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CIPHERING SUBSISTENCES OF ATTRIBUTES VIA INTRITATE NEURAL PORTRAIT

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Abstract - In the fast-moving world, the internet plays a vital role in part of every individual, business, and sector. So the internet is ruling nooks and corners of the world. The main goal is to provide quality internet services without any interruptions. As we can see the falling in internet signals or lost signals may affect each individual to a gigantic business. So to provide a signal in the correct strength can overcome the issue of the quality services on both customer and internet provider side. Here we are implementing a recommendation system to optimize the quality of service to the persons or sectors who are using the internet.

This makes the service providers satisfy the customer and increase the business process further with the help of the recommendation system. Based on locations every time the signal differs according to the locations and hence when a customer confronts the signal issues, the service provider equalizes the query of the customer by providing the signal to the requested customer based on the location. By doing this, we are not only efficiently solving the problem of the customer but also increasing the customer counts by providing the quality of the internet providing services using the recommendation system.

***Key Words*: Quality of Service, Recommendation system, DNN, Service provider.**

1.INTRODUCTION

The scope of the project includes providing the quality of internet services. Providing quality of service depends on rectifying the problem of signal strength on time. So the providing the right signal strength at the right time to the requested customer is a big concern in the internet providing services. When a service provider updates a plan it has to maintain the plan without any interruptions. But when a signal is weaker on the customer side it is important to sort out the issue. So, the service providers determine the strength of the requested customers.

But when the customer continuously faces the problem in network signal. The network service provider solves it effectively by providing the recommender system. By using the logical implementation of machine learning our recommendation system will provide another network location to the customer to make use of the internet. The main aim of the project is to provide more reliable internet signal services to the customers in an efficient manner.

Figure 1: Internet Signals

2. RELATED WORKS

[1] This work done by author Minzhi Chen , Hao Wu , Chunlin He , Sili Chenn “Momentum-incorporated Latent Factorization of Tensors for Extracting Temporal Patterns from QoS Data.” in the year 2019.

Quality-of-service (QoS) of Web services vary over time, making it a significant issue to discover temporal patterns from them for addressing various subsequent analyzing tasks like missing QoS prediction. A Latent factorization of tensors (LFT)-based approach proves to be highly efficient in addressing this issue, which can be built through a stochastic gradient descent (SGD) solver efficiently. However, an SGD-based LFT model frequently suffers low-tail convergence. For addressing this issue, we present a momentum-incorporated latent factorization of tensors (MLFT) model, which integrates a momentum method into an SGD-based LFT model, thereby improving its convergence rate as well as maintaining the prediction

accuracy for missing QoS data. Empirical studies on two dynamic industrial QoS datasets show that compared with an SGD-based LFT model, an MLFT model achieves faster convergence rate and higher prediction accuracy.

[2] This work done by author Yuhui Li; Jianlong Xu; Wei Liang "GraphMF: QoS Prediction for Large Scale Blockchain Service Selection" in the year 2020.

Block chain-as-a-service (BaaS) experienced a dramatically growth in recent years, making it a hot research topic. With the expanding scale of distributed services deployed on the block chain system, it is increasingly urgent to evaluate quality of service(QoS) attributes of block chain services and in-block chain peers-clients connections. The complicated association of service invocation and network environment naturally form a graph, making it possible to extract features through graph neural networks (GNN). To incorporate graph-structured information in QoS prediction, we proposed a graph matrix factorization (GraphMF) take advantages of both GNNs and collaborative filtering to estimate missing QoS values in the data matrix. Experiment conducted on a real-world dataset demonstrated the effectiveness of our model.

[3] This work done by author Jiahui Li; Hao Wu; Jiapei Chen; Qiang He; Ching-Hsien Hsu "Topology-Aware Neural Model for Highly Accurate QoS Prediction" in the year 2021

With the widespread deployment of various cloud computing and service-oriented systems, there is a rapidly increasing demand for collaborative quality-of-service (QoS) prediction. Existing QoS prediction methods have made great progress in modeling users and services as well as exploiting contexts of service invocations. However, they ignore the completion of service requests/responses relies on the underlying network topology and the complex interactions between Autonomous Systems. To jointly characterize the invocation process, the path features and end-cross features are captured respectively through an explicit path modeling layer and an implicit cross-modeling layer. After that, a gating layer fuses and transmits these features to the prediction layer for estimating unknown QoS values. In this way, TAN provides a flexible framework that can comprehensively capture the invocation context for making accurate QoS prediction. Experimental results on two real-world datasets demonstrate that TAN significantly outperforms state-of-the-art methods on the tasks of response time, throughput, and reliability prediction. Also, TAN shows better extensibility of using auxiliary information.

[4] This work done by author Shengkai Lv, Fangzhou Yi, Peng He, Cheng Zeng "QoS Prediction of Web Services Based on a Two-Level Heterogeneous Graph Attention Network" in the year 2021

Quality of Service (QoS) prediction for Web services is a hot research topic in the field of services computing. Recently, representation learning of heterogeneous networks has attracted much attention, and specifically the relationship between users and services, as a typical heterogeneous network in which heterogeneity and rich semantic information provide a new perspective for QoS prediction. This paper proposes a novel QoS Prediction scheme based on a heterogeneous graph attention network. Our method first unitizes the user's location information to construct an attributed user-service network. Experimental results on the public WS-Dream dataset demonstrate the superior performance of the proposed model over the current state-of-the-art methods, with NMAE and RMSE metrics reduced by at least 2.56% and 1.3%, respectively. Furthermore, the experimental results highlight that node-level attention contributes more than semantic-level. Overall, we demonstrate that introducing these attention levels improves the QoS prediction performance.

3. PROPOSED SYSTEM

The proposed system helps in providing a signal to the customer at a right time by avoiding any sort of delay in delivering a network signal to the user who already has a weak signal. This system utilizes a recommendation system, which means, when a customer continuously battles signal problems, this recommendation system provides the recommendation of another network location to the customer. By using this we can rectify the problems of both the customer and service providers.

By using the logical implementation of machine learning and Artificial intelligence in the recommendation system the right solution is provided to the user at the right time. And also by increasing the quality of internet service providers, which is the important area where the huge number of customers or large scale companies who wants the continuous flow of services from the side of service providers. Thus in every way we are satisfying this network signal concerns in both the customer demands and the quality of internet providing services.

3.1 ADVANTAGES OF PROPOSED SYSTEM

- Due to the great predictive performance, we can present the right information when required.

- In the screening process, human activity is reduced to intensify the process.

- Time taken to address the delay in the problem is solved efficiently and fast.

- The recommendation model helps in implementing the best resolution to the problem.

3.2 ALGORITHM

3.2.1 DEEP NEURAL NETWORK ALGORITHM

- Deep learning uses artificial neural networks to perform informed calculations on large amounts of data. It is a kind of machine learning that works based on the structure and functional units of the human brain.
- A deep neural network studies data with learned representations similar to how a person would view a problem.
- Deep neural networks, on the other hand, are modeled after the human brain, representing an even more enlightened level of artificial intelligence technology.
- Neural networks are affected by the many complex objects in the universe: the human brain. Let's first see how the human brain works. The human brain is made using neurons. A neuron in the human brain is the most basic topological unit of any neural network, including the brain.

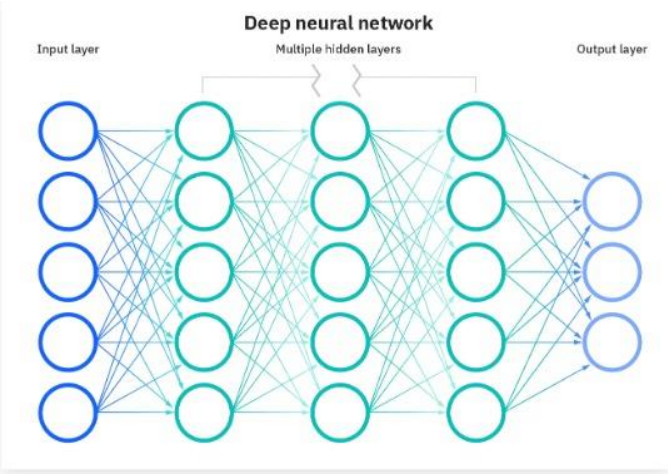

Figure 2: Deep Neural Network(DNN)

3.3 MODULES DESCRIPTION

3.3.1 MODULE 1: USER

In this module the user or customer is to choose the plans is provided by the service provider's according to the customer or user's option. Then the customers suffer any issue in the internet or service the they check the signal strength if the signal strength is good it can continue to plan or else the signal strength is bad then the customer can provide the complaint to the service provider.

3.3.2 MODULE 2: SERVICE PROVIDER

In this module the service provider gets the internet access from the main provider so that man of the service provider can introduce the plan to the user or customer's. If the customer's issues are store in the issue field so that each of the service provider can check the signal strength each of the customer the signal is good according to the signal strength send the message to customer to continue. If same customer attains signal issues many time then the service provider AI checks the customer complaint count the they recommended network to the customer.

3.3.3 MODULE 3: ADMIN

In this module the admin can upload the location of the signal tower's and views the customer issues so that they find the range of network of the each of customer and give feedback according to the signal strength provided by the service provider and then view signal strength of the location can be viewed in the form of graphical representation. so the admin can easy understand in which location are the and the desire network speed can be viewed.

3.3.4 MODULE 4: OWNER

In this module the owner or main provider is to give the service to the service provider and also view the customer can available by the service provider also can be view and also it having the access of the graph representation of the locations can be viewed.

Figure 3: Modules of QOS

4. ARCHITECTURAL AND DATA FLOW DIAGRAM

4.1 ARCHITECTURAL DIAGRAM:

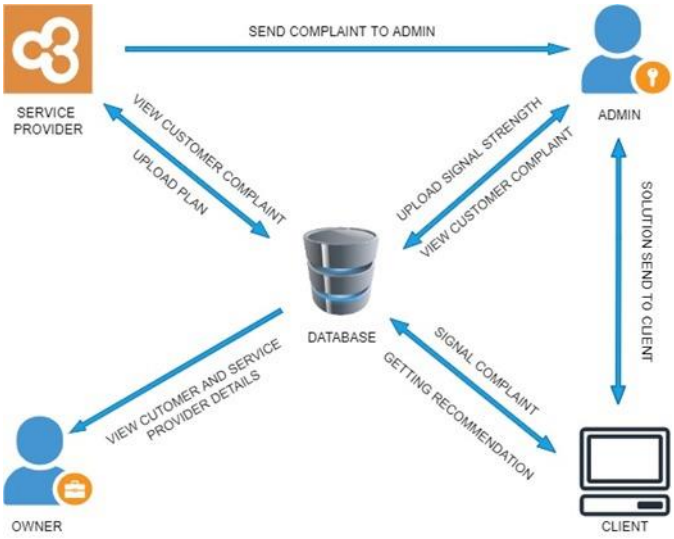

Figure 4: Architectural Diagram

The architecture diagram [Figure 4] of proposed is given above. The components present in it are Service provider, client, Admin, owner and the process runs between them with the database to store the information.

4.2 DATA FLOW DIAGRAM:

In the current physical data flow diagram, the process label includes the names of people or their locations or the names of computer systems that provide the overall system processing label include an identification of the technology used to process the data in the computer system. Similarly, data flows and data stores are often labelled with the names of the actual physical avenue on which data such as folders, computer files, data forms or computer rolls are stored.

4.2.1 CURRENT LOGICAL:

The physical aspects in the system are removed as much as possible so that the system is reduced to its essence to the data and the processes that changes them regardless of the current physical format.

4.2.2 PREVIOUS LOGIC:

This is the same as the current logical model if the user was completely satisfied the user was completely joyful with the functionality of the present system, but had issues with how it generally worked in the new logical model will differ from the current logical model while having add-up functions, entire functional remove and inefficient flows recognized.

LEVEL 0

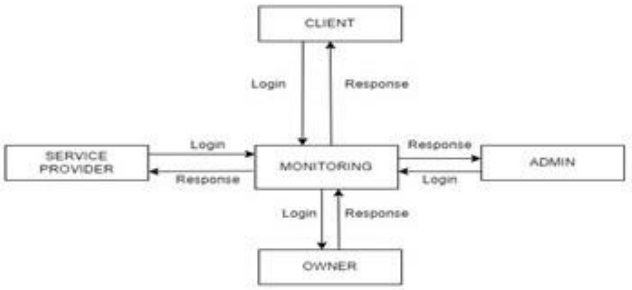

Figure 5: DFD-Level 0 diagram

LEVEL 1

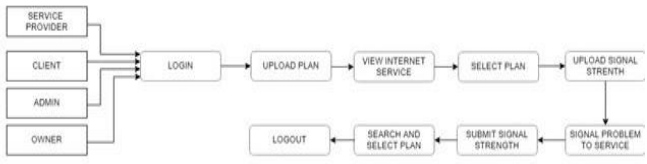

Figure 6: DFD-Level 1 diagram

LEVEL 2

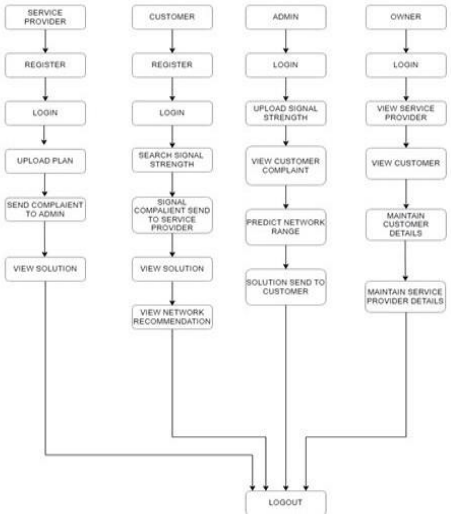

Figure 7: DFD-Level 2 diagram

5. RESULTS AND OBSERVATIONS

- If the customer suffers with the downfall of the network signal with their location, then they can complaint to service providers, in which the admin predicts it and sends the message if the signal is good in that location.

- In case of facing the same network problem then they are recommending to shift location to their nearby location to experience the good network signal.

CURRENT LOCATION SIGNAL STRENGTH

DATASET 1:

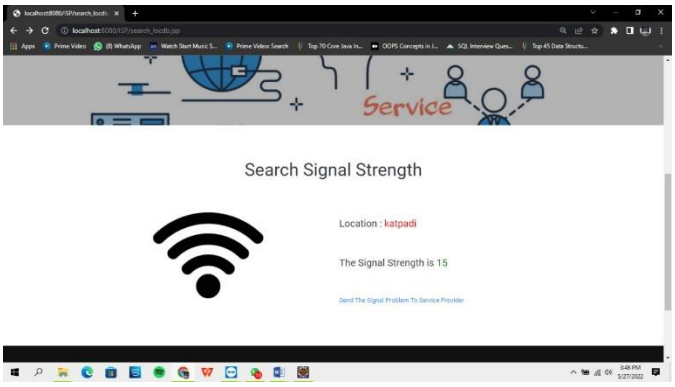

Figure 8: Current Location Screenshot

ADMIN VS USER INTERACTION

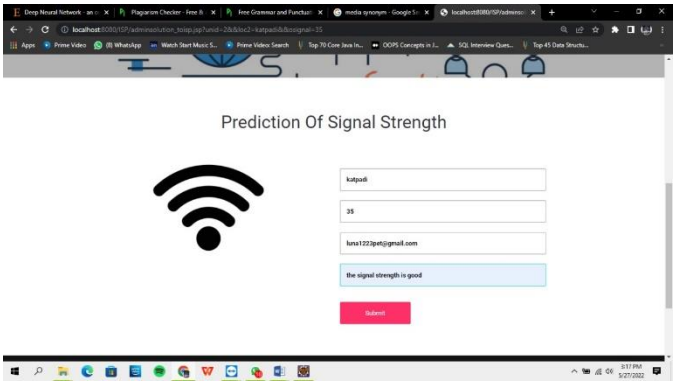

Figure 9: Interaction between user and admin Screenshot

RECOMMENDING TO SHIFT THE LOCATION BY THE ADMIN

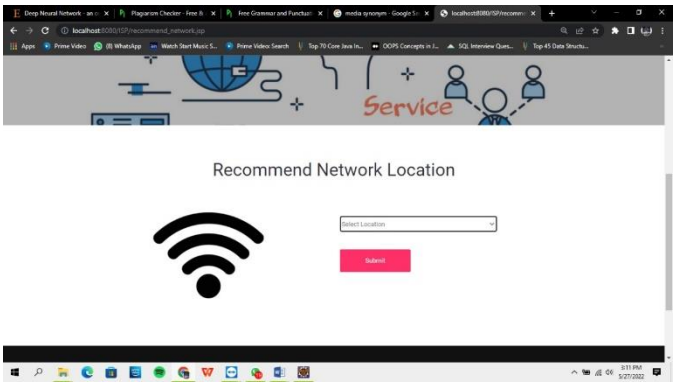

Figure 10: Shifting Location Screenshot

SELECTING NEW LOCATION

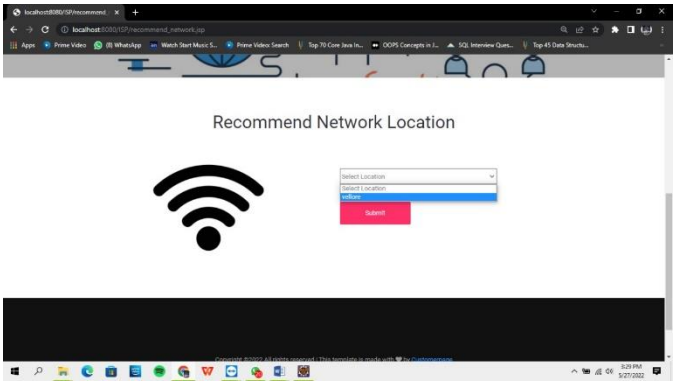

Figure 11: New Location Selection Screenshot

NEW LOCATION SIGNAL STRENGTH

DATASET 2:

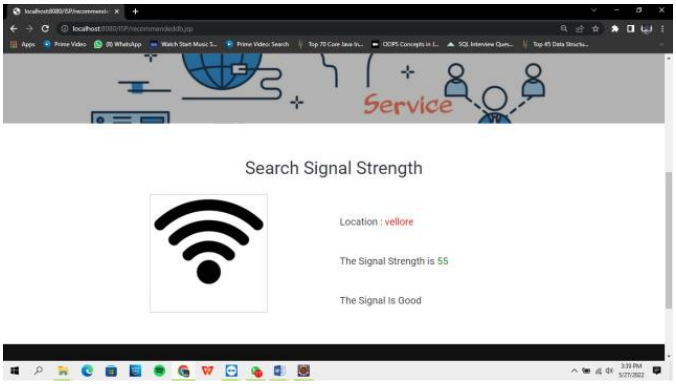

Figure 12: New Location Screenshot

5.1 OBSERVATIONS

- Since Dataset 1 location has very poor signal strength the admin sends the message to the user, in order to change the location of the network signal.

- Dataset 2 describes that after shifting of the network signal the signal strength is better while compared to the previous network signal.

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