administrator can update all search results available in search engine wise databases and merged database which are already searched by end-users.

![Update searched records screen](image)

**Figure 7.18: Update searched records screen**

### 7.6 CREATE MERGE TABLE FROM ADMINISTRATOR DYNAMICALLY

Developed Merge database module in a new model of meta-search engine, which enables administrator to create tables for storing keyword(s) with titles and links with associated information. Search engine wise tables in a new model gets entries by running main module of meta-search engine. And merged tables will get entries from different search engine’s individual tables.

Figure 7.19 shows screen with button labelled “Create Merge Table”, which allows administrator to create merge databases for storing search keyword strings and search results.
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This module in a new model allows administrator to fire create table query explicitly to store merged results.

7.7 SUMMARY

This chapter elaborates different administrator control available to administrator. It gives brief about how does each of this control work and what will be the outcome of each of it.

It discusses concept of dynamic management of search engine’s URLs and its components in database to search the Web information from various search engines. This enables user to get search text from search engines listed in database and eliminates problem related to use of fixed number of search engines.

It discusses database concept for management of stop words in database, which allows administrator to manage stop words dynamically.
Moreover, it discusses concept of updating links of searched keywords, which eliminates problem related to working with old retrieved search results. This new model of meta-search engine enables administrator to update search results available in database periodically. It also discusses creating merge database explicitly for merged results of search engine wise databases.