

An Efficient of Web based Management Using Research Support Systems

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Abstract

The objective of research support systems (RSS) is to support and improve research, viewed as a Decision Support Systems (DSS) is a programmed knowledge system that supports business and managerial decision-making activities. Web-based Research Support Systems is the web-based information systems and it's integrating the knowledge of database and research process on the Website area. WRSS are based on the World Wide Web and supplies a database for accumulating, presenting, assembling, sharing, processing, and using information and information systems for the purpose of research support. A WRSS is focusing on research web systems and importance of Web-based Research Support Systems is the theoretical information systems. In this paper is to observe the domain of World Wide Web site improvement and propose a method to help out with this process. Web-based information revival support systems is support a large range of research activities, RSS must be flexible and have much functionality.

I. INTRODUCTION

The web based support system provides a database for storing, presenting, gathering, sharing, processing, and using information. The impacts of the Web can be felt in most aspects of our life. With the introduction of Web technology, one has to reconsider the existing methods or change the existing systems to meet the challenges, as well as take the advantages of Web technology. The Web application is used as a worldwide interface and the concealed infrastructure for Knowledge Web Information Systems. The current improvement of the Web creates further momentum to the design and implementation of support systems. Web based systems provide an information availability, accessibility, and flexibility. Though, more challenges are in front of us. We have to find the right information and tools from mostly obtainable resources. Web based support systems aims to take the more challenges of the Web, to meet the human physical limitations of information processing. Web-based support system describes on the theories, technologies and tools for the

design and realization of Web-based systems that support a variety of human activities.

The following are some potential benefits of Web technology:

- The Web platform provides a Distributed computing is a model in which components of a software system are shared among multiple computers to improve efficiency and performance.
- The Web delivers the protected information and tools with a user friendly interface.
- The Web has no time or geographic restrictions. Consumers can access systems at any time and any place.
- Users can control and recover results remotely and immediately.

II. WEB-BASED RESEARCH SUPPORT SYSTEMS

Web based support systems summarizes these functionalities and the required computer technologies.

A. Profile management

The profile management is classified into research project profile management, and scientist profile management. Knowledge base and basis of Research support systems is a component of profile management. In this system gathering, organizing, and storing the all related significant information about a research project profile management and the scientists profile management system. Profile management is contains the both grouping and discrete level. The profiles can be store in data collecting system and XML documents. A profile can be used to store the description of the characteristics and achieve personalized and project specific support.

B. Resource management

Many types of resources are used for supporting research that is human resources, tool resources, and information resources. The resource management can be constructed based on the scientist profiles. At any time there is a problem during research, it is possible to recognize a group of experts whom to

be consulted. The features of human resource management are the maintaining the used to describe great amounts of other things and the contesting and recovery of human resources.

The human resources consist of connecting to another systems and collecting the data bases. The resource management system can be combined to the web platform. Database, knowledge base, information retrieval, and agent technologies can be used. Web search engines can be used for retrieval.

C. Knowledge management

Knowledge management is the method of generating, allocating, utilizing and Organizing the knowledge and information of an organization. It refers to an incorporative approach to attain organizational objectives by making the best use of information. The knowledge management must contain the operation and recovery data systems. The profile, resource, and data managements form a solid basis of RSS. Consider now the following specific supporting functionalities:

1) Exploring support

Exploration support is used for knowledge management systems. Data management contains a lot of exploration, like search databases, libraries, and the network. A research profile is useful for exploration areas. If the web is used for browsing databases or libraries, the browsing data can be tracked from database. After exploration, the collected browsing data can be evaluated using expert systems and information and knowledge management tools to supply data information and search profiles can be updated. Presently, another one of exploration tool is web browsers and is need to be extended for providing support to research.

2) Retrieval support

Retrieval support is a recovery data from information management system and it is need to search and fine related information/Data. Retrieval supports accommodate the recovery relevant activities like searching, gathering, and using of knowledge data.

3) Reading support

Reading support is needed for digital libraries and electronic publications. A range of software packages to analyze data - from Access or Excel to dedicated packages and reader can add book marks, make notes, combine article, and make logical connections of different articles. A reading support needs to help a reader in finding related things and

establishing cognitive maps. Reading support systems can be combined with exploring and recovery support systems. Expert Systems and database system can be used to support a reader by learning from the reading history. Web agent technology can be used to collecting information and inform researcher with added new information. An online dictionary is also used for reading support.

4) Analyzing support

Analyzing support is depends on tool management system. It is necessary to help a scientist find the particular problem in analyzing data. In addition, the system should also assist a scientist in using a tool. An explanation feature may be needed, which answers the question why a particular tool is used. If the tools are related as clear text, data recovery systems can be used to find the right tool. Computer graphics system and visualization is also for analyzing support.

5) Writing support

There are many writing support software tools, such as Microsoft Word, Open Office, Google Docs and typesetting software. Many software packages come with additional functions, such as spelling-checking, grammar-checking, and various other agents. A writing support system should also contain some functions of recovery support systems.

III. WEB-BASED INFORMATION RETRIEVAL SUPPORT SYSTEMS

Information retrieval support systems are designed with the purpose to supply the required utilities, tools, and languages that carry a user to perform various tasks in finding useful information and knowledge. Information recovery support systems, Web browsers, and Web search engines extend the basic search functionalities of data retrieval systems make clear by a file system.

They provide essential functionalities to assist a user or scientist in the circumstance of libraries and in the early step of the Web. A scientist may need to perform many dissimilar tasks when finding useful information. The new tasks include understanding, examination, association, and detection, in addition to the conservative tasks of search and browsing. WIRSS is effort to resolve the problems of information retrieval systems by providing more supporting functionalities.

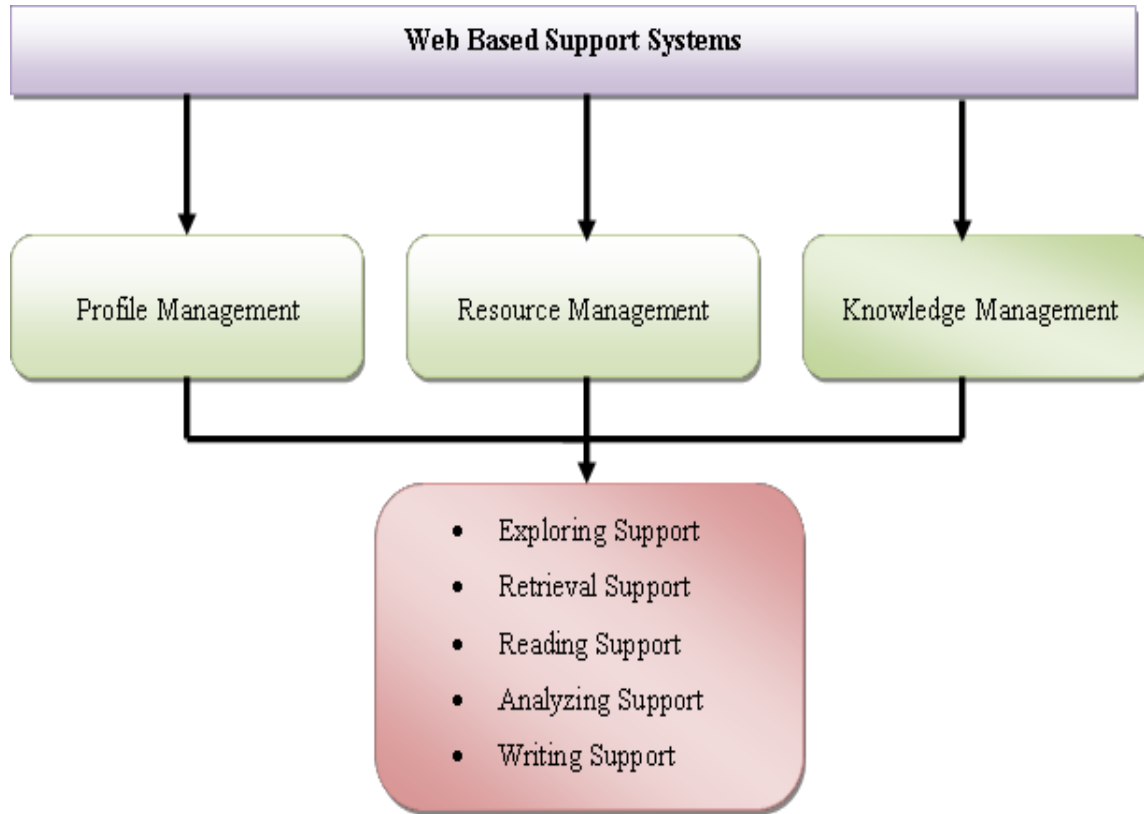


Fig.1 Web-based Support Systems

A WIRSS provides models, languages, utilities, and tools to help a user in examining, analyzing, understanding, and organizing a document collection and search results. These tools allow the user to explore both semantic and structural information of each personality document, as well as the entire collection. They allow a user to view and arrange search results, as well as various document models. The same results can be viewed in different ways by using separate appearance models. Furthermore, a user can examine and compare results from different retrieval models. A single document model, a retrieval model, or appearance model may not be suitable for different types of users. Consequently, WIRSS must support multi-model, and provide tools for user to supervise various models. A WIRSS focuses on the supporting

functionalities of information recovery. Though obtainable information rescue systems only focus on the search and browsing functionalities. WIRSS are more flexible and unite the functionalities of IRS, Web browser and Web search engines. It is expected that current IRS need to be extensive to support more user tasks. A WIRSS is based on a dissimilar design attitude that accentuates the supporting functionality of the system, instead of the specific search and browsing functionalities. In the procedure of finding useful information, a user plays an active position in a WIRSS by using the utilities, tools, and languages provided by the system. The device of a WIRSS also includes data management, model management, knowledge-based management, and user interface subsystems.

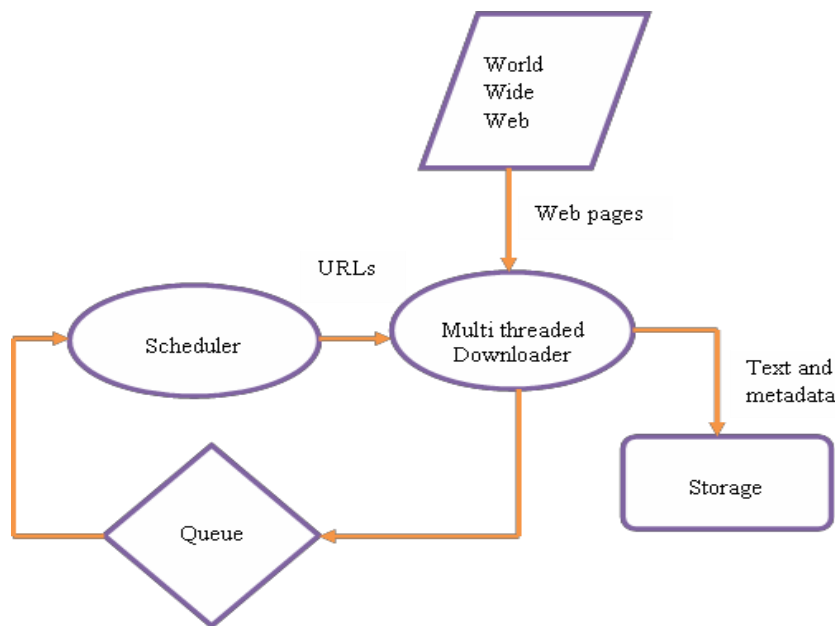


Fig. 2: Web-Based Information Retrieval support systems

IV. STRUCTURAL DESIGN OF WEB-BASED SUPPORT SYSTEMS

The consumer, comprise choice makers and information seekers, are consumers on the top cover. They access the system with browsers via the Web and client's side by browsers. The lower layers and components summarized by the oval dotted line are very similar to conservative automated support systems. In other words, a Web-based support system can be viewed as a support system with the Web and Internet as the edge. The structural design shown in Figure 3 is presented from a usage point of view and is logical but not physical. In perform data and control mechanism may not necessarily sit physically on the same point of the network, which is one of the major differences between WSS and traditional computerized support systems. System components may be spread all over the network. Users of the systems are located internationally. Agent, grid computing, and Web services play important roles in WSS implementation. The data layer comprises two Components. A file is a basic constituent in any modern system.

WSS is not an exemption. Another major component is the information bottom. The information base stores rules, main beliefs, and strategy used in supporting activities. We mean to separate the information base into two parts: a domain-specific information base and a domain in dependent knowledge base. The former is the knowledge specific to the domain that is supported. The latter involves general knowledge for all support systems. Knowledge organization, data organization, information repositioning, data mining, and other control facilities form the management layer. These serve as middleware for the three-tier client/server structural design and as the intermediaries between the crossing point and data layers. Analysis, deduction, and agent technology play significant roles on this layer. Web based support systems divided into three stages. The First stage support for human activities and second stage organizational support and the third one is network level.

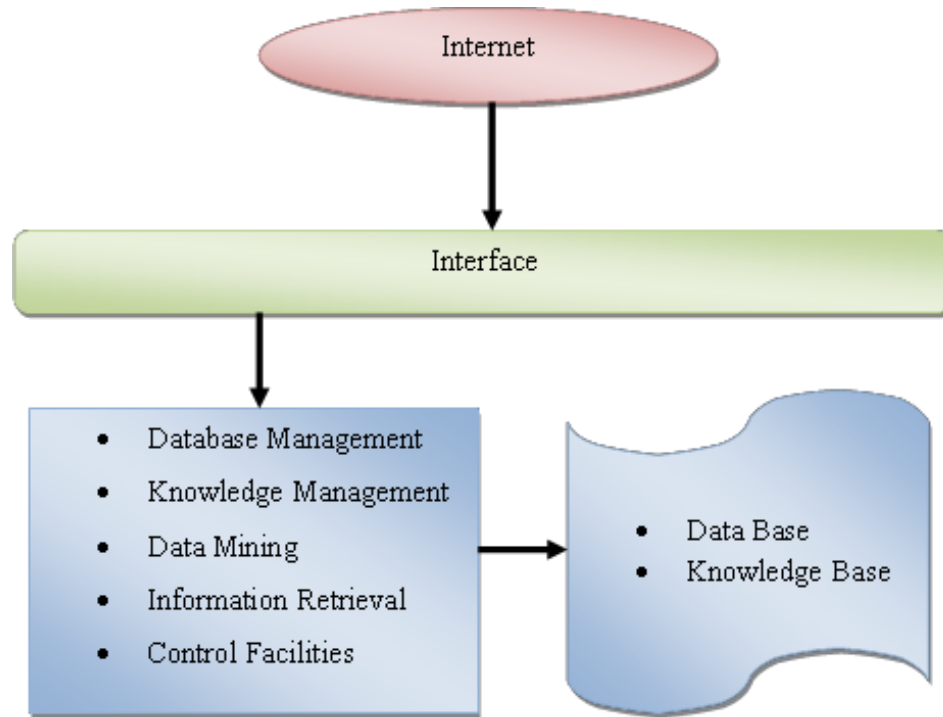


Fig.3 Structural design of web based systems

V. PROPOSED SYSTEM

This system was improved based on the incorporation of the literature and required with in development of websites. This provided additional information concerning the effectiveness of the system on a practical level. This section discuss about the phases of the system.

This proposed System explains about four phases:

- 1) Exploration
- 2) Model
- 3) Production
- 4) Realization

A. Exploration

Exploration is apprehensive with the improvement of a Web approach and an explored of how a Web-site may achieve this strategy. The two main reasons for software project failures are the lack of top management promise to a project and misunderstanding the system requirements. Exploration aims to decrease these risks by setting in place some planned goals and objectives, and then scheming a system to attain them. The choice to enlarge a Web attendance by an association should preferably form part of the corporate information plan it is crucial that the Web-site developer be involved with the

formulation of this plan at its beginning if the myths about the Web as an organization information panacea are to be dispelled. The developer/consultant can also explain the total cost of possession concerned with supporting a Web-site, which may far outweigh the initial expansion costs.

1) Improvement of a Web approach

The developed approach is to be recognizing in a calculated Planning manuscript which outlines three core elements that illustrate the goals of the site. These elements are useful for guiding the rest of the expansion process. A well defined statement of where the organization wishes to be. An evaluation of where the association is now.

2) Essential intentions

Once the association Web approach has been agreed upon and a planned Planning Document has been produced, the ways in which the expansion will achieve these goals can now be recognized. The Web developer is fully involved with the running of the project and should be aware of the current Internet and Web technologies in order to complete these objectives efficiently.

3) Objective Assessment

The objectives described above, together with the available resources, are examined in order to determine to what degree they are attainable. This analysis can be sub-divided into four tasks, which are as follows: • **Knowledge Review** - identification of all technological components and tools required to construct, house and support the site. • **Information Review** - identification of any information that the user requires, whether static or dynamic. • **Ability Review** - identification of all the differing skill sets required to complete the project • **Consumer Review** - identification of all intended users of the site. Once this review has been completed a more advanced set of

objectives can be recognized. Any objectives that cannot currently be pleased are recognized in a Wish List that forms part of the Objectives Document.

B. Model

Once the exploration has been completed, the improvement method can move on to the Model phase, which is determined by the Objectives Document. As Websites grow incrementally, many of which are missing in terms of good design architecture, the site can rapidly become unruly. The site should be designed with the knowledge that it is likely to have sections and processes added to it during its lifetime as requirements change and new technologies emerge.



Fig.4 Development of a Web strategy

1) Design

The design of the Web-site can be broken down into two tasks: • **Information Design**, this may be as simple as designing a set of hectic - connected Web pages, or it may engage the plan of a database or Common Gateway Interface writing to cope with more multifaceted data structures or process. • **Graphic Design**, whereby the look and feel of the application is planned for its intended audience. Screen layout, colors, images and animations etc.

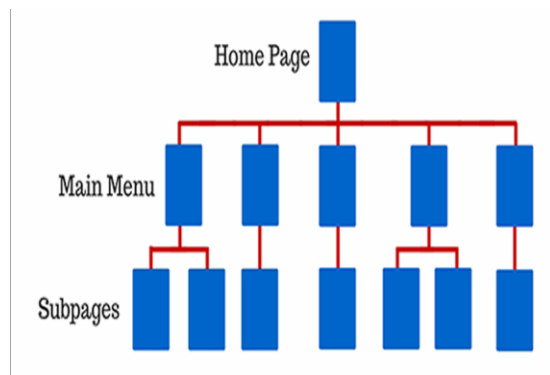


Fig.5 Website Design

2) Model Testing

Testing during the early stages of improvement is far more cost efficient than testing the coded software, and so for this reason the design is now tested to discover any inconsistency or faults. This involve testing the Website design alongside the goals and objectives, in order to ascertain whether the system can well enough produce the information required by the user. The model is iterative and the output is a sophisticated Design article.

C. Production

The methodology is paying attention around the creation of the Web-site and is driven by the plan Document.

1) Source range

All the resources for the expansion of the site, such as hardware, software, communications links and the essential personnel, will be chosen during a number of dissimilar applications and servers may need to be included, so the technical specifications should be examined to ensure compatibility. A number of dissimilar applications and servers may need to be integrated, so the technical stipulation should be examine to make sure compatibility.

2) Design analysis

The Design Document from Phase Two is evaluating with the obtainable resources from the

previous step to make sure the design can be achieved with the resources selected. If incompatibilities are found, the Design Phase and source range are assessment. This is an iterative process, and if problems arise, Phase One can be re-visited.

3) System production & Installation

The production of all of the software connected with the site and its installation onto pertinent Web servers. This may just occupy simply posting the site onto a Web server, but it could also engage more complex tasks, such as file connections.

4) Testing

Testing is one of the most composite and hard areas of any Web project. It is even more complex than with a conventional IS, since Web applications are often developed for a wide group of users in different technical environments. The Web-site must be tested against as many of these environments and combinations of technologies as possible in order to exploit the possible spectators.

D. Realization

The Realization Phase is ongoing and runs throughout the lifecycle of the Web-site. This is almost positively the simplest, yet debatably one of the most important phases. To make sure a constant provider of visitors that wish to return, a site's presence must be felt and the content must be of apparent value.

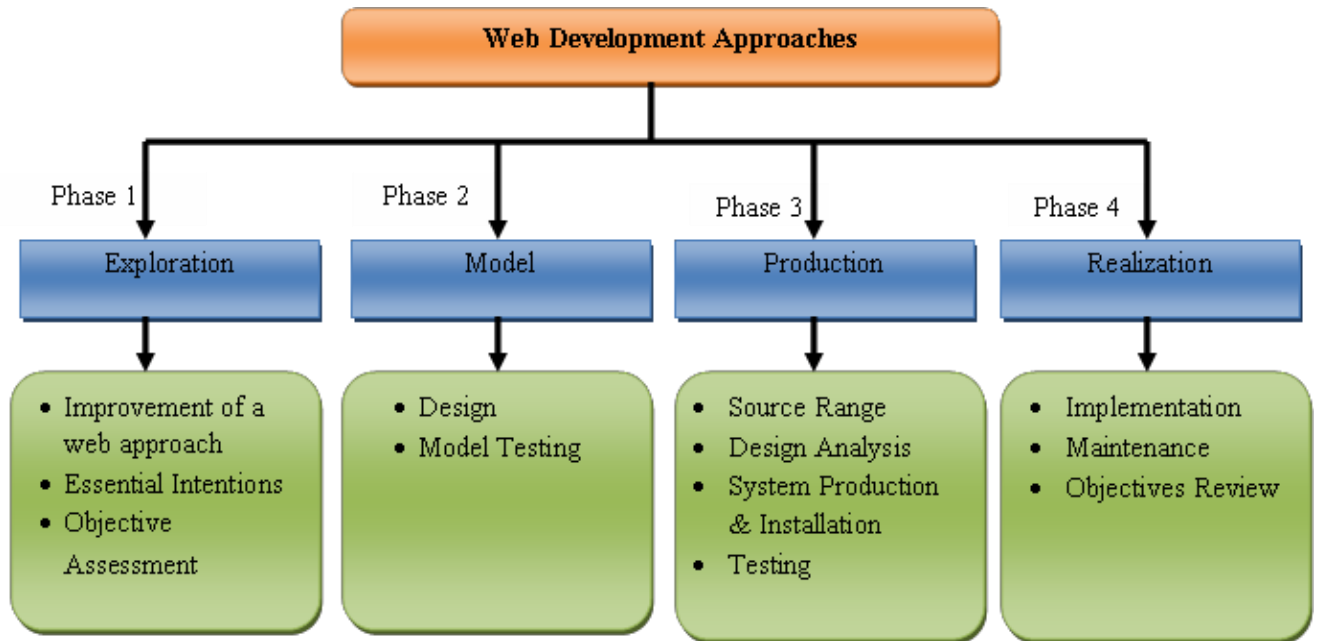


Fig.6 Proposed system for web based systems

1) Implementation

To fully realize the Web-site, its target audience must be conscious of its attendance. During this phase the site should be registered with the major search engines, along with any other promotion methods such as notifying relevant newsgroups, the printing of the Web-site domain address on stationery, business cards, etc.

2) Maintenance

As the site grows, the cost of maintenance will increase considerably. The information presented on a Web-site must be timely. For this reason it is essential that the site is monitored frequently to ensure that information and links, chiefly external links, are up-to-date.

3) Objectives Review

There is an ongoing process for Web developers' to review new technologies as they become available. These can be assessed with respect to the objectives outlined in Phase One, chiefly any objectives that were unable to be implemented at that time and were documented in the Wish List. A reiteration of the

whole process can then begin to implement any new features and increment the functionality of the Web-site. Phase Four demonstrates how any Web-site development methodology needs to be iterative and utilized in a nonlinear fashion. The Objectives Review could have been carried out during Phase Three and the Wish List reexamined. This would have meant the development process would move back to Phase One.

VI. PERFORMANCE ANALYSIS

Table 1 Programming languages for web development by Time of Login HTTP Requests. Windows operating system and browser is used to improve in each of the programming languages for web development and executed on the same computer. A computer with 3 GB main memory and a 3.25 GHz dual core processor running Windows 7 service pack 2 as the operating system was used. The network analysis tool was used to compute the time of processing HTTP requests by each programming languages for web development technology.

Programming languages for web Development Technology	Average Response Time of Processing Login HTTP Requests (in milliseconds)	
	GET	POST
JSP(Java Server Page)	35.50	17.60
PHP	160.20	165.10
CMS(Content Management System) Joomla/Wordpress/Drupal	60.70	65.30

Table 1: Programming languages for web development by Time of Login HTTP Request

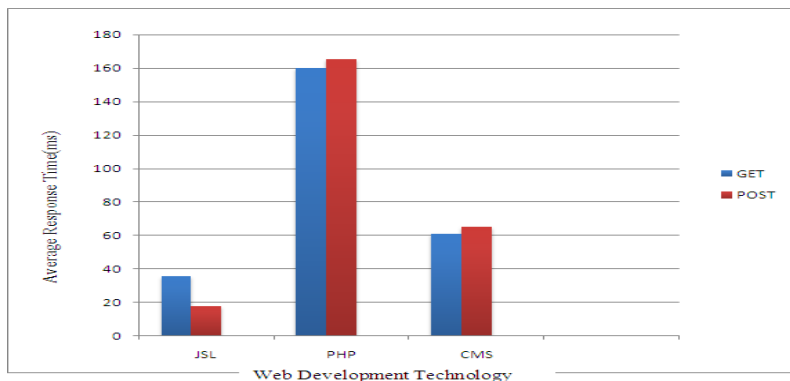


Fig 7: Time of Processing Login HTTP Request

The comparison shows that JSP processed Login HTTP requests faster than PHP and CMS (Jobbla/wordpress/Drupal). The results also indicate that CMS performed better than PHP in processing Login HTTP requests. Figure 5 below shows the times

at different time intervals for JSP, PHP and CMS in processing the Login HTTP requests using the GET method. Figure 6 below shows the times at different time intervals for JSP, PHP and CMS in processing the Login HTTP requests using the POST method.

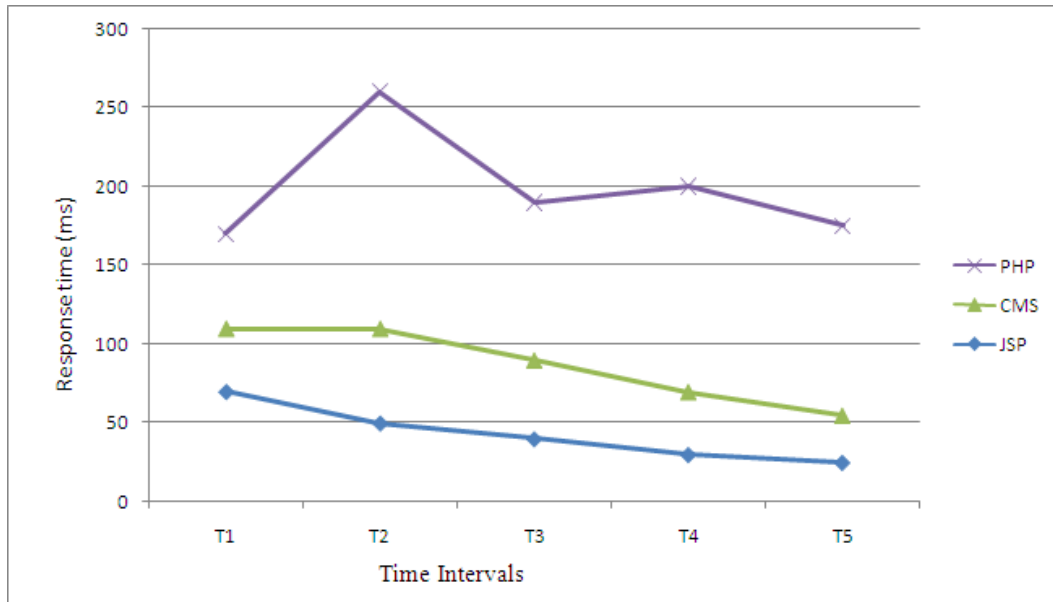


Fig 8: Time of processing Login HTTP Requests Using GET Method

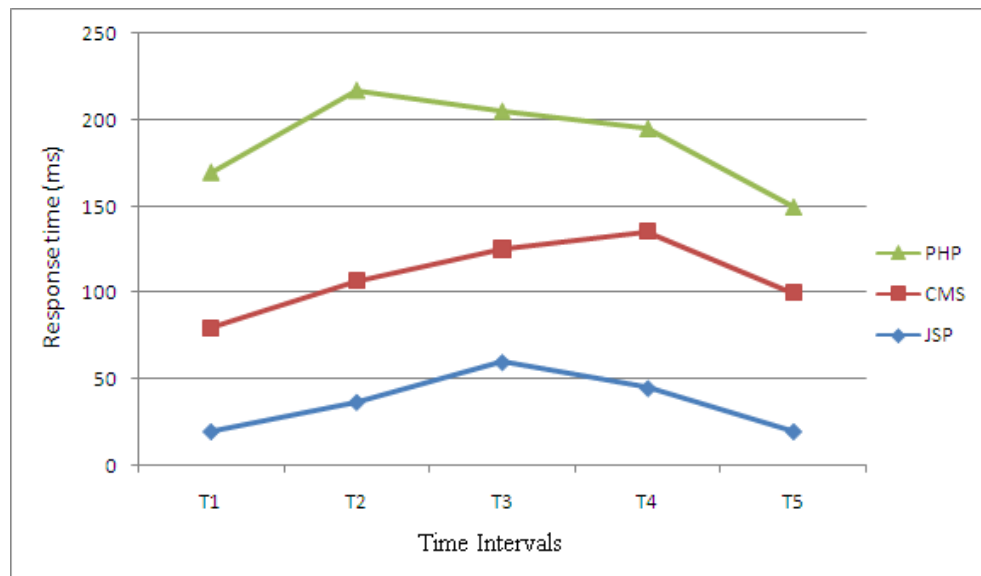


Fig 9: Time of processing Login HTTP Requests using POST Method

VII. CONCLUSION

A decision support system is an information system and based on the combination of management science and computer science. The proposed methodologies used for traditional systems development or web development. Research support systems provided additional information concerning the effectiveness of the system on a practical level. The research of Web based support systems is a natural evolution and evolution of the application dimension is the extension of decision support systems to computerized support systems. Thus, the methodology introduced here could provide some kind of collective method. Indeed, it is merely intended to act as a useful framework to aid the web development process. The network analysis tool was used to compute the time of processing HTTP requests by each programming languages for web development technology.

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