Implementation of Movie Recommender System Based on Neo4J Graph Database

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***Abstract*- With the frequent growth of Internet technology, information overload is place a major problem. By this huge data unable to fetch the useful information, to eradicate this issue search engines are came into existence but still the problem is not completely solve. Because of these issues Recommender systems are came into existence and they are use filtering technique, in this approach implement the Movie recommender system by using a cocept of traditional User based Collaborative filtering algorithm (UserCF). Here we get the user preferences and recommend the finest movie to the user. Meanwhile here we use a Neo4j Grpah database because of its huge advantage in dealing with the complex interconnected data and also handle a Bigdata.**

Index terms- COLLABRATIVE FILTERING, SIMILARITY, NEO4J

I. INTRODUCTION

With the improvement of web2.0 technology and many network services platform are become more popular, people are facing the information overload, and they are getting irrelevant information and also noisy data. To overcome this issues a search engines are present and solve the issue to some extent but not fully, Search engine providers are like Google and yahoo, because user must know some keyword to get the data. So to overcome this issue the best approach Recommender systems using a filtering technique. Many E-commerce companies are use this recommender system such as Amazon, Snapdeal, ebay, Flipkart, etc,. And in many entertaining platform are used this system. The best evidence for this system is once a Netflix conduct a competition for the best movie recommender algorithm and release some sort of user's dataset, surprisingly they get the algorithm is 10% more effective then early Netflix algorithm. Meanwhile here we are using Neo4j graph database for perform essay with the complex dataset and also utilize the advantage of the Neo4j database. In this paper section II shows the background work, section III shows proposed architecture, section IV shows Implementation, section V result and section VI shows conclusion.

II. BACKGROUND WORK

1. In this paper author use the K nearest algorithm too find the similarity between the users. Initially they are analyzing the user rating and divided into cluster, next they come up with the target user by considering the nearest neighbor set. Here they are using the traditional MYSQL database to perform insert, delete and fetching the data.
2. In this approach author main intention is checking the similarity between user by considering a standard characteristics. Here they use K-means nearest neighbor algorithm and they fallow simple rule, if the cluster are too near finalize that t is similar if the cluster is far conclude that it is not similar, for finding the similarity they use Hamming Distance. And here they test this by considering dataset.
3. In this approach author explains about film data and also explain the complexity of the data and at the same time they are gave the solution for this issue. Using Neo4j we can overcome these issues in an effective way. In this approach use the Cypher query language, this is same as SQL. Here they are using 19 nodes and also utilize the node size, node coloring and also Neo4j browser.
4. In this paper author explain about the Neo4j graph database, this database is developed by the

java platform and they are come into market on 2007. Neo4j supports many computer programming languages such as php, java, and python. Some of the major companies are using this neo4j namely IBM, HP, Wallmart etc,. This neo4j will be comuncate by using 2 methods namely one is through CQL and other is native api (Application programming Interface).

5. In this paper author use User based collaborative algorithm to recommend the movie to the user. Here they use Standard Euclidean distance formula for check the resemblance between the users to user, and find the target user and recommend the suitable movie to the corresponding user. Here they are developed using a python language and use py2neo libraries for connecting with the neo4j and use a dataset for testing the system.

III. PROPOSED SYSTEM

In Figure 1 show the working diagram of our Movie recommender system. Initially admin will load the movie related details namely Movie name, poster image, casting, and genre. All the admin added details are allowed to the user to select and show their preferences. Next user should signup by providing necessary details namely DOB, emailed, user name and password. After this step system will redirect to the login portal. login using some valid credentials. After this step user are select/multiselect their preference namely hero, singer, director, producer, heroin, villain, comedian and also genre. Here all the activities are stored in neo4j database and also we use second method as neoapi for communicate with neo4j.

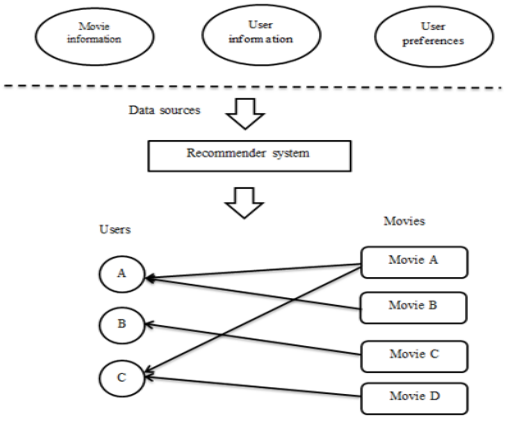

Figure 1: Working diagram of Movie recommender system.

Based on considering some feature shows some movies based on user interest their user are select watched movies. Once we collect the user preference, we are start comparing with other users and meanwhile we are focusing on the user preference and recommend the suitable movie to the current user.

IV. IMPLEMENTATION

This project is developed using codeigniter as a framework, php as a programming language, and using a world leading graph database called neo4j. Because of these tools a dynamic and powerfull application are develop here. neo4j allows the dedicated port number namely local host 7474 and use their

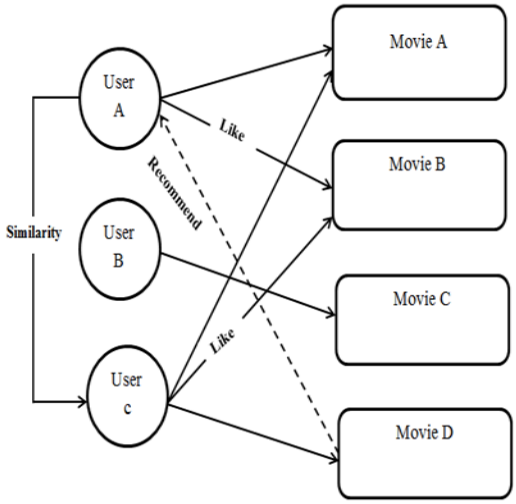

Figure 2: Working flow of approached system

own browser called neo4j browser. Here all the data are upload using POST method and all the stored data area found in nodes only, major advantage of neo4j is allow complex data and no need to specify the foreign key , primary key. In bellow steps the entire implementation of the project will be shown.

1. Collecting and store the data

Collecting the movie related data is a major task and this will done by admin and he had the power of adding new film data, adding new casting data and also he can remove unwanted details related movie as well as casting.

2. Collect the user preferences

Second step is to find the similarity between the users for this we are creating an array and store the entire selected feature to store in an array, because in neo4j is allowed only array by this only we are going to compare the similarity check between the users.

3. Similarity check

next step based on the user preference this will include genre, casting, watched movies and recommend the suitable movie to the user.

4. Recommendation

Recommendation done by user to user similarity and also all unwatched related movies.

V. RESULT

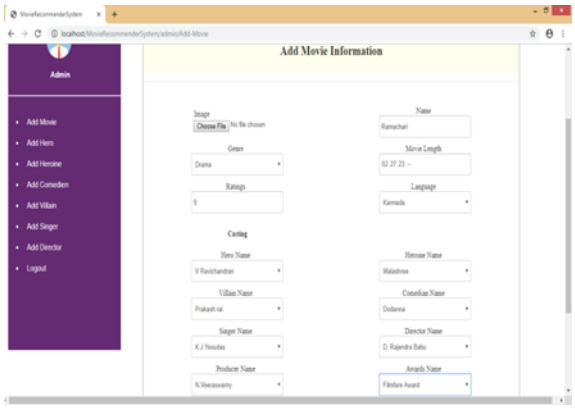

Figure 3: Add Movie and casting details

Admin add the details trough this web page this done by using any standard browser.

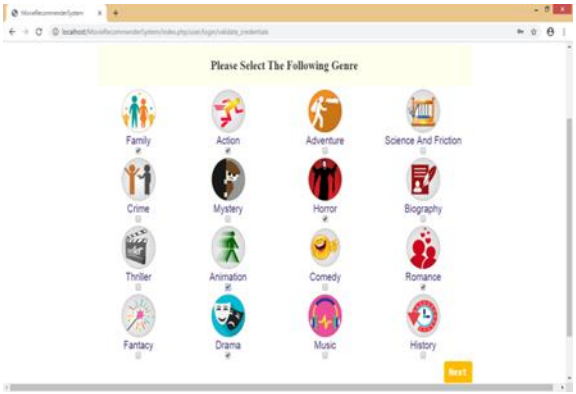

Figure 4: User selecting his preferences

If the user login successful he get some features to select namely genre, hero, heroin, etc,. Figure 4 shows only one feature in the same way all six remaining features are should be selected by users. This will be saved in neo4j database for the future comparison.

Figure 5: Data Visualization

As shown in the Figure 5 data are visualized in neo4j as a node

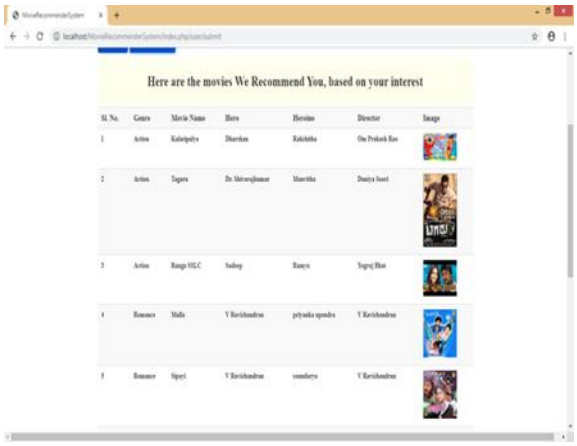

Figure 5: Recommendation

Figure 5 shows the recommendation by performing through checking similarity between user to user.

VI. CONCLUSION

In every year 1000 of movies are created and make a complex and huge data. More audience are watch those movie so we use a best filtering method in this project and recommend the best movies related to the user by considering the user preference. And here we use a neo4j as a backend, we utilize all the advantages of ne4j and developing a best movie recommender system. Because of this user are getting a rich experience in the internet as well as company revenue will be increased.

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