Detection of Navigation Problem and Guiding User in Real Time

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Abstract: **World Wide Web is a big era of information, so lost in site is major problem while surfing over an internet. Not finding appropriate information may result in frustration of user. To overcome this lost in site problem we proposed a system which will assist user by sending notification and popup to user while session is found to be lost. In context of proposed system, web log that records user session is maintained on daily basis. The user session includes information about user's web page navigation activities. Each Web-page has a title which contains a keyword that embraces semantic of the web-page. Based on above facts, we aim to discover domain knowledge from the titles of visited web-pages at a web-site and represent the discovered knowledge in domain ontology to support effective web page redirection. By implementing various algorithms to the user's web history, the user is directed to the expected web page.**

***KEYWORDS*— user-session, redirection, web-logs, web-page.**

I. INTRODUCTION

Nowadays web portal contains large amount of information because of which surfing online is interesting and quite exciting but sometimes it may turn annoying or frustrating for user. So to recommend user current interested page we proposed a system to give web page recommendation and send notifications. Recommending Systems are new generation dynamic internet tools that help user for efficient product search via Information on the internet and receive information related to their preferences. Just like Google a search engine is provided and some information is being searched and on successful information retrieval a notification is being popped up to user. And if in case the information is not found then relevant links are provided for future use. If not, suggest correcting the query or provide alternate Web Page via Popup or Redirection. The user sessions include information about users' Web-page navigation activities. The extracted patterns in web usage mining are useful in various applications such as recommendation. In the context of Web-page recommendation, the input details Web logs that record user sessions on a daily basis. Based on these, the aim to discover domain knowledge from the titles of visited Web-pages at a web-site and represent to discover a system to support effective Web-page recommendation. We propose a set of algorithms to detect navigation problems in real-time. To do so, we operationalize some navigation strategies suggested by the literature and investigate the extent to which the exhibition of these strategies is an indicator of navigation problems.

II. LITERATURE SURVEY

Zhurong et al. [1] have proposed personalized web page recommendation model based on user context and collaborative filtering, aimed at predicting the next request of pages that web users are potentially interested in when surfing the web. An improved Collaborative Filtering (CF) algorithm to discover the similar users' interested web page sets of the target user, based on which, a target user's Collaborative Filtering web Page Set (CFPS) is filtered. To recommend user current interested pages, we introduced context factor to match web pages in the website. And a Merge Sort Algorithm (MSA) is proposed to merge two candidate web page recommendation sets.

Kolekar et al. [2] have proposed system consists of three knowledge based model. Web page recommended using model, Semantic analysis model and Conceptual Prediction model. Key information extraction is used for improving a Web page recommendation performance up to some more extends.

Gerard et al. [3] have proposed a methodology which computes the semantic heterogeneity between the keywords, content words and query words for web page recommendation is incorporated. A novel strategy called as Differential Adaptive Point wise Mutual Information is proposed for computing the semantic heterogeneity which is one of the primary contributions to this work. The query words are used for extraction of the relevant URLs from the URL repository.

III. SYSTEM ARCHITECTURE

The architecture of proposed system is depicted in fig 1. Main perspective of the system is to provide a platform for users if they are lost while navigating through any website. To develop an application which will help the user to easily navigate through web pages based on user interest of search. The system will detect the behaviour of user while user navigates over an internet. Depending on users navigation pattern and search pattern users are categorized. When user is found to be lost in site, system will assist user and provide popup for guiding user. Users are classified into normal and abnormal behaviour. If user requires more time on particular page so either page can be useful or may be irrelevant to user. If user is lost than popup system will redirect user to more appropriate and relevant page.

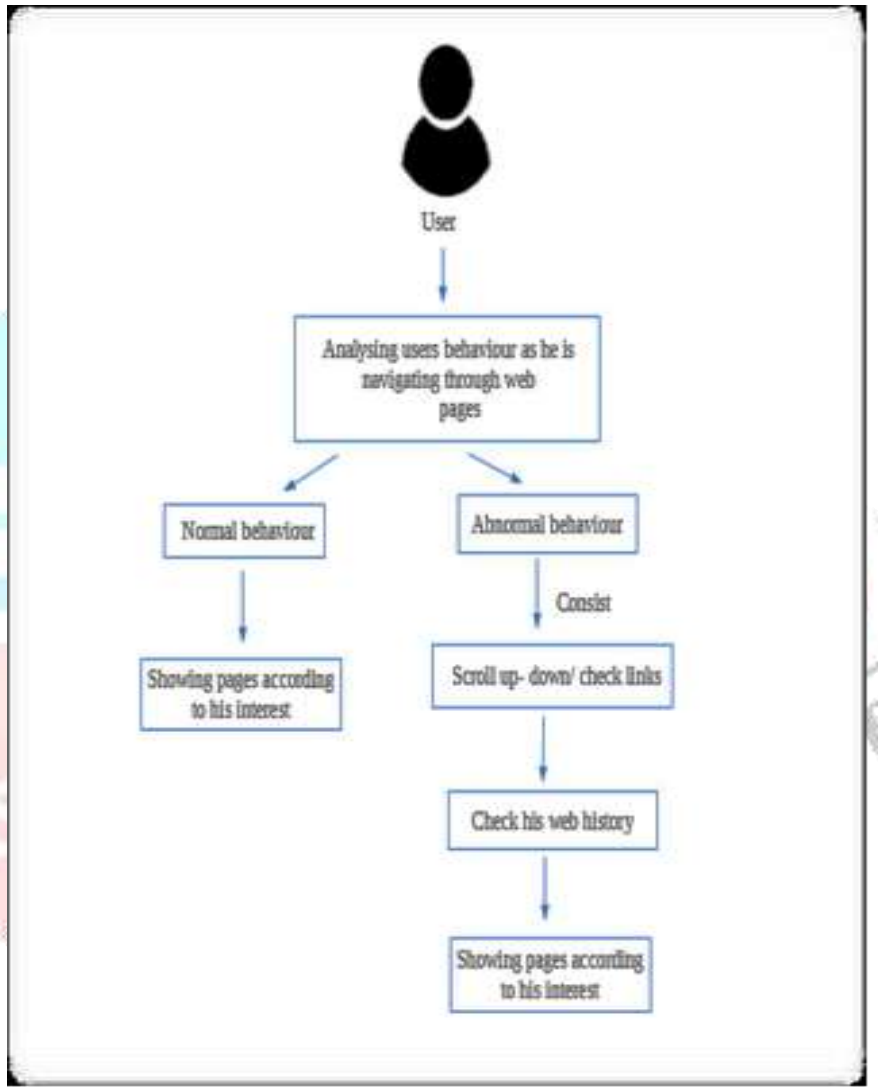

Fig 1. Proposed System Architecture

IV. PROPOSED METHODOLOGY

User Session: Session keeps the track of user navigation and history. Session starts as soon as user logs in the system and fires a query.

User Behavior Detection: On search of query the user will get web pages as expected. User will get relevant information and then useful information is extracted from that searched info. If the person is searching and getting relevant data then user is categorized under normal condition. If the person is going on searching and not getting relevant data then user is categorized under abnormal condition.

Questionnaires: If the behavior found abnormal, user interests will be checked. Accordingly questions will be asked in order to assist user.

Redirection to Web Page: To direct user to expected web page by asking minimum questions. User history plays vital role in the system as if user is preexisting then using history user interest can be known.

V. EQUATIONS

S={s, e, X, Y, T, $F_{main,}$ NDD, DD, Success, Failure} **S(System)** = Is our proposed system which includes following tuple.
s (initial state at time T) = GUI of search engine application. The GUI provides space to make a video call.
X (input to system):- Input Query. The user has to first sign up to the application for entering search query.
Y (output of system):-Output Query. A enlist link of query associated along with its category.
T (No. of steps to be performed):- **2**. These are the total number of steps required to process a query and generates results.
f_{main} (main algorithm):- It contains Process P. Process P contains Input, Output and subordinates functions. It shows how the call will be processed into different modules and how the results are generated.
DD (deterministic data):- It contains Database data. Here we have considered MySQL, SQLite which contains number of queries. Such queries are user for showing results. Hence, SQLite is our DD.
NDD (non-deterministic data):- No. of input queries. In our system, user can enter number of queries so we cannot judge how many queries user enters into single session. Hence, Number of Input queries are our NDD.
Memory shared: - SQLite. SQLite will store information like Video Calling, Prism will be help over screen, and Output of setup will be visible. Since it is the only memory shared in our system, we have included it in the SQLite.
$CPU_{count:}$ - 1. In our system, we require 1 CPU for server.
Success = successfully recommended best system as per user's interest
Failure = If application will not send the notification to user it will fail.

VI. ALGORITHMS USED

Hesitant Behaviour

wpi → wpj → wpi → wpk → wpi, indicates that wpj and wpk are not quickly scan by the user but some amount of time is spend on it leading to minimise reading ration.

Revisitation

wpi → wpj ⇒ wpi → wpj ,
This strategy indicates Revisitation behaviour of user -visiting the web page twice after navigating back to original page or repeatedly clicking on the back button of browser

Naive Bayes

P(h|d) = (P(d|h) * P(h)) / P(d)
where
P(h|d) - posterior probability
P(d|h) - likelihood
P(h) - prior probability
P(d) – evidence

VII. CONCLUSION

Hence, by implementing few algorithms like Naive Bayes and strategies – detection in navigation Problems on Web, in real-time is indicated . This abnormal behavior is overcome by taking into consideration the users interest from web history that will guide the user. This can be achieve by using category of the links.

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