Topics in Data Management Programming

Tools used:

Netbeans IDE, Mongo DB, Glassfish sever, Spring-Mongo Library, Struts2 MVC framework.

Data Base structure and creation:

- I have made use Mongo-java-driver and Spring-data-mongodb api to run operations on the data
- Classes such as "Api" and "Mashup" have been created as part of data structure to support the query operations run on the data.
- The api.txt and mashup.txt files are converted into CSV files by simple text-editor operations and read in Java program.
- Database is created along with a collection which is basically a table in MongoDB.
- As file is read and split by ',' an array of fields is created which is populated as an object instances of 'Api' and 'Mashup' classes we have created and later on inserted into the collection. Each object represents a row in a database and document in terms of MongoDB.

Operation algorithm and brief code description:

1. I have made use of Struts2 MVC framework to create a query system web application.
2. Operations on Mashup and API query system are divided into two Struts2 actions which basically cater the user requests separately for Mashup and API queries.
3. To support multiple search criteria's dynamically, I am populating the query fields in hashmap and iterating the hashmap over my Query criteria object, so that fields could be appended dynamically.
4. To support greater than, less than functionality in case of Rating for API search, I am using 'lt' and 'gt' function of spring-mongo api.
5. To support multiple keyword set search, I am finding separate resultset for each keyword and then returning the intersection of the result-sets of the keywords.

Demonstration and operations:

API query search engine.

1. Below screenshot represents index screen page. Our first operation is to find API result set based on rating <3.5. The second screenshot represents a result, there are more rows in the result but I have pasted a part of the result in the interest of given space.

Web-service query search engine

API query search engine

Updated:		Tags:	
Category:		Protocols:	
All Search:		Rating:	>3.5

submit

Mashup query search engine

Updated:		Tags:	
APIs:		All Search:	

Search

Web Service ID	Title	Summary	Category	Rating	tags
http://www.programmableweb.com/api/the-global-proteome-machine	The Global Proteome Machine	Proteome data for biomedical research	Science	4.4	database###science
http://www.programmableweb.com/api/csc-e-sim	##CsC e-Sim	Modern world simulator information service	Games	5.0	games
http://www.programmableweb.com/api/blue	#blue	Text messaging storage service	Messaging	4.5	deadpool###messa
http://www.programmableweb.com/api/gah-people	#Gah People	FreeNode IRC channel user-finding service	Social	4.3	internet###social
http://www.programmableweb.com/api/.net-daily-fact	.NET Daily Fact	.NET daily fact widget	Internet	4.5	DotNet###internet
http://www.programmableweb.com/api/.tel	.tel	Access to .tel DNS	Internet	5.0	DNS###internet
http://www.programmableweb.com/api/100-facts-about-me	100 Facts About Me	Fact sharing service	Social	5.0	russia###social
http://www.programmableweb.com/api/10x10	10x10	Photo and news analysis service	Photos	4.4	news###photo
http://www.programmableweb.com/api/123contactform	123ContactForm	Form builder service	Tools	5.0	forms###surveys#
http://www.programmableweb.com/api/12seconds.tv	12seconds.tv	12-second videoblogging	Video	3.9	blog###deadpool#
http://www.programmableweb.com/api/18amail	18amail	Email marketing service	Email	5.0	email###marketing
http://www.programmableweb.com/api/1daylater	1DayLater	Business expense tracking tool	Enterprise	3.9	deadpool###enterp

2. Here I am searching the APIs which having multiple criteria such as Protocols and Category. The subsequent image shows the result-set returned for given criteria.

Web-service query search engine

API query search engine

Updated: Tags:

Category: Social   Protocols: XML-RPC

All Search: Rating:

submit

Web Service ID	Title	Summary	Category	Rating	tags	protocols	updated
http://www.programmableweb.com/api/gah-people	#Gah People	FreeNode IRC channel user-finding service	Social	4.3	internet###social	XML-RPC	
http://www.programmableweb.com/api/100-facts-about-me	100 Facts About Me	Fact sharing service	Social	5.0	russia###social	XML-RPC	
http://www.programmableweb.com/api/advogato	Advogato	Free software developer social site	Social	5.0	blog###social	XML-RPC	
http://www.programmableweb.com/api/joind.in	Joind.in	Social Conference Tools	Social	5.0	messaging###social	XML-RPC JSON-RPC	
http://www.programmableweb.com/api/peopleaggregator	PeopleAggregator	Social networking platform and service	Social	4.7	social###tools	REST XML-RPC	

3. The next operation on API search is keyword set search which basically finds a documents with set of words in Title, Summary and description

Web-service query search engine

API query search engine

Updated: [   ]   Tags: [   ]

Category: [   ]   Protocols: [   ]

All Search: [Twilio,Telegram]   Rating: [   ]

[submit]

Web Service ID	Title	Summary	Category	Rating	tags	protocols	updated
http://www.programmableweb.com/api/twilio-telegram	Twilio Telegram	Twilio Telegram hand delivery service	Messaging	5.0	Global###messaging###sms###usa	REST	

Mashup query system operations:

1. The first operation indicates multiple criteria search run on Updated and Tags field of the Mashup query search engine. In the subsequent row we get a row suggesting the document that contains given input in respected fields.

Mashup query search engine

Updated: 2009-01-09T10:22:16Z Tags: bookmarks###fun###ne

APIs: [   ] All Search: [   ]

Search

Mash up ID	Title	Summary	Rating	tags	updated
http://www.programmableweb.com/mashup/1click2destiny	1click2destiny	If it is 1 click 2 your destiny will you face your fate? With 1click2destiny.com you get access to hundreds of top-rated links that were suggested and voted for by thousands of active online users. Uses the Digg API.	5.0	bookmarks###fun###news###social	2009-01-09T10:22:16Z

2. In the second operation we perform keywords search on given data which returns the document having given keywords in the Title, summary and Description fields of the data.

Mashup query search engine

Updated: [   ] Tags: [   ]

APIs: [   ] All Search: [Malta,Hotels]

[Search]

Mash up ID	Title	Summary	Rating	tags	updated
http://www.programmableweb.com/mashup/best-of-malta-hotels	Best of Malta Hotels	Malta Hotels with integrated map of YouTube videos.	3.5	Malta###mapping###travel###video	2007-02-06T00:20:01Z