SEMANTIC WEB CONTENT MINING FOR CONTENT-BASED RECOMMENDER SYSTEMS

BY

MAKINDE OPEYEMI SAMUEL

(16PCH01435)

A DISSERTATION SUBMITTED TO THE DEPARTMENT OF COMPUTER AND INFORMATION SCIENCES, COLLEGE OF SCIENCE AND TECHNOLOGY COVENANT UNIVERSITY, OTA, OGUN STATE

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF MASTER OF SCIENCE DEGREE IN MANAGEMENT INFORMATION SYSTEM

JUNE, 2018

ACCEPTANCE

This is to attest that this dissertation was accepted in partial fulfilment of the requirements for the award of Master of Science (M.Sc.) degree in Management and Information Sciences in the department of Computer and Information Science, College of Science and Technology, Covenant University, Ota, Ogun State, Nigeria.

Mr. Philip John Ainwokhai   ………………………………

(Secretary, School of Postgraduate Studies)   Signature & Date

Prof. Samuel T. Wara   ………………………………

(Dean, School of Postgraduate Studies)   Signature & Date

DECLARATION

I hereby declare that this dissertation entitled **Semantic Web Content Mining for Content-Based Recommender Systems** was carried out by Makinde Opeyemi Samuel with matriculation number 16PCH01435. The project is centered on an original study in the department of Computer and Information Sciences, College of Science and Technology, Covenant University, Ota, under the supervision of Dr. Ibukun T. Afolabi. Concepts of this research project are results of the research carried out by Makinde Opeyemi, ideas of other researchers have also been fully recognized.

Makinde Opeyemi Samuel   ....…………………

(Student)   Signature & Date

CERTIFICATION

This is to certify that this dissertation titled **Semantic Web Content Mining for Content-Based Recommender Systems** was carried out by **Makinde Opeyemi Samuel** and was supervised and submitted to the department of Computer and Information Sciences, College of Science and Technology, Covenant University, Ota, Ogun State.

Dr. Ibukun .T. Afolabi   **…………………………**

Supervisor   Signature and Date

Prof. Victor .C. Osamor   **…………………………**

Head of Department   Signature and Date

External Examiner   **…………………………**

                                             Signature and Date

DEDICATION

I dedicate this project to God Almighty for His sufficient grace, wisdom and knowledge given to me throughout my Master's Degree Programme.

ACKNOWLEDGEMENT

Praise be to God, the creator of the heavens and the earth, for his unlimited mercies and favour throughout my academic pursuit at covenant university. It is only God that knows the end from the beginning and the beginning from the end.

I appreciate the Chancellor of Covenant University, Dr David Oyedepo for his vision which has created the platform upon which sound academic excellence can be built. I also want to appreciate the Vice-chancellor, Prof. A. A. A. Atayero, the Deputy Vice-Chancellor, Professor Shalom Chinedu, the Registrar, Dr. Muyiwa Oludayo, the Chaplain, Pastor Promise Omidiora, the Dean of Postgraduate School, Professor Samuel Wara, the Dean of College of Science and Technology, Professor Ajanaku K. Oluseyi, the Head of Department Computer and Information Sciences, Prof Victor C. Osamor and the entire management team of this great institution.

I am full of appreciation for my dissertation supervisor, Dr. (Mrs.) Ibukun T. Afolabi, who diligently and meticulously perused each chapter of my work, even at very short notice and returned them immediately with elaborate comments. I have never seen a thesis supervisor so committed to the progress of a students' work! Her critical and timely observations, as well as her incisive editorial inputs, have no doubt enhanced the quality of this thesis. I also wish to thank her for the life coaching sessions and discussions. To this kind-hearted and hardworking intellectual, I remain forever indebted. May God continue to grant her excellent health and reward her abundantly and grant her all her heartily desires.

My profound gratitude goes to Professor Ayodele Adebiyi, Professor Ambrose Azeta, Professor Charles Ayo, Professor Nicholas Omoregbe, Dr. Olufunke Oladipupo, Dr. Zacchaeus Omogbadegun, Dr. Aderonke Oni, who taught me humility in the course of my coursework and this research work I say a big thank you for your comments, observations, encouragements, support and motivation. My profound gratitude to the rest

LIST OF TABLES

LIST OF FIGURES

ABSTRACT

The fast-growing presence of data is crucial to all sectors and domain as it is being harnessed to solve various real-time problems, such as product recommendation. Web content mining, which is referred to a data mining for web textual content can be used to retrieve, refine and analyze data to solve these problems. It is therefore important that the web content mining process is optimized to improve preprocessing of web textual data for efficient recommendation. Currently, for content-based recommendations, semantic analysis of text from webpages seems to be a major problem. In this research, we present a semantic web content mining approach for recommender systems. The methodology is based on two major phases. The first phase is the semantic preprocessing of data. This phase uses both a developed ontology and an existing ontology together with the typical text preprocessing steps such as filtration stemming and so on. The second phase uses the Naïve Bayes algorithm to make the recommendations. The output of the system is evaluated using precision, recall and f-measure. The results from the system showed that the semantic preprocessing improved the recommendation accuracy of the recommender system by 5.2% over the existing approach. Also the developed system is able to provide a platform for content based recommendation which provides an edge over the existing recommender approach because it is able to analyze the textual contents of users feedback on a product.