International Journal For Advanced Research In Science & Technology
A peer reviewed international journal www.ijarst.in
ISSN: 2457-0362

BULDING SEARCH ENGINE USING MACHINE LEARNING

Pragada Durga Sai Prasad (MCA Scholar), B V Raju College, Vishnupur, Bhimavaram, West Godavari District, Andhra Pradesh, India, 534202.

Dr. I. R. Krishnam Raju, B V Raju College, Vishnupur, Bhimavaram, West Godavari District, Andhra Pradesh, India, 534202.

Abstract

This paper aims to develop a tool for predicting accurate and timely traffic flow Information. Traffic Environment involves everything that can affect the traffic flowing on the road, whether it's traffic signals, accidents, rallies, even repairing of roads that can cause a jam. If we have prior information which is very near approximate about all the above and many more daily life situations which can affect traffic then, a driver or rider can make an informed decision. Also, it helps in the future of autonomous vehicles. In the current decades, traffic data have been generating exponentially, and we have moved towards the big data concepts for transportation. Available prediction methods for traffic flow use some traffic prediction models and are still unsatisfactory to handle real-world applications. This fact inspired us to work on the traffic flow forecast problem build on the traffic data and models. It is cumbersome to forecast the traffic flow accurately because the data available for the transportation system is insanely huge. In this work, we planned to use machine learning, genetic, soft computing, and deep learning algorithms to analyses the big-data for the transportation system with much-reduced complexity. Also, Image Processing algorithms are involved in traffic sign recognition, which eventually helps for the right training of autonomous vehicles.

1. INTRODUCTION

World Wide Web is actually a web of individual systems and servers which are connected with different technology and methods. Every site comprises the heaps of site pages that are being made and sent on the server. So if a user needs something, then he or she needs to type a keyword. Keyword is a set of words extracted from user search input. Search input given by a user may be syntactically incorrect. Here comes the actual need for search engines. Search engines provide you a simple interface to search user queries and display the results.

1) Web crawler Web crawlers help in collecting data about a website and the links related to them. We are only using web crawlers for collecting data and information from WWW and storing it in our database.

2) Indexer Indexer which arranges each term on each web page and stores the subsequent list of terms in a tremendous repository.

3) Query Engine It is mainly used to reply to the user's keyword and show the effective outcome for their keyword. In the query engine, the Page ranking algorithm ranks the URL by using different algorithms in the query engine.

4)This paper utilizes Machine Learning Techniques to discover the utmost suitable web address for the given keyword. The output of the PageRank algorithm is given as input to the machine learning algorithm.

International Journal For Advanced Research In Science & Technology
A peer reviewed international journal www.ijarst.in
IJARST
ISSN: 2457-0362

5)The section II discusses the related work in search engine and PageRank algorithm. In section III Objective is explained. Section IV deals with a proposed system which is based on machine learning technique and section V contains the conclusion.

2. LITERATURE SURVEY

1) Weighted page rank algorithm based on in-out weight of webpages

AUTHORS: **Kalyani Desikan**, B. Jaganathan.

In its classical formulation, the well known page rank algorithm ranks web pages only based on in-links between web pages. We propose a new in-out weight based page rank algorithm. In this paper, we have introduced a new weight matrix based on both the in-links and out-links between web pages to compute the page ranks. We have illustrated the working of our algorithm using a web graph. We notice that the page rank values of the web pages computed using the original page rank algorithm and our proposed algorithm are comparable. Moreover, our algorithm is found to be efficient with respect to the time taken to compute the page rank values.

2)Web Page Ranking Using Machine Learning Approach

AUTHORS:Junaid Khan, Arunima Jaiswal.

One of the key components which ensures the acceptance of web search service is the web page ranker - a component which is said to have been the main contributing factor to the early successes of Google. It is well established that a machine learning method such as the Graph Neural Network (GNN) is able to learn and estimate Google's page ranking algorithm. This paper shows that the GNN can successfully learn many other web page ranking methods e.g. TrustRank, HITS and OPIC. Experimental results show that GNN may be suitable to learn any arbitrary web page ranking scheme, and hence, may be more flexible than any other existing web page ranking scheme. The significance of this observation lies in the fact that it is possible to learn ranking schemes for which no algorithmic solution exists or is known.

3)Review of features and machine learning techniques for web searching.

AUTHORS:Neha Sharm ,Narendra Kohli

As the amount of information is growing rapidly on world wide web, it has become very difficult to get relevant information using traditional search engines within a stipulated time. The main reasons for irrelevant search results are the lack of understanding of user's search intention or user's preferences, keyword based searching, short queries. In this paper, we will study different features that are used in information retrieval. We will also discuss various machine learning techniques that are helpful in deciding the relevance of web page to user. We have done classification on the basis of features. In the end we will compare different techniques and their pros and cons are also discussed.

3. SYSTEM STUDY

FEASIBILITY STUDY

The feasibility of the project is analyzed in this phase and business proposal

International Journal For Advanced Research In Science & Technology
A peer reviewed international journal www.ijarst.in
IJARST
ISSN: 2457-0362

is put forth with a very general plan for the project and some cost estimates. During system analysis the feasibility study of the proposed system is to be carried out. This is to ensure that the proposed system is not a burden to the company. For feasibility analysis, some understanding of the major requirements for the system is essential.

Three key considerations involved in the feasibility analysis are,

- **ECONOMICAL FEASIBILITY**
- **TECHNICAL FEASIBILITY**
- **SOCIAL FEASIBILITY**

ECONOMICAL FEASIBILITY

This study is carried out to check the economic impact that the system will have on the organization. The amount of fund that the company can pour into the research and development of the system is limited. The expenditures must be justified. Thus the developed system as well within the budget and this was achieved because most of the technologies used are freely available. Only the customized products had to be purchased.

TECHNICAL FEASIBILITY

This study is carried out to check the technical feasibility, that is, the technical requirements of the system. Any system developed must not have a high demand on the available technical resources. This will lead to high demands on the available technical resources. This will lead to high demands being placed on the client. The developed system must have a modest requirement, as only minimal or null changes are required for implementing this system.

SOCIAL FEASIBILITY

The aspect of study is to check the level of acceptance of the system by the user. This includes the process of training the user to use the system efficiently. The user must not feel threatened by the system, instead must accept it as a necessity. The level of acceptance by the users solely depends on the methods that are employed to educate the user about the system and to make him familiar with it. His level of confidence must be raised so that he is also able to make some constructive criticism, which is welcomed, as he is the final user of the system.

SYSTEM TEST

The purpose of testing is to discover errors. Testing is the process of trying to discover every conceivable fault or weakness in a work product. It provides a way to check the functionality of components, sub assemblies, assemblies and/or a finished product It is the process of exercising software with the intent of ensuring that the Software system meets its requirements and user expectations and does not fail in an unacceptable manner. There are various types of test. Each test type addresses a specific testing requirement.

TYPES OF TESTS

Unit testing

Unit testing involves the design of test cases that validate that the internal program logic is functioning properly, and that program inputs produce valid outputs. All decision branches and internal code flow should be validated. It is the testing of individual software units of the application .it is done after the completion of an individual unit before integration. This is a

International Journal For Advanced Research In Science & Technology
A peer reviewed international journal www.ijarst.in
IJARST
ISSN: 2457-0362

structural testing, that relies on knowledge of its construction and is invasive. Unit tests perform basic tests at component level and test a specific business process, application, and/or system configuration. Unit tests ensure that each unique path of a business process performs accurately to the documented specifications and contains clearly defined inputs and expected results.

Integration testing

Integration tests are designed to test integrated software components to determine if they actually run as one program. Testing is event driven and is more concerned with the basic outcome of screens or fields. Integration tests demonstrate that although the components were individually satisfaction, as shown by successfully unit testing, the combination of components is correct and consistent. Integration testing is specifically aimed at exposing the problems that arise from the combination of components.

Functional test

Functional tests provide systematic demonstrations that functions tested are available as specified by the business and technical requirements, system documentation, and user manuals.

Functional testing is centered on the following items:

Valid Input : identified classes of valid input must be accepted.

Invalid Input : identified classes of invalid input must be rejected.

Functions : identified functions must be exercised.

Output : identified classes of application outputs must be exercised.

Systems/Procedures : interfacing systems or procedures must be invoked.

Organization and preparation of functional tests is focused on requirements, key functions, or special test cases. In addition, systematic coverage pertaining to identify Business process flows; data fields, predefined processes, and successive processes must be considered for testing. Before functional testing is complete, additional tests are identified and the effective value of current tests is determined.

System Test

System testing ensures that the entire integrated software system meets requirements. It tests a configuration to ensure known and predictable results. An example of system testing is the configuration oriented system integration test. System testing is based on process descriptions and flows, emphasizing pre-driven process links and integration points.

White Box Testing

White Box Testing is a testing in which in which the software tester has knowledge of the inner workings, structure and language of the software, or at least its purpose. It is purpose. It is used to test areas that cannot be reached from a black box level.

Black Box Testing

Black Box Testing is testing the software without any knowledge of the inner workings, structure or language of the module being tested. Black box tests, as most other kinds of tests, must be written from a definitive source document, such as specification or requirements document, such as specification or requirements

International Journal For Advanced Research In Science & Technology
A peer reviewed international journal www.ijarst.in
IJARST
ISSN: 2457-0362

document. It is a testing in which the software under test is treated, as a black box .you cannot "see" into it. The test provides inputs and responds to outputs without considering how the software works.

Unit Testing

Unit testing is usually conducted as part of a combined code and unit test phase of the software lifecycle, although it is not uncommon for coding and unit testing to be conducted as two distinct phases.

Test strategy and approach

Field testing will be performed manually and functional tests will be written in detail.

Test objectives

- All field entries must work properly.
- Pages must be activated from the identified link.
- The entry screen, messages and responses must not be delayed.

Features to be tested

- Verify that the entries are of the correct format
- No duplicate entries should be allowed
- All links should take the user to the correct page.

Integration Testing

Software integration testing is the incremental integration testing of two or more integrated software components on a single platform to produce failures caused by interface defects.

The task of the integration test is to check that components or software applications, e.g. components in a software system or – one step up – software applications at the company level – interact without error.

Test Results: All the test cases mentioned above passed successfully. No defects encountered.

Acceptance Testing

User Acceptance Testing is a critical phase of any project and requires significant participation by the end user. It also ensures that the system meets the functional requirements.

Test Results: All the test cases mentioned above passed successfully. No defects encountered.

5. CONCLUSION

Search engines are very useful for finding out more relevant URLs for given keywords. Due to this, user time is reduced for searching the relevant web page. For this, Accuracy is a very important factor. From the above observation, it can be concluded that XGBoost is better in terms of accuracy than SVM and ANN. Thus, Search engines built using XGBoost and PageRank algorithms will give better accuracy.

6. REFERENCES

[1] Manika Dutta, K. L. Bansal, "A Review Paper on Various Search Engines (Google, Yahoo, Altavista, Ask and Bing)", International Journal on Recent and Innovation Trends in Computing and Communication, 2016.

[2] Gunjan H. Agre, Nikita V.Mahajan, "Keyword Focused Web Crawler", International Conference on Electronic and Communication Systems, IEEE, 2015.

[3] Tuhena Sen, Dev Kumar Chaudhary, "Contrastive Study of Simple PageRank, HITS and Weighted PageRank Algorithms:

Review", International Conference on Cloud Computing, Data Science & Engineering, IEEE, 2017.

[4] Michael Chau, Hsinchun Chen, "A machine learning approach to web page filtering using content and structure analysis", Decision Support Systems 44 (2008) 482–494,scienceDirect,2008.

[5] Taruna Kumari, Ashlesha Gupta, Ashutosh Dixit, "Comparative Study of Page Rank and Weighted Page Rank Algorithm", International Journal of Innovative Research in Computer and Communication Engineering, February 2014.

[6] K. R. Srinath, "Page Ranking Algorithms – A Comparison", International Research Journal of Engineering and Technology (IRJET), Dec2017.

[7] S. Prabha, K. Duraiswamy, J. Indhumathi, "Comparative Analysis of Different Page Ranking Algorithms", International Journal of Computer and Information Engineering, 2014.

[8] Dilip Kumar Sharma, A. K. Sharma, "A Comparative Analysis of Web Page Ranking Algorithms", International Journal on Computer Science and Engineering, 2010.

[9] Vijay Chauhan, Arunima Jaiswal, Junaid Khalid Khan, "Web Page Ranking Using Machine Learning Approach", International Conference on Advanced Computing Communication Technologies, 2015.

[10] Amanjot Kaur Sandhu, Tiewei s. Liu., "Wikipedia Search Engine: Interactive Information Retrieval Interface Design", International Conference on Industrial and Information Systems, 2014.

[11] Neha Sharma, Rashi Agarwal, Narendra Kohli, "Review of features and machine learning techniques for web searching", International Conference on Advanced Computing Communication Technologies, 2016.

[12] Sweah Liang Yong, Markus Hagenbuchner, Ah Chung Tsoi, "Ranking Web Pages using Machine Learning Approaches", International Conference on Web Intelligence and Intelligent Agent Technology, 2008.