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Patient Centric Meta-Search Engine for Quality of Care Services

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Abstract: ***Nowadays in India the hectic and time consuming problem is searching the hospital which provides efficient quality services in minimum prices. There are several number of hospitals but each and every hospital charge different cost on same services. So it is very time costly and confusing task to classify the all nearest hospitals according to their prices, quality of services and reviews of people. Our current system handle this task very efficiently. In this proposed system it gives best hospital near users location by classifying all nearest hospitals according to their prices, quality of services which they provides and reviews of people. The proposed system give user those hospitals list which have minimum prices and quality services. For classifying and filtering the hospitals current system uses of meta-search engine concept. The algorithm used in this system is based on data mining concepts. Two phase page ranking algorithm is used in proposed system. Content based web mining and usage based web mining this two algorithm concepts are used in this. By using above two concepts and by apply page ranking algorithm hospitals which are nearest to user are classified and filter. This system reduce searching time and minimize the hectic task.***

Keywords: Two phase page ranking, meta-search engine, page ranking, content based page ranking, usage based page ranking

I. INTRODUCTION

In india majority of the people are in middle class family they don't afford the posh hospital expenditure which gives same services that provided by another hospitals in minimum price. So their main strategy is to find those hospitals which gives quality care services in minimum prices. Till now people follow the traditional approach they ask their friends and relatives for those hospitals which gives best services in minimum prices. Another approach is to search each and every hospital in nearest location and classify it manually according to price and quality of services. These two approaches are hectic and time consuming also there is problems about hospitals websites. In hospital websites there is no specific information regarding to each services they provide like cost of x-rays, ICU charges, general ward charges, deluxe ward charges, city scan, MRI, etc. also there is no information regarding too number of available beds, number of available ICUs, what types of x-ray, city-scan machines are. Our proposed system overcome all above difficulties. The current system use different page ranking algorithm, concept of meta-search engine and web mining algorithm like content based and usage based page ranking for classifying and filtering nearest location hospital according to low price and best quality services.

A. Meta search engine

The main task of meta search engine is to search a particular data in WWW(World Wide Web) which user wants. But actually meta-search engine not work like a normal search engines. In meta-search engine user put query in search box, now this query is pass to the more than one search engine. Each search provide result of that query now meta-search engine aggregate those results of each individual search engine apply some page ranking algorithm on it and which result is give a proper solution to the query is arrange in top and provide those results to the user. That is Meta-search engine which is the interface between other individual search engine and user which provide most relative search to the user.

1) Some examples of meta search engine are :
a) MetaCrawler
b) Dogpile
c) Clusty
d) IxQuick
e) IBoogie
f) Cartoo
g) SurfWax
h) Mamma

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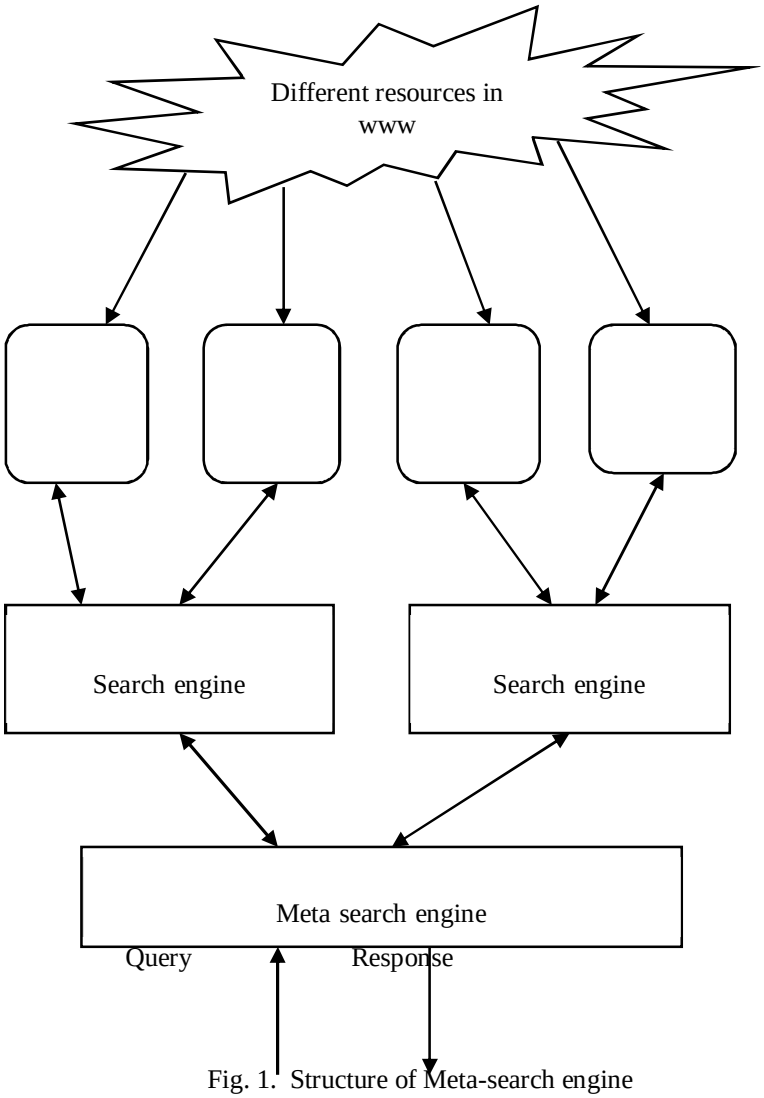


Fig. 1. Structure of Meta-search engine

B. Content Based Page Ranking

In content based page ranking the order of a web pages are not decided by Inlink page ranking and outlink page ranking instead of that in this concept content structure in the web document is take in consideration. The content may be text so it is often called that text mining but it is not necessary that always according to the text content page rank will decided. There are some web documents which are in unstructured format so their text, image, diagram, mathematical model, etc. are considered as content and according to these content, order of the web document is decided. To understand the concept of content based page ranking suppose we want to search specific web document on related to Albert Einstein. Now when we give query as a Albert Einstein through search engine the main task of content based page ranking algorithm is in www wherever the word Albert Einstein is come those web documents are important. Now the algorithm will check where actually the word Albert Einstein is come if it is in heading of the document then it is most important document, if it is in heading tag then it is also important, if the word in somewhere in paragraph then it is also important but less as compare to other two above. And according to this priority the page rank of web document is decided and web document is order and give as a response of users query.

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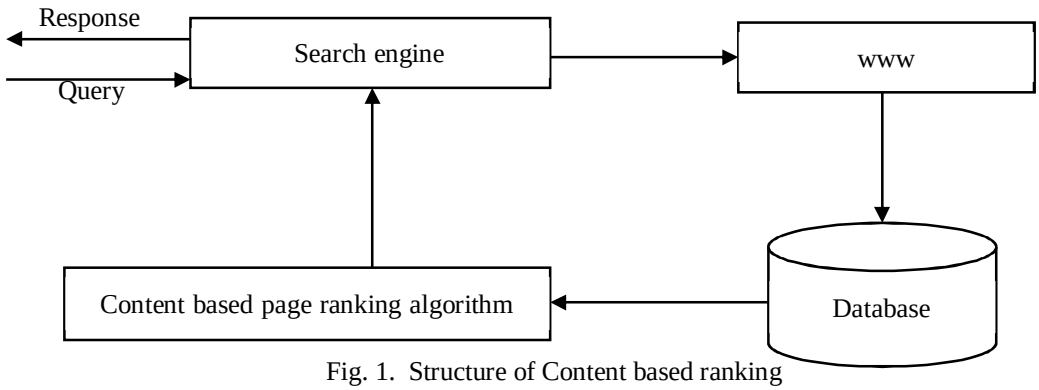


Fig. 1. Structure of Content based ranking

C. Usage Based Page Ranking

In usage mining the algorithm identify pattern of users search. It try to identify what users actually want. Which document user is going to search most of the times. Is he search doc, png, pdf, audio, video, etc. and how much time user spend on particular document. All this situations are take in consideration in usage based page ranking. In this concept algorithm check what pattern user always access and how much time user spend on particular web document and according to that the page rank of web document is decided and documents are ordered. To understand the concept of usage based page ranking suppose user access particular document most of the time also he spending much of the time on it by just not being idle on it but doing some cursor movements or keyboard then this types of documents or websites seems to be more important and page rank gives to this web documents are more. This types of web documents are order in descending order and give as a response to user query.

II. LITERATURE SURVEY

The current scenario in India is that there are multiple hospitals websites on world wide web which gives information about each particular hospitals but till now the information provided by hospitals are limited they do not provides specific information regarding to prices of services like x-ray, city scan, MRI, etc. currently there is one website use in India known as practo but this websites gives information regarding to hospital address, hospital contact number, qualification and experience of doctor, doctors visiting fee, online appointment, etc but it is not giving information like prices of each services provided by hospitals like price of x-ray, city scan, MRI, sonography, ICU charges, charges of general ward, etc. so this difficulties are overcome by current system.

Table 1. Literature survey on Mining techniques

Paper no	Mining technique	Algorithm
1	Web content mining,usage mining	Tag analyzer,Event explore,meta search engine
2	Web content mining,usage mining	Tag analyzer,Event explore
3	Web structure mining	Page rank, weighted page rank,query dependent page rank,SQD page rank, distance rank
4	Web structure mining	Page rank, HITS, weighted page rank
5	Web mining	Structure mining,content mining,usage mining
6	Web content mining, structure mining	Page rank,weighted page rank, HITS
7	Hybrid web mining	Content based,usage based, matching and ranking algorithms
8	Web content mining	Weigt of outbond link page ranking algorithm
9	Hybrid page ranking	Page rank, HITS,weighted page rank, distance rank
10	Search engine optimization	Meta serach engine, page rank
11	Hybrid page ranking	Page rank, HITS,weighted page rank, distance rank

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Table 2. Literature survey on Meta-Search Engine

Sr. No.	Meta search engine name	Search engines	Main features
1	Mamma	Ask.com, Abut.com, Entireweb, Businesss.com, Gigablast, Wisenut, ODP	Add/Exclude any of the search engine
2	Dogpile	Google, Yahoo, Ask, Live	Search suggestions(related terms); recent searches
3	Fuzz Find	Google, MSN, yahoo	Sort the result based on any of the sources
4	Search	Google, Ask.com, MSN, ODP	-
5	SurfWax	CNN, Yahoo news, Hotboot, ODP, MSN, All the web	Snapping=displaying the summary of the page containing the search query.
6	Kartoo	N/A	Search results on a map
7	Clusty	Ask.com, Gigablast, Live, NY Times, ODP, Shopzilla, Yahoo news, Yahoo stocks	Term clusters
8	IBoogie	All the web, MSN	Term clusters
9	Metacrawler	Google, Ask.com, MSN, Yahoo	-
10	IxQuick	All the web, Exalead, Qkport, Ask, Gigablast, Wikipedia, Bebo, MSN, Winzy, CNN,NBC, Yahoo, EntireWeb, OPD	"Star" system (the more stars=the more search engines agree on the listing rankings).

III.PROPOSED SYSTEM

The HTML source code of user query results or web pages are downloaded into our database and convert it into a DOM tree. DOM is an interface which allows scripts and programs to dynamically access and handles all the elements such as content, structure and style of web pages. We traverse through Dom tree to identify tags like title, Meta, heading and paragraphs. Title tags are used for the identify title of the web document, meta tag gives information about web document, It is used to state page description, keywords of the page, author of the document, last modified date etc. the h1 tag generally used for title also. This tags gives information about the content in the document.

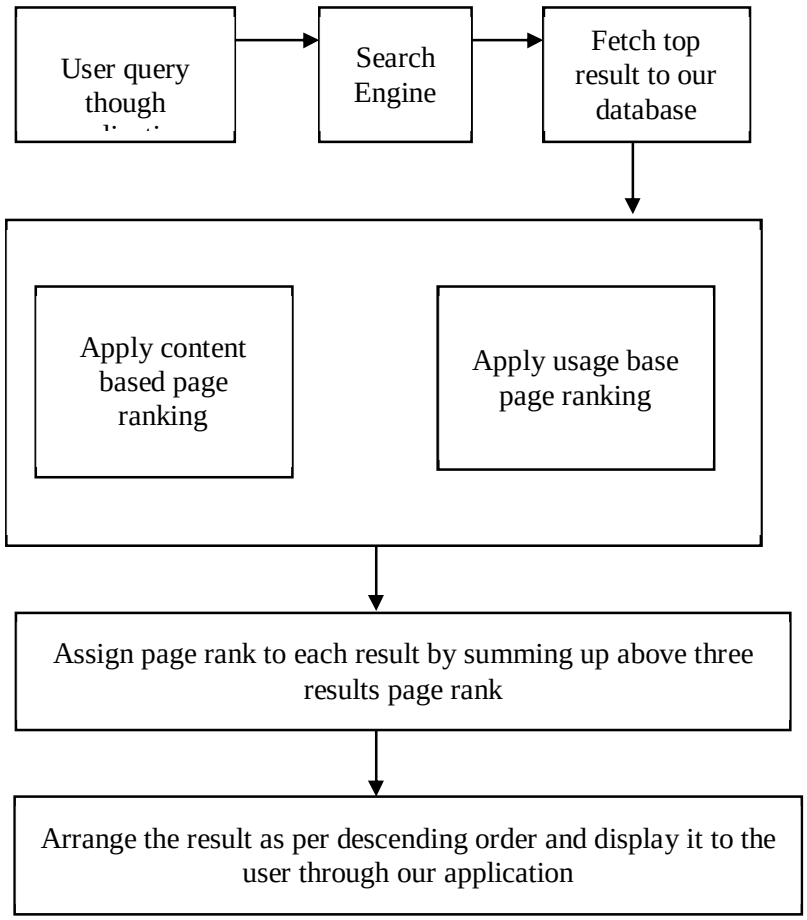


Fig. 3. Flowchart of proposed system

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A. Tag Analyzer Algorithm Steps

1) Build a DOM tree of downloaded web page
2) Traverse each node of a DOM tree
3) Find title, heading, meta, paragraph tag
4) Calculate the Tag page rank according to content of data which are in above tag

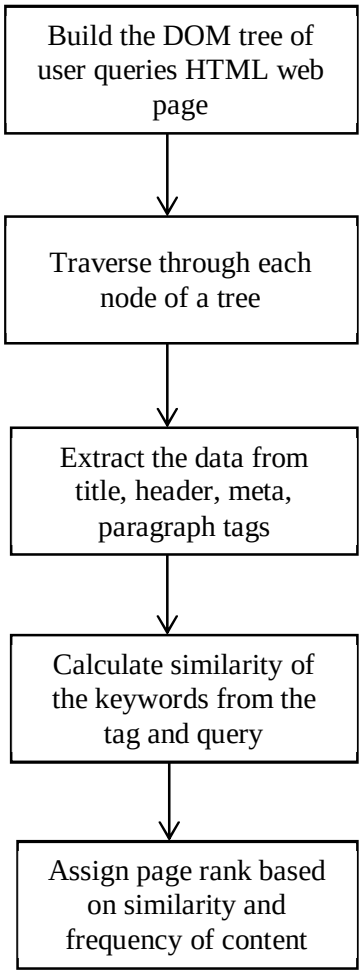


Fig. 4. Flowchart of Tag analyzer algorithm

B. Event explore algorithm

This technique is used to compute the interest of the user on certain web page. It find the how much time user spend on certain web page. If user spend much more time on specific web document then it consider an important document and its page rank should be more. When web page is open in user's browser, timer will be triggered. Every second timer will invoke these event explore function to check whether the user is idle or active. This verification is done by binding mouse events and keyboard events. If the user is continuously idle for 120 seconds i.e. user does not perform any activity on web page then timer is again reset. Otherwise user access time computed using timer value.

Steps

1) Web document open in browser
2) Start timer
3) Invoke event explore function every second to check whether user is idle or not
4) If user is not idle for 2 minutes reset time
5) Else user access time will calculate

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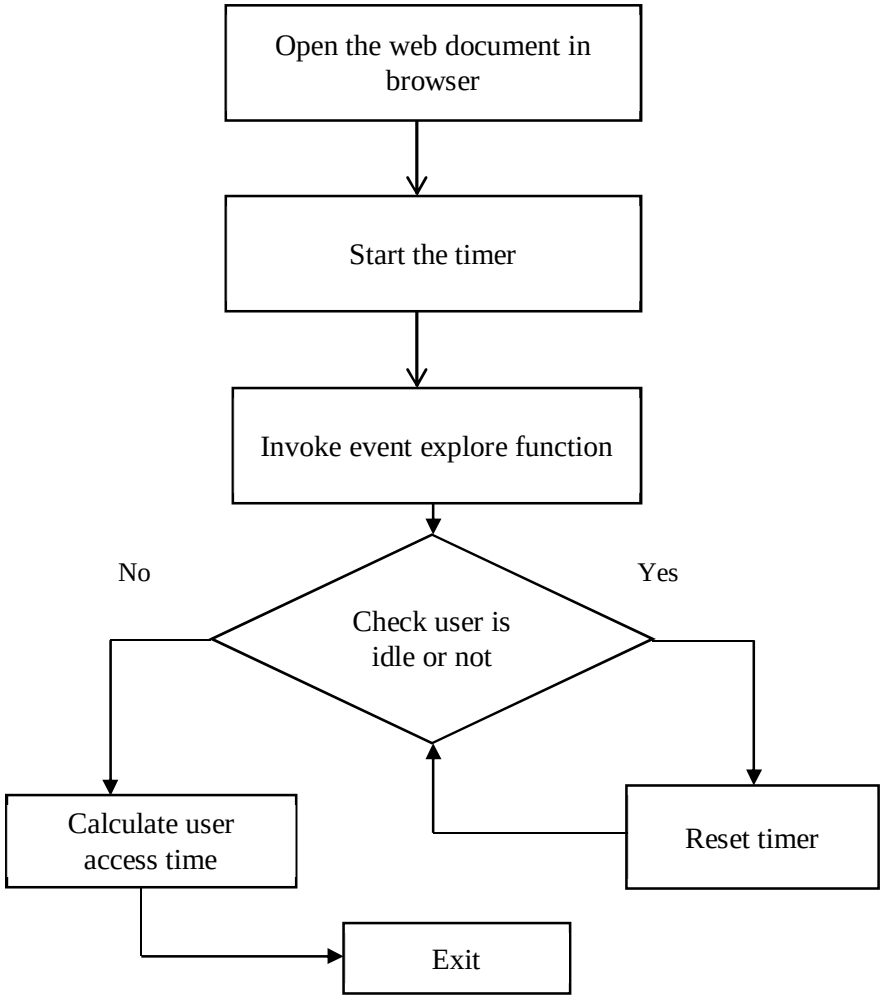
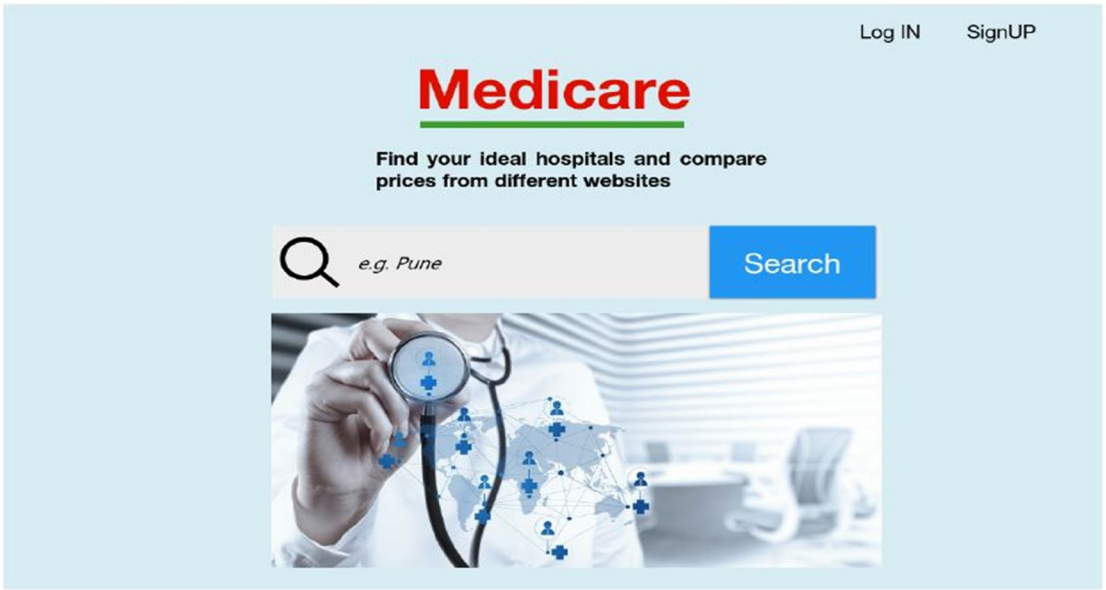


Fig. 5. Flowchart of Event explore algorithm

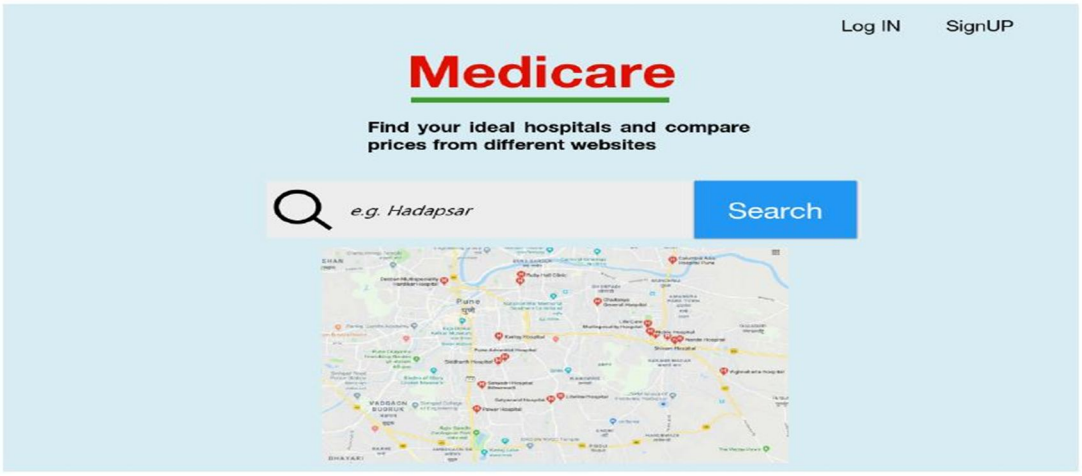
IV. DESIGN OF PROPOSED SYSTEM

A. Design of home page (Location selection)

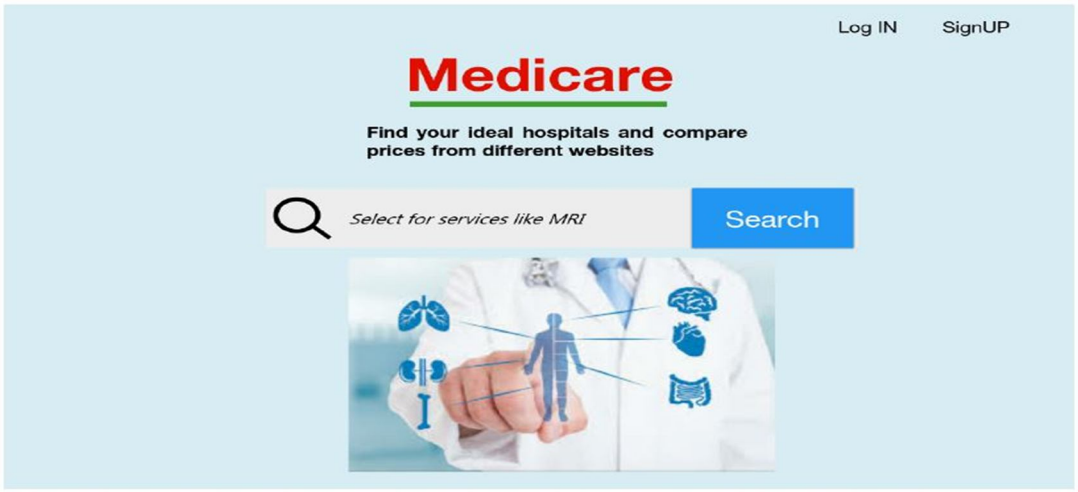


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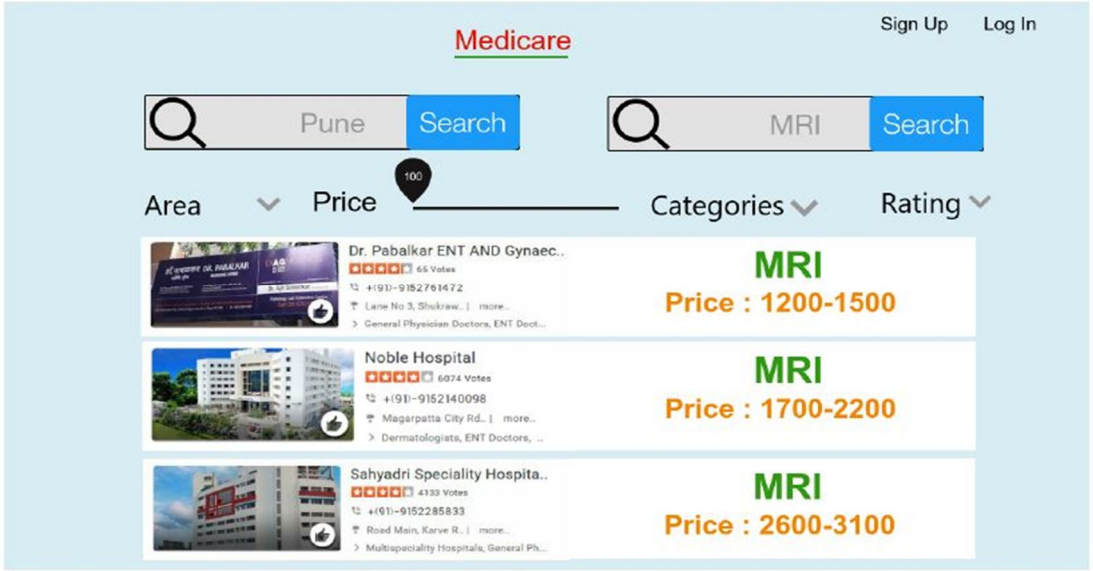
B. Design of Area Selection Page



C. Design of Medicare service Selection Page



D. Design of Result Page

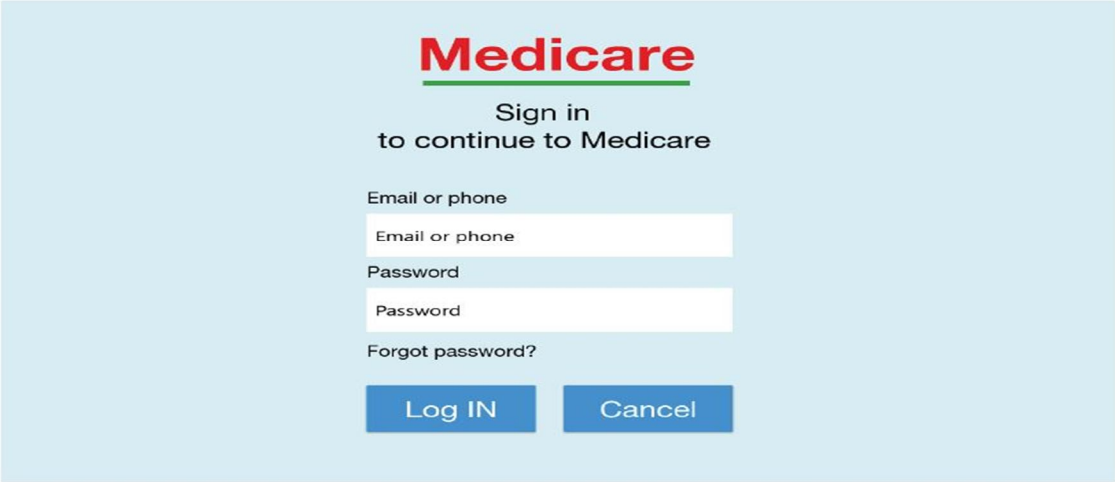


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E. Design of Sign-Up page

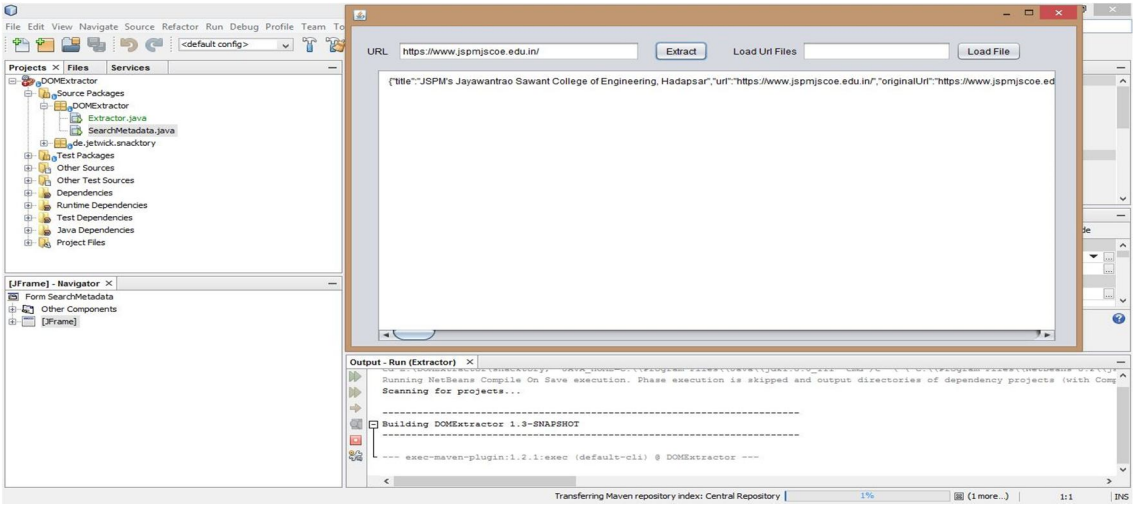


F. Design of Log-IN page



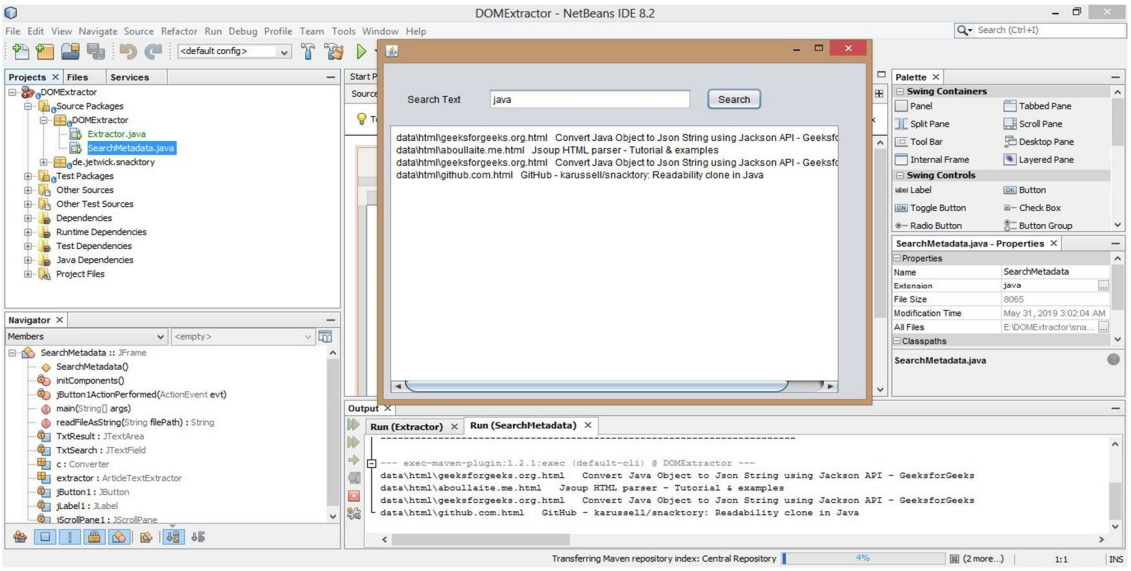
V. RESULT

A. Result of Extraction Module



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B. Result of Extraction Module



VI. CONCLUSIONS

This web application compare different hospitals according to users query and gives best hospital services information which are in user's budget. This project reduce users effort and time for comparing different hospital websites and find best from it which are given quality services in minimum cost. It also gives information about hospitals, its quality of services through user's reviews and gives information about available services in hospital like number of available ICU, general wards, ambulance, etc. For comparing different hospital application used web mining techniques like content based page ranking algorithm and usage based page ranking algorithm.

VII. ACKNOWLEDGMENT

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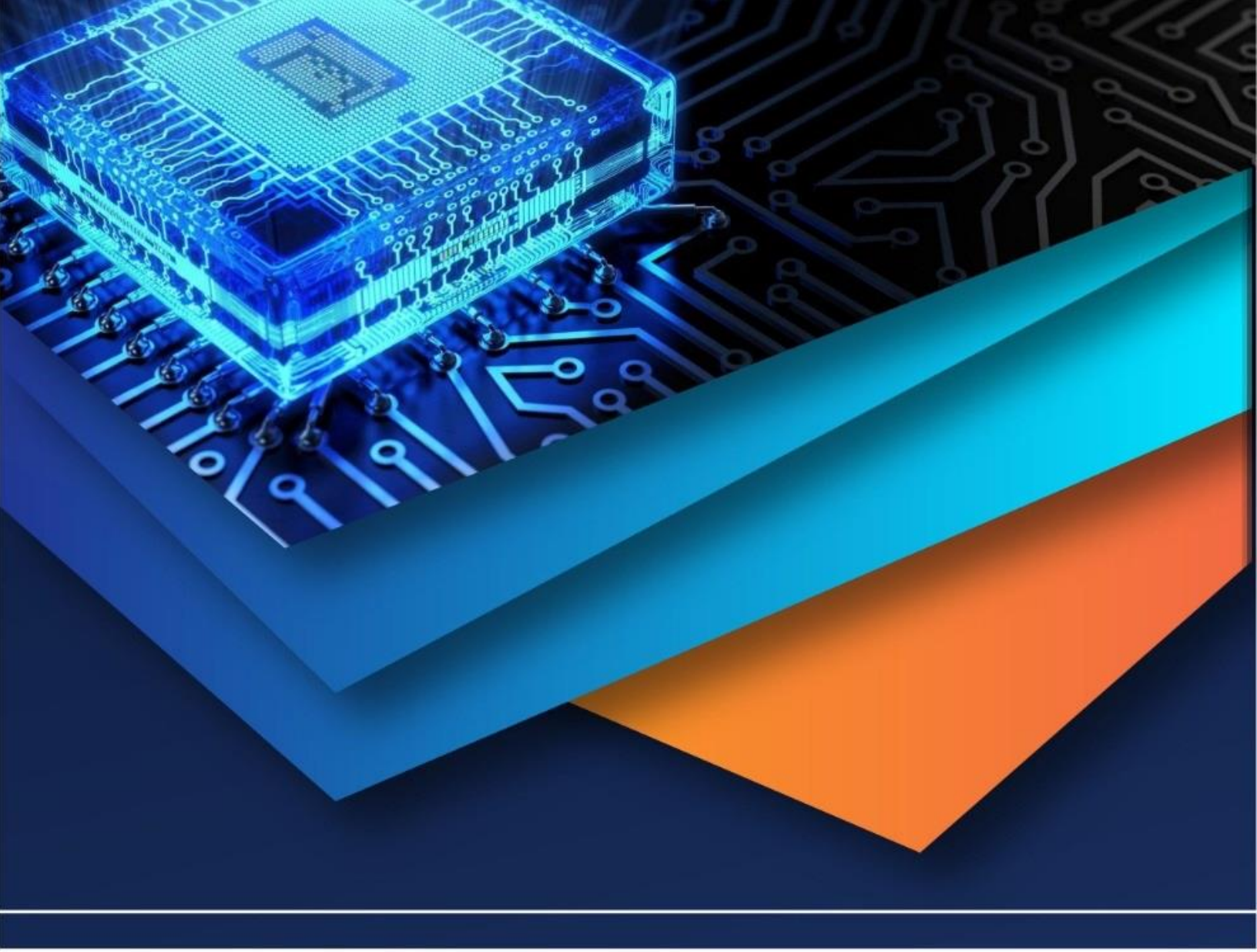
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