Tech-Query Recommendation System

A Synopsis Submitted
in Partial Fulfillment of the Requirements
for the Course of
Minor Project - II
In
Third year – Sixth Semester of
Bachelor of Technology
specialization
In
Big Data

Under

Dr. Tarandeep Kaur Bhatia

By

500076739	R172219030	**Keshav Garg**
500076679	R172219043	**Raghav Agarwal**
500077086	R172219044	**Rohan Saksena**
500077820	R172219069	**Preethi J**

DEPARTMENT OF INFORMATICS
SCHOOL OF COMPUTER SCIENCE
UNIVERSITY OF PETROLEUM AND ENERGY STUDIES,
BIDHOLI, DEHRADUN, UTTRAKHAND, INDIA
Aug, 2019

SYNOPSIS

INTRODUCTION

A recommendation system is a subclass of Information filtering Systems that seeks to predict the rating or the preference a user might give to an item. In simple words, it is an algorithm that suggests relevant items to users.

The recommendation system deals with a large volume of information present by filtering the most important information based on the data provided by a user and other factors that take care of the user's preference and interest. It finds out the match between user and item and imputes the similarities between users and items for recommendation.

During the last few decades, with the rise of Youtube, Amazon, Netflix and many other such web services, recommendation systems have taken more and more place in our lives. From e-commerce (suggest to buyers articles that could interest them) to online advertisement (suggest to users the right contents, matching their preferences), recommender systems are today unavoidable in our daily online journeys.

Recommendation systems are really critical in some industries as they can generate a huge amount of income when they are efficient or also be a way to stand out significantly from competitors.

The main aim is to build a project which can possibly provide answers for the technical queries and also suggests the user a few similar questions.

MOTIVATION

Recommender Systems represent one of the most widespread and impactful applications of predictive machine learning models.

Amazon, YouTube, Netflix, Facebook and many other companies generate an important fraction of their revenues thanks to their ability to model and accurately predict users ratings and preferences.

Everyone is curious about what ,why and how? So this project is built to solve these queries related to technology which doesn't only provides the answers but also suggests similar types.Based on this we are going to build a technical query recommendation system.

This project is built using python language and it provides users the answers whenever they put a query related to technical questions.

RELATED WORK

In [1] the paper covers different techniques which are used in recommendation systems and also proposes a new system for efficient web page recommendation based on hybrid collaborative filtering i.e. using collaborative technique and CHARM algorithm which are coupled with the pattern discovery algorithms such as clustering and association rule mining. The author proposed a new improved collaborative filtering technique using Hybrid recommendation which is a combination of both K-mean algorithm and CHARM algorithm.

In [2] the authors presented the overview of the challenges regarding to the techniques that are being used for generating recommendations and the ways we can improve the quality of recommendations by inventing new approaches and methods

In [3] the researcher discussed the video recommendation system in use at YouTube. The challenges behind building a recommendation system is elaborated with the system that recommends personalized sets of videos to users based on their activity on the site.

PROPOSED METHOD

The proposed method for this project is to extract data by scraping from different sources and then pre-processing the extracted data so that it can be further worked upon.We then analyze and visualize the clean data to gain meaningful insights from it. We further use the insights gained to apply the relevant Machine Learning model to transform the dataset to give appropriate recommendations.

METHODOLOGY

The approach we will follow for this project will include : Data Collection, Data Cleaning, Data Analysis, Model Building, User-Interface.
1. Data Collection: Using BeautifulSoup4 library we will scrape off the data from different sources.
2. Data Cleaning: Using pandas we will clean the extracted dataset before working upon it.
3. Data Analysis: Using pandas, Matplotlib and seaborn we perform data analysis and visualization
4. Model Building: Create a model using K-means clustering algorithm to recommend similar questions to the user
5. User-Interface: The Last step is to create a User-Interface to our model so that the users find it attractive and easy to use.

1. PLAN OF WORK

- Data Extraction: In this phase we would collect and extract data from the web resouces.
- Data Pre-Processing: Here we will preprocess the data and clen for further analysis and model building.
- Data Analysis: This phase includes analyzing the data using various methiods to make it simpler and gain insights.
- Data Visualization: In this the visualization of data would place using graphs and other techniques used for data visualization.
- Applying Machine Learning Models: Here the models will be trained using training dataset to provide recommendations to the user.
- Building a Dashboard : Here comes the phase were the web user interface will for the user ask query.
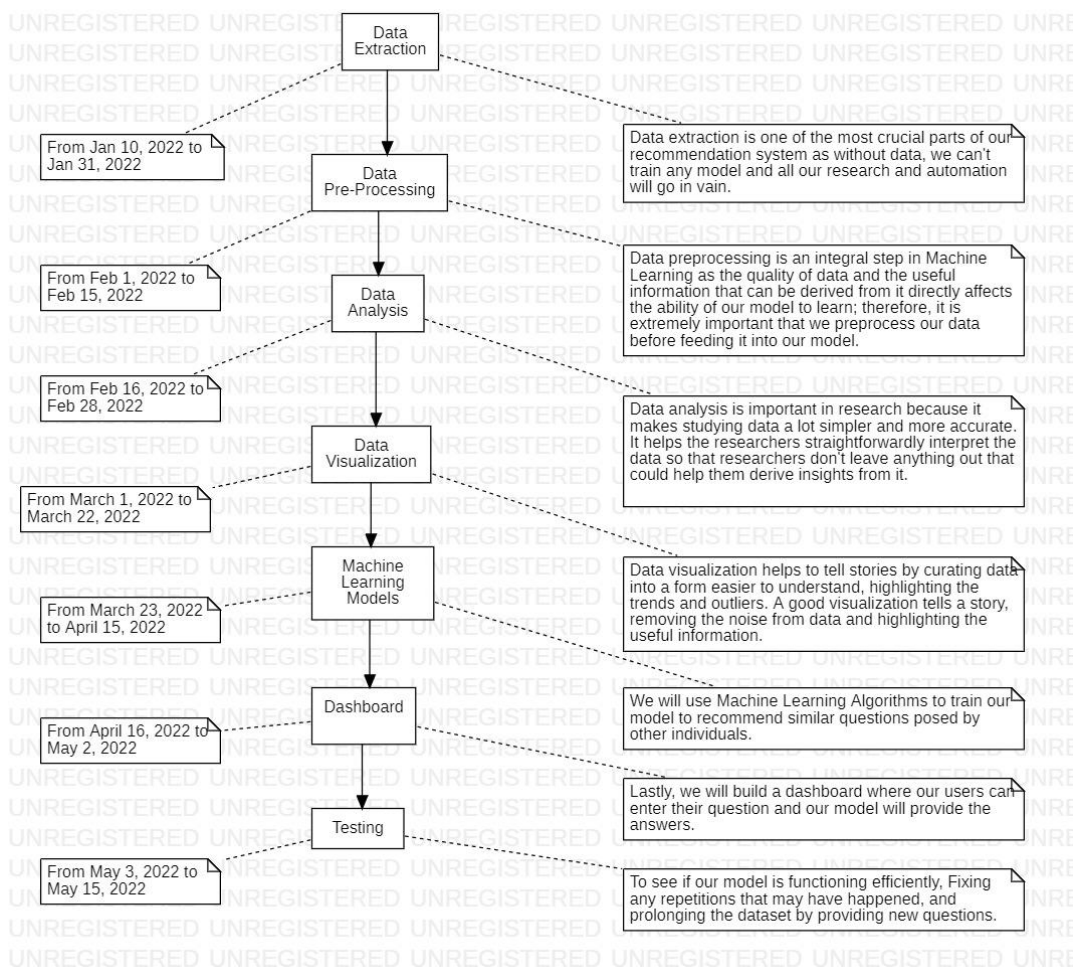- Testing : Finally the build model will be tested using test dataset.

Fig 1: Plan of work and its sequence.

REFRENCES

[1] Nagarnaik, P. and Thomas, A., 2015, February. Survey on recommendation system methods. In *2015 2nd International Conference on Electronics and Communication Systems (ICECS)* (pp. 1603-1608). IEEE.

[2] Sharma, L. and Gera, A., 2013. A survey of recommendation system: Research challenges. *International Journal of Engineering Trends and Technology (IJETT)*, *4*(5), pp.1989-1992.

[3] Davidson, J., Liebald, B., Liu, J., Nandy, P., Van Vleet, T., Gargi, U., Gupta, S., He, Y., Lambert, M., Livingston, B. and Sampath, D., 2010, September. The YouTube video recommendation system. In *Proceedings of the fourth ACM conference on Recommender systems* (pp. 293-296).