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An Exploration on Recommendation Based Interactivity through Multiple Platforms in Big Data

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Abstract: *Given the ubiquity of social media, interest-based interactivity as a key component to enhance user experience. Interest-based interactivity modelling is extracted from user interaction in a cross-platform social media Big Data repository. The aim of this study is two things: first to address theoretical dilemmas of a cross-platform user experience; second, implement an platform for providing recommendation across different social network based on user interest. Use case is based on a cross-platform interest-based navigation and content filtering across multiple social content streams. The streams consisted of tags from social media content through a discovery process. Tested the application on a social media content streams to generate a Big Data scenario.*

Keywords: *Interactivity, Recommendation Based, Cross Platform, Big Data Repository, User Experience*

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I. Introduction

A Human interest is the aspect of a story in the media that interest people because it describes the experiences or emotions of individuals to which others can relate. A Human-interest is a feature that discusses a person, or people, or a pet in an emotional way. It presents people and their problems, concerns, or achievements in a way that brings about interest, sympathy or motivation in the reader or viewer. Human-interest stories are a type of soft news. A Recommendation is a suggestion or proposal as to the best course of action, especially one put forward by an authoritative body. Shopping is a necessity of every human being, and when we do shop it's definitely either the product we like or our friends like. We tend to buy products recommended by people because we trust the person. And nowadays in the digital age, any online shop you visit utilizes some sort of recommendation engine and if set up and configured properly, it can significantly boost revenues, CTRs, conversions, and other important metrics. Moreover, they can have positive effects on the user experience as well, which translates into metrics that are harder to measure but are nonetheless of much importance to online businesses, such as customersatisfaction and retention. All this is only possible with a recommendations engine. Recommendation engines basically are data filtering tools that make use of algorithms and data to recommend the most relevant items to a particular user. Or in simple terms, they are nothing but an automated form of a "shop counter guy". You ask him for a product. Not only he shows that product, but also the related ones which you could buy. They are well trained in cross-selling and up- selling. With the growing amount of information on the internet and with a significant rise in the number of users, it is becoming important for companies to search, map and provide them with the relevant chunk of information according to their preferences and tastes.

II. Related works

In [1] the author says that detection and retrieval of media related to social events has gained increasing attention in the research community. Usually, researchers differentiate between known and unknown social events. A major challenge in social event detection is to link heterogeneous media and metadata from different platforms to a given social event. In [2] the author focuses onthetechnologyusedforsupportingknowledgecreationanddistribution.Itexaminestheproblemareathroughthreecas estudies:

birdwatchers, virtual stables and ice-hockey fans. In [3] the author provides huge potentials to solve many challenging problems which cannot be well explored in one single platform. It investigates into cross-platform social relation and behavior information to address the cold-start friend recommendation problem.

The goal of paper [4] is to educate about two aspects: First, to address the dilemmas of cross platform user experience theoretically. Second, By using an android based mobile application and an cloud architecture is designed for an account of theoretical parameters of big data user centric approach and interactivity. In [5] the author proposed a model to enhance user experience. Their adaptive user-centric model capitalizes on fluidity of online and offline realms and autonomous environments that are sensitive to the changing data fluxes. This model is based on a prototype of an ad hoc media company which for a more than a decade has been using social media to enhance user experience. In [6] the author emphasized the importance of customization. According to them customization is so appealing because the content is tailored or because the user feels greater agency. They have conducted number of tests to check the preferences of different types of users. In [7] the author has specified the importance of cross platform which is a solution to a challenge to deploy in different platforms using a single SDK tool and maintainingthesameperformanceasthenativeapplication.In[8]theauthorhasmentionedtheobjectiveofaninformatio nsearch systembasedoninterestcenterandtheuserprofileistoreturn,theelementsthatarerelevanttospecificuserneedsfromacoll ection of documents. They are selecting only the documents interesting a user is done on the basis of interest center, calculated from the informationabouttheusernameuserprofile.Theinformationretrievalsystemshereconvergetowardsasemant.In[9]th eauthor has mentioned that it is important to understand the variation in how users reveal themselves across multiple platforms to assess thepredictivevalueofdifferentsocialmediaplatforms.Paper[10]describesRUM,adataextractiontoolwhichallowsres earchers to easily extract several types of content and structure that are available on Facebook pages. Consequently, the extracted data can be saved and analyzed. RUM Extractor is easy to set up and use, and it gives flexible options to users to specify the type and amount of content and structure they want to retrieve. The paper also demonstrates how RUM can be exploited by collecting and furtheranalyzingdatacollectedfromtwopopularArabicnewspages.Paper[11]mainlyconcentratesonextractingdatali ketweets, userinformationfromSocialnetworkingsitei.e.Twitter.Itgivesacomprehensiveprocessofextractionthisin-turnhelpsstudents to learn how the vibrant and formless data can be mined from the Social networking site. Further it helps to develop an algorithm for analysis that suits better to improve the marketingtactics.

III. Objectives

1) To provide a cross-platform based on userexperience.
2) Implement an application which contains information retrieval, information filtering and rank filteringprocesses.
3) Design virtual cloud to account for theoretical parameters of Big Data user-centric approach andinteractivity.

IV. Project Design methodology

Considering the aspects and following objectives of the project the project work is planned with following methodology

Problem Statement

Design a platform for providing recommendation based on user interest across different social networks.

Proposed System

1) A cross platform web application which is purely based on the user interest andinteractivity
2) Obtain Big Data based on the user interactivity and use it for futurerecommendations.
3) Content is recommend based on userinterest.

System Architecture

System architecture is the conceptual design that defines the structure and behaviour of a system. Content/Subscription management of user is done in the registration phase. The interests are extracted from different websites like youtube, facebook, twitter by using the web API's such as youtube data API protocol, Public content solution API, Twitter JSON API respectively and stored in the information extraction repository. User browsing behaviour is extracted and stored in the interest mining repository.Contentmatchingcanbedonebetweentheinformationextractionandtheinterestminingrepositoryandfinall ycontent recommendation is given to the user. The System architecture is shownbelow:

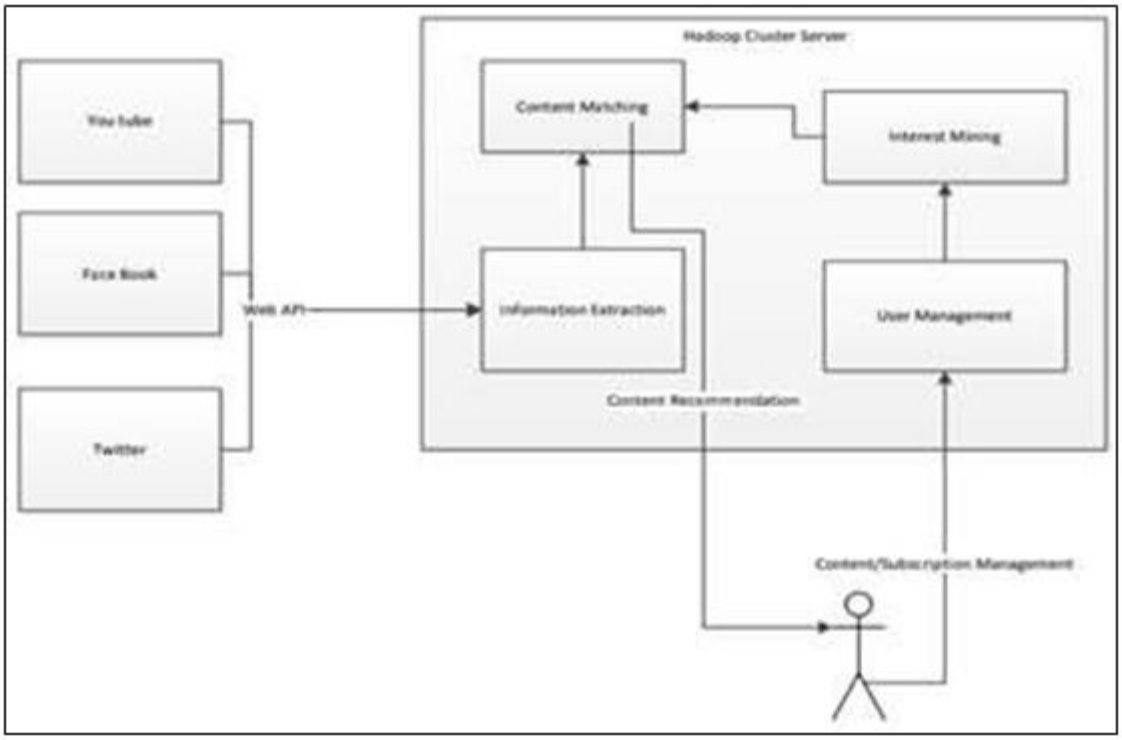

Fig. 1: System Architecture

1) Subscription management: defines a set of features necessary to subscribe (or unsubscribe) to specific topics and user-related activities.Subscriptiontopicsaresubdividedintotwocategories:topicsexpressedthroughwell-definedusersearchrules(e.g. expression matching), which can also employ the use of tags – tag subscription;
2) Information Extraction: The contents are extracted from different websites like youtube, facebook, twitter are stored in Information ExtractionRepository.
3) InterestMining:Basedonuserbrowsingbehaviouroncontents,thismodulelearnstheuserinterestandconstructsuserprofiles grouping user of similarinterest.
4) Contentfiltering:Throughthisfeatureuserscandefinepriorityschemesforprocessingasubsetofinformationwhileignoring its complementary set, that is, to prioritize or exclude content using a set conditionalrules.
The Main objective is to provide, A cross-platform based on user experience. Implement an application which contains information retrieval, information filtering and rank filtering processes. Design virtual cloud to account for theoretical parameters of Big Data user-centric approach and interactivity.

Data Flow Diagram
Pictorial description of the moving of information through an information system is called as data-flow diagram.
1)Level 0 Data flowdiagram

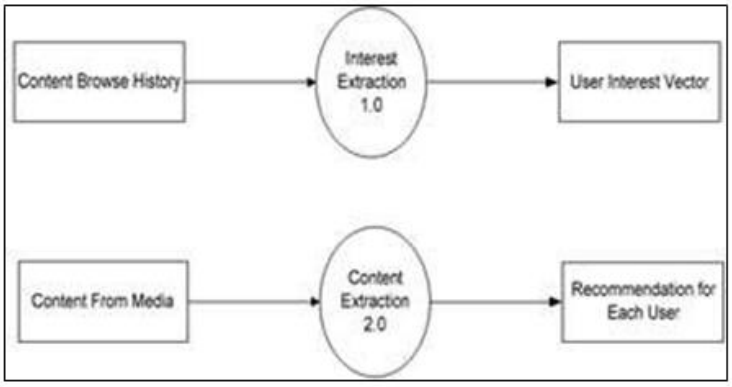

Fig. 2: Level 0 Interest and Content Extraction Data Flow Diagram

A setting level or level 0 information stream graph demonstrates the communication between the outer operators and framework whichgoaboutasinformationsinksandinformationsource.Onthesituationoftheframework'sconnectionswiththeouterworld are demonstrated effectively regarding information transmission streams over the framework limit. The graphical representation gives no piece of evidence to its internal organization and shows the entire system as a unitprocess.
A Figure 2 explains Level 0 the content browse history and content from media were the two systems. Building user interest vector and recommendation for each user were the two external agents. Interest and content extraction provides the interaction between the system and the external agents.

Level 1 Data flow diagram

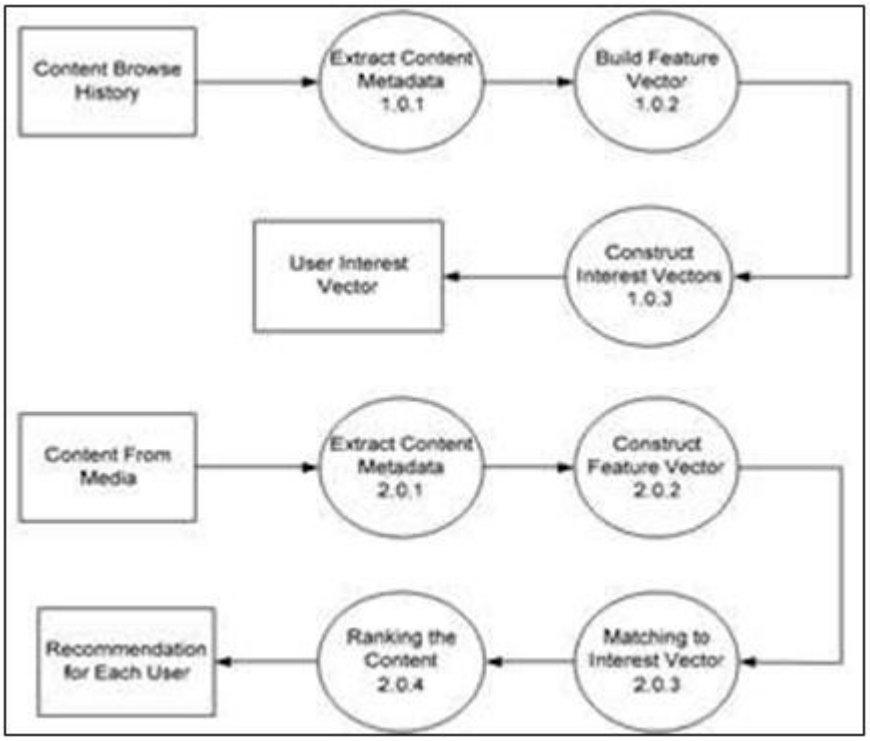

Fig. 3: Level 1 Interest and Content Extraction Data Flow Diagram

The Level 1 data stream graph speaks to how the framework is isolated into sub- framework, each of which manages information transmission streams to or from an outside operator, which together give each operations of the framework as single. It demonstrates inward information and demonstrates the stream of data between the diverse parts of the framework.
Figure 3 explains Level 1 system content browse history is divided into subsystems such as extract content metadata, build featurevector,userinterestvectorwhichtogetherprovideeveryfunctionsofthesystemasawhole.Systemcontentfrommediais dividedintosubsystemssuchasextractcontentmetadata,constructfeaturevector,matchingtointerestvector,rankingthecontent which together provide every operations of the system as a single and finally provide the recommendation to theuser.

E. Methodology

Step 1: User browsing behavior is extracted from different websites like YouTube, face book, twitter by using the web API's such as YouTube data API protocol, Public content solution API, Twitter JSON API respectively. and stored in the information extraction repository.

Step 2: Interest of the user is extracted and stored in the interest mining repository.

Step 3: Content matching can be done between the information extraction and the interest mining repository and finally content recommendation is given to the user.

Step 4:User registers to the system. Manage content filtering and browse and view content using this module. Also this module implements the blacklisting of contents not matching to user interest

V. Conclusion

Toprovideacross-platformbasedonuserexperience.Implementanapplicationwhichcontainsinformationretrieval,information filtering and rank filtering processes. Design virtual cloud to account for theoretical parameters of Big Data user-centricapproach and interactivity. Provide user friendly data based on the user history andprofile.

VI. Future Work

The proposed schemes are preliminarily focused on single user. In the future work, the proposed system will be used for muti – user experience.

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