**On both Cold-Start and Long-Tail Recommendation with Social Data**

## Alternative Title: Recommending E-commerce products Using Transaction Data

**Aim**

The main aim of this project is to achieve the cold start and long tail problems and recommend the products based on user previous transactions data

**Synopsis**

In web system number of people visiting the website like ecommerce, adversting system and multimedia consumption system are important for the website holder. website holders has to make a note on how many people visiting their website it can be calculated to find the total hits of the visitors based on that product will be recommended There is one problem if the website didn’t show any product to the new customer user cannot able to see the product sometime new user may visit the website and some irrelevant product will be shown. Recommender system plays a important role of discovering interesting items from near-infinite inventory and exhibiting them to potential users. Yet, two problems are incapable in the recommender systems. One is “how to handle new users”, and the other is “how to surprise users”. The former is well-known as cold-start recommendation and latter shown as long tail recommendation

**Existing system**

In existing system the target for the recommendation system is to focus on collection of the user details of the social media like important information like user interest by analyzing the user interest music will be recommended to the user.the products will be displayed based user likes and dislikes and content of the music. A new user enter the application that user information and interest not known by the system by the help of the already exisiting user system will find the existing user likes and dislikes of the music(song) and it will recommend it to the user if the both new user and existing user attributes matches and likewise most listened music is also considered in recommendation like when user listening a particular genere music that music genere related things will be recommended to the similar users.

**Problem Definition**

* The system only provide recommendation based on only existing system user interest and has limited ability to read user interest
* System cannot handle new music genere

**Proposed System**:

Based on the problems due to cold start and long tail, products in the ecommerce retailers getting sold out so soon . And some kind of products remains stagnant for a long duration. Thus to overcome these problems we are going to track the selling of products as well as recommending the products to the customers of same kind based on the previous purchases by using clustering and classification we achieve this First user register the details like name ,password,address and registers then login with valid credentials then the large amount of transactional data collected from customer for segmentation and classification and these data are preprocessed and cluster and classify the data cold product classified based on sale and long tail is classified based product that getting sold frequently after that cold products that are available in the ecommerce site will be recommended to the user to make retailer some profit for the product and finally long tail problem solved by recommending relevant item and product that are not sold for long period gets attractive offer based on the user request.We use hadoop environment to do manipulation with the products dataset.

**Advantages:**

* Attractive offers are promoted to the user.
* Recommends products to attain margin of retailers. Retailer achieves profit for the cold products
* Recommends other products that have same features of long tail products.
* Cold stat and longtail problem handled and to make sales possible.

**Modules:**

* User Authentication
* Data Preprocessing
* Cold Product Recommendation
* Combo Products Recommendation

**User Authentication**

Initially user need to create their own account and register their basic detail in the server. Here whereas the Database server will maintain the user personal detail and all the transaction detail which are processed by the user. By the way user need to register into the bank application. A new user account number will be generated where user can deposit initial amount.

**Data preprocessing**

A huge amount of transactional data has to be collected for customer segmentation and products classification. From the collected dataset the long tail products and cold products will be clustered and classified based on the sales data. Here the most popular products which are getting sold in the online markets is classified which comes under long tail group. Whereas some products which are popular once in trend but was not sold for recent days , these criteria are considered and data preprocess will be done.

**Cold Product Recommendation**

For a group of customers who came into ecommerce application their previous transactions will be obviously null. For this new customers our recommendation system will provide some valuable products recommendation to attain margin for the retailers. In retailers perspective some cold products will be pushed to recommender platform for the new customers.Thus we can solve the cold start problem by recommending the users some products from cold product category.

**Combo Products Recommendation**

In-order to solve the long tail problem from the categorized group of products, most selling products has to be collected and some product descriptions will be compared and based on the matching patterns these relevant products will be recommended to the customer. In-order to push the unsold products for a long period based on the customer’s request some attractive offers should be promoted. So we implement a product combo offer logic to make the sale possible . Thus long tail and cold start problem has been handled.

**Algorithm:**

1.Random Forest Algorithm

## Software Requirements:

## Windows 7

## JDK 1.7

## J2EE

## Tomcat 8.5

## MySQL

## Hadoop

## Hardware Requirements:

## Hard Disk : 250GB and Above

## RAM : 4GB and Above

## Processor : I3 and Above(64 bit)

## Technologies Used:

## J2EE (Jsp, Servlets)

## Struts 2.0 Framework

## JavaScript , Ajax , HTML ,CSS

## Webservices (JAX -ws)

## Hadoop 2.3

**System Architecture**

Ecommerce

Products

Unsaled Products

New Products

Trending Popular Products



User info from S/W to Ecommerce

Sales mixed with above Three category

User



Multiple user login

To achieve Max profit and to sell low rating products

Sales Offer

Buy Option

If products not selling for a long period



Preprocess

CSV

HDFS



Admin

Admin add

products