LITERATURE REVIEW

Introduction

This chapter provides an overview of the literature on existing web-based dashboard systems that are designed to provide information about faculty publications, identify patterns in research output, and automate the process of updating publication data. This literature review will examine the importance of publications and citations in the academic world. The discussion will also cover various web-based dashboard systems that have been developed to solve problems related to the project, including their features and functionalities.

This assessment of the literature is vital to enhance decision-making and help faculty members manage their publication data more effectively by giving a comprehensive and comparative analysis of the existing web-based dashboard system. The study's findings will help in better understanding the project's area and scope as well as the methods, processes, tools, and technologies that are suitable for its design and development.

Current System Analysis

For better planning for our system, a comparison of similar systems has been done and measured in conjunction with this system development. To ensure that the new system tackles all the problems while also including all the potential good elements, the systems have been reviewed from every angle to identify their strengths and weaknesses.

System Pro

System Pro is a web-based tool that enables users to examine and display publishing success indicators for institutions and academics. Users may view the number of publications and partnerships, as well as other performance indicators like citation counts and journal impact factors. Data is gathered from a variety of sources, including academic databases, social networking sites, and institutional archives, by System Pro using web scraping algorithms. For users to analyse and explain their data, the platform provides a variety of visualization tools like network graphs, and scatter plots. Users may focus their study on certain areas of interest by filtering and searching their data using a range of parameters, including author, publication year, and research field. System Pro users may easily share and interact with peers by creating custom reports and exporting data in several formats. The platform provides a selection of subscription packages, including choices for independent researchers, organizations, and funders, as well as specialized business solutions.

In Figure 2.1, we can see that we can search for research articles and publications. It opens to another page which we can see in Figure 2.2, from where we can get an idea about the publications based on our search. From there we can get more detailed information on the publications.

Shortcomings:

There are no major flaws on the website. But the user interface is not up to the mark. It can be made better with proper analysis of the design. However, it is a commercial platform for which users must pay a fee to access the features and services which makes it less accessible to researchers who have limited funding or resources.

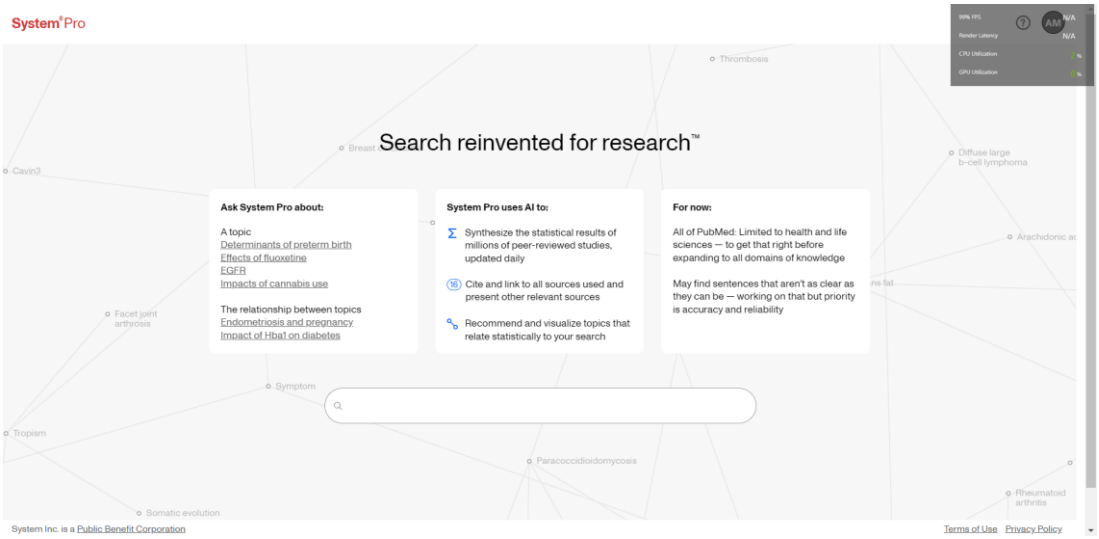

Figure 0.1: Search Option

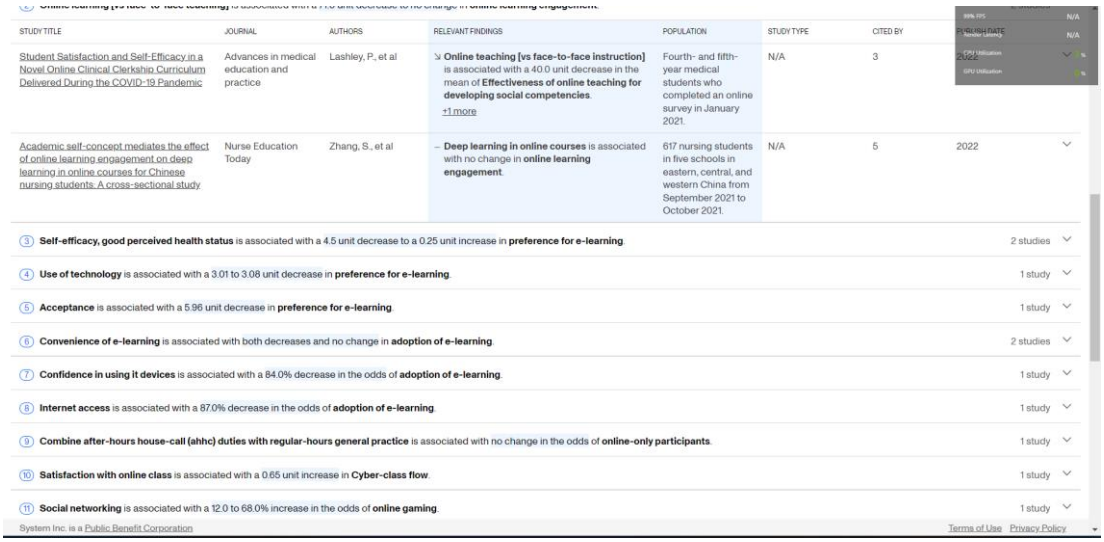

Figure 0.2:Details about publications

Scimago Journal & Country Rank

The website Scimago Journal & Country Rank have several tools that are available to aid researchers in assessing the scientific output of nations, journals, and individuals. The website Scimago Journal & Country Rank offers a platform for comparing the scientific output of nations, journals, and researchers. Using online scraping techniques, it collects data from several sources, such as Scopus, PubMed, and online Science. Scientific journals are ranked according to their impact, influence, and quality

by Scimago Journal & Country Rank. Based on information gathered from the Scopus database, which includes publications from many publishers, the rankings are created. Scimago Journal & Country Rank gives ranking to nations according to their contributions to science, citations, and partnerships. The rating is based on information gathered from different sources.

Shortcomings:

The interface of the website is user-friendly, but it can be more organized to help the users navigate more easily. The primary focus of Scimago Journal & Country Rank is on the production of scientific research in the engineering and natural sciences. The website may not be as helpful for researchers in other domains when assessing the effectiveness of their work. Overall, the website can be helpful for anyone to go through but there are sides open for development including the setup of a dashboard showing the statistics.

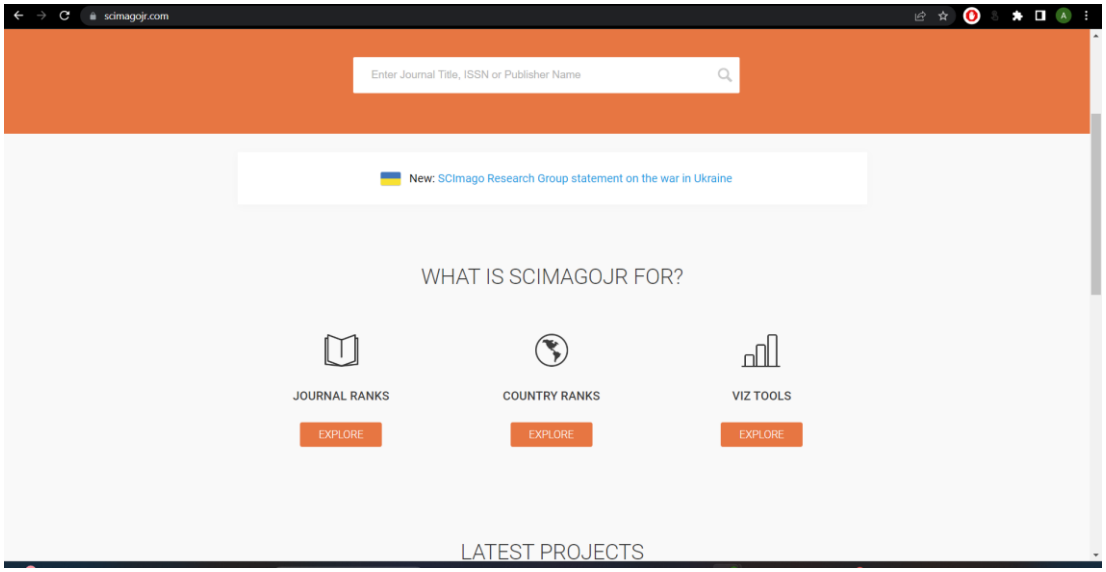

Figure 0.3: Homepage for scimagojr website

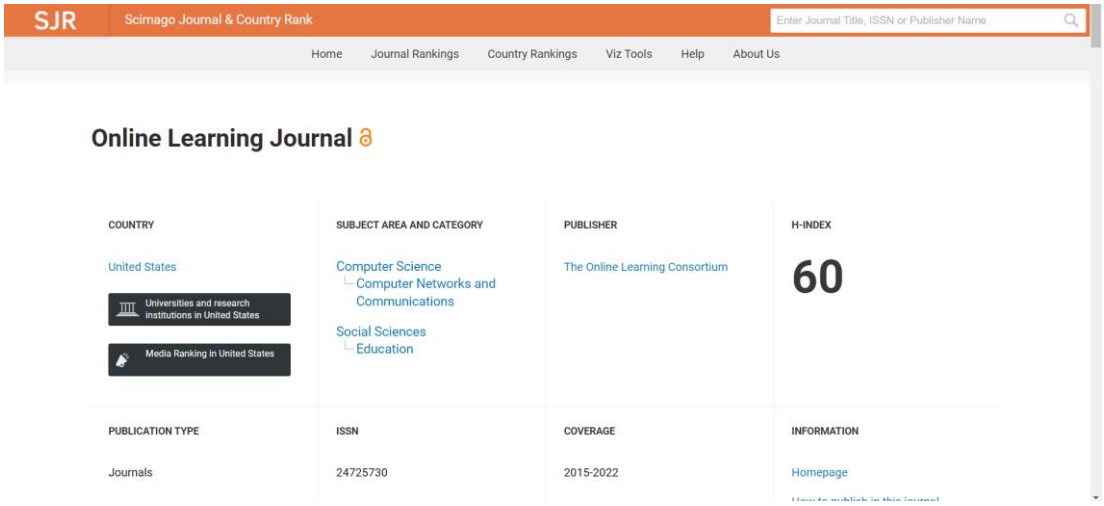

Figure 0.4: Details about the journals

Google scholar

Google Scholar is an extremely popular web-based search engine that searches scholarly materials like academic publications and indexes them. The scholarly literature, including articles, theses, conference papers, and other publications, is covered by Google Scholar. It has an advanced search option through which users may search for articles that reference authors or papers as well as filter their search results by author, publisher, date, and keyword. The best part of using google scholar is that anyone with an internet connection can use Google Scholar without paying a fee. The search results are displayed in an accessible and organized way, and the interface is intuitive and simple to use. Its integration with a variety of university library management systems has enabled its users to quickly access full-text articles and other resources that may be offered by their institution.

Shortcomings:

Although Google Scholar provides a very intuitive interface and has numerous good features, it doesn’t do data analysis based on articles or publications. The coverage provided by Google Scholar is extensive but not exhaustive. The standards by which Google Scholar determines whether a result is "scholarly" are not stated. The researcher must decide whether outcomes are appropriate for their objectives because results are frequently of varying quality. Users of Google Scholar are unable to filter

results by discipline, full-text, or peer-reviewed sources. Overall, it doesn't help any organization/individual by providing them a thorough analysis of their research and doesn't provide any data analysis dashboard based on them.

The dashboard developed for the faculty of computing staff will do data analysis based on the publications made which makes it unique and different.

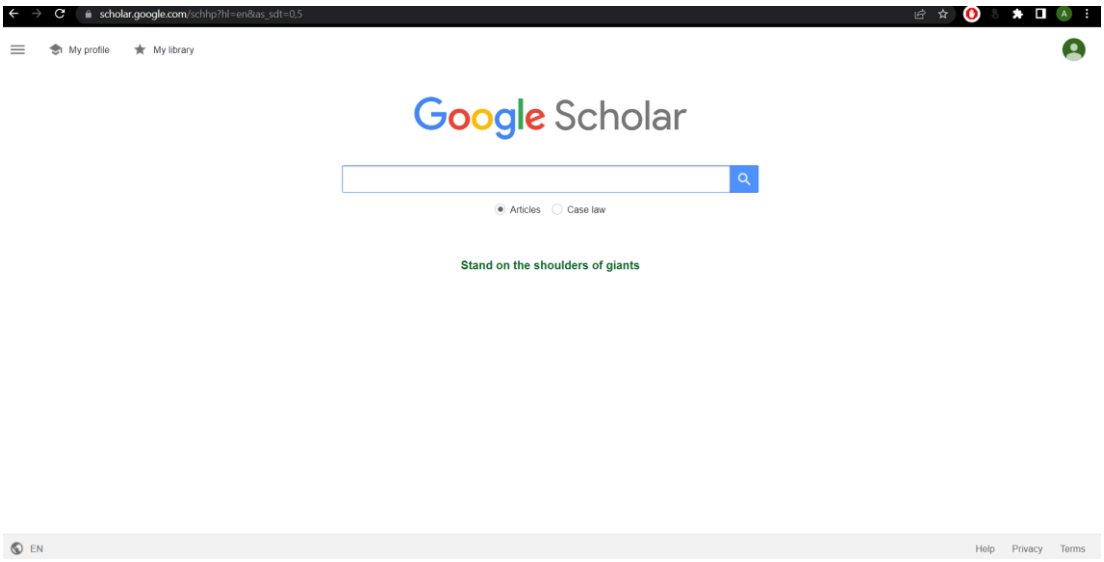

Figure 0.5: Home page for Google Scholar

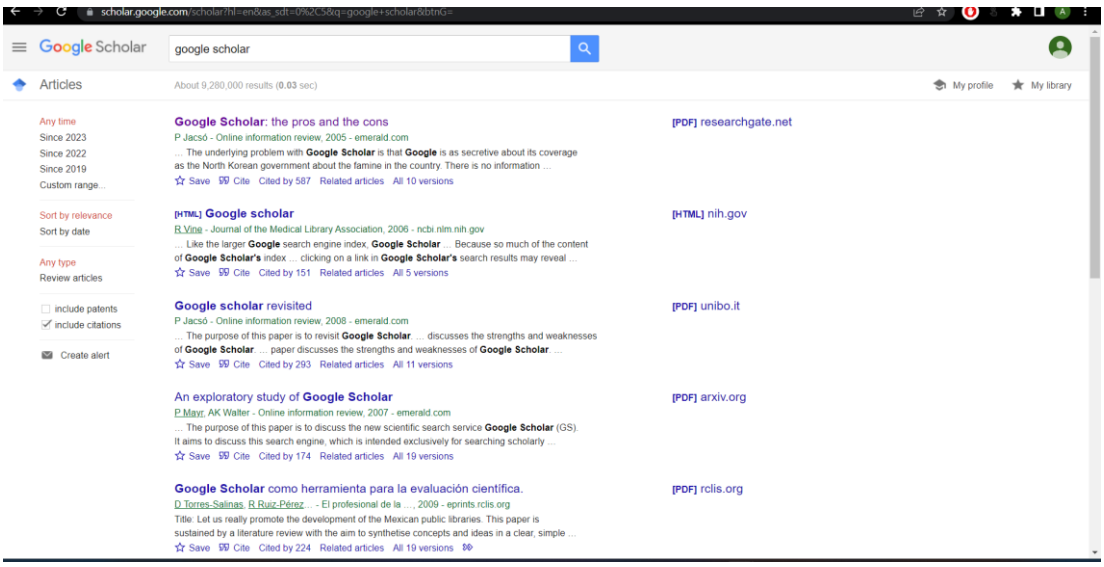

Figure 0.6: Display of results in google scholar

Comparison between existing systems

Each of System Pro, Scimago Journal & Country Rank, and Google Scholar have benefits and drawbacks of their own. But what sets each of them apart from the others is their area of expertise. Here are some comparisons of the characteristics and functions of the three systems, therefore.

Table 0.1:Comparison between existing systems and Faculty of Computing publication Dashboard

Properties	System Pro	Scimagojr	Google Scholar	FC Dashboard
System Type	Web-based	Web-based	Web-based	Web-based
Interface	Data visualization is a limited	User-friendly Interface but lacks organization	Very user-friendly interface	User-friendly interface with beautiful themes and organized features
Language	English	English	English	English
Data Analysis	Yes	Yes	No	Yes
Reliability	Fair	Average	Average	Good
Uniqueness	Examines and displays publishing success for institutions and academics	Assess scientific research of individuals and organizations	Display scholarly materials	Dashboard that'll provide insight on publication performance among Faculty of Computing researchers
Analytical Dashboard	No	Yes	No	Yes

Based on the comparison Table 2.1, it can be concluded that the Dashboard developed for the faculty of computing staff to check on their publication performance is an excellent platform when compared to the alternatives. The faculty of computing staff will be benefitted to do a study of their publication works and thus think of further development. This project aims to help the faculty of computing staff to get an insight into their work and assess the current condition of their publication methods. In comparison to similar systems, it can be said that our system will be useful for a certain organization to follow up with their work in their own field.

Literature Review of Technology Used

Fast advancements in technology are occurring. With the aid of technology, the world is now limitless, and everything is possible. Software development has grown to the point that it is the most sophisticated and in demand in the ever-evolving world of technology. To stay up with the development of time and technology, a technical study was done to determine the best technologies accessible for this project. In this project, the following technologies will be utilized:

IDE

Visual Studio Code

Microsoft's Visual Studio Code (VS Code) is a free and open-source code editor, and it is a popular choice among developers because of its versatile nature, making it one of the favourite choices for web development, app development, and machine learning projects.

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Coding language:

JavaScript

We will be using JavaScript for our project to carry out web scraping from different sources like Scopus, google scholar, etc. JavaScript is a popular programming language used by developers for web scraping and development. There are many libraries and tools available for scraping data from websites in JavaScript. Some of the notable libraries are puppeteer, cheerio, etc.

ReactJS

We will be using ReactJS for the frontend of the system. ReactJS is a popular JavaScript library. The user interfaces of the system will be built using the ReactJS.

Django

Django is a popular python web framework. It is open source so the usage of it is very wide and popular. It is very fast, secure and highly scalable.

MongoDB

MongoDB is a popular database management system. It is a NoSQL database management system that is designed for scalability, flexibility and high performance.

Technology used:

Web Scraping

Web Scraping is the process involving the extraction of data from a source using automated software and tools. This technology helps in doing data analysis since it

collects data from different sources and puts them together in one place. The main purpose of this technique is to have a thorough understanding and analysis of the data collected from different sources.

Web Development

For developing the web-based system, we'll be using technology like Nodejs and ReactJS library. ReactJS is used for developing user interfaces. Meanwhile, Nodejs can be used to work on the backend of the system. MongoDB will be used for the database management of the system.

Chapter Summary

In conclusion, this chapter described similar systems related to my project that have been studied and researched for strengths and shortcomings that need to be acknowledged. This research will aid in the development of the dashboard that'll come in handy for the faculty of computing staff and will provide insight into their publication