International Journal on Future Revolution in Computer Science & Communication Engineering
Volume: 4 Issue: 4
ISSN: 2454-4248
78 – 81

Web Application for Consultant Services

Mr. ShubhamBotfole, Mr. ShubhamKodape, Mr. AkshayChandel
Department of Computer Science and Engineering,
D.M.I.E.T.R. ,Wardha.

***Abstract*:-**The emergence of internet has changed the system from the circulation of data that has shifted us from a world of paper documents to a world of online documents and databases systems.Consultancy services provide options for multiple different domains to be covered under one place. To be exact multiple services are provided under one company that acts as consultancy.

Data mining plays an important role in many decision making application and research domains. Predictions of a things based on data available is one of the important features of data mining. Loan and insurance recommendation system is one of data mining and machine learning application where the system needs to recommend the banks that can provide loan to users and at the same time provide users with insurance providing companies that can provide proper scheme to users. We will use K-NN based approach for providing users with such recommendations.

The K-NN algorithm performs analysis on that data. Based on the result of analysis, description of suitable financial services and insurance services will be displayed to the user.Finally it guides the user so that they can register themselves for those insurance policies which they find suitable.

***Keywords*:-** *data mining, machine learning*

*****

I. INTRODUCTION

An online consultant has an experienced professional who advises business clients on insurance, employee benefits, and other products. An online consultant may focus on a particular type of benefit, and can provide a range of advice on selecting, purchasing and administering benefits. They often have long-standing relationships with their clients and can assist them with paperwork, compliance, and annual renewals. Working with an experienced financing consultant can save you considerable time, money, and frustration.

II. K-Nearest Neighbors Algorithm

In pattern recognition, the *k*-nearest neighbors' algorithm (*k*-NN) is a non- parametric method used for classification and regression. In both cases, the input consists of the *k* closest training examples in the feature space.

In *k-NN classification*, the output is a class membership. An object is classified by a majority vote of its neighbors', with the object being assigned to the class most common among its *k* nearest neighbors' (*k* is a positive integer, typically small). If *k* = 1, then the object is simply assigned to the class of that single nearest neighbor.

- In *k-NN regression*, the output is the property value for the object. This value is the average of the values of its *k* nearest neighbors'.

k-NN is a type of instance-based learning, or lazy learning, where the function is only approximated locally and all computation is deferred until classification. The *k*-NN algorithm is among the simplest of all machine learning algorithms. Both for classification and regression, it can be useful to assign weight to the contributions of the neighbors, so that the nearer neighbors contribute more to the average than the more distant ones. For example, a common weighting scheme consists in giving each neighbor a weight of 1/*d*, where *d* is the distance to the neighbor. The neighbors' are taken from a set of objects for which the class (for *k*-NN classification) or the object property value (for *k*-NN regression) is known. This can be thought of as the training set for the algorithm, though no explicit training step is required.A peculiarity of the *k*-NN algorithm is that it is sensitive to the local structure of the data. The algorithm is not to be confused with *k*-means, another popular machine learning technique.

III. Parameter selection

The best choice of k depends upon the data; generally, larger values of k reduce the effect of noise on the classification, but make boundaries between classes less distinct. A good k can be selected by various heuristic techniques (see hyper parameter optimization). The special case where the class is predicted to be the class of the closest training sample (i.e. when k = 1) is called the nearest neighbor algorithm.

IV. Feature extraction

When the input data to an algorithm is too large to be processed and it is suspected to be redundant (e.g. the same measurement in both feet and meters) then the input data will be transformed into a reduced representation set of features (also named features vector). Transforming the input data into the set of features is called feature extraction. If the features extracted are carefully chosen it is expected that the features set will extract the relevant information from the input data in order to perform the desired task using

 ISSN: 2454-4248
78 – 81

this reduced representation instead of the full size input. Feature extraction is performed on raw data prior to applying k-NN algorithm on the transformed data in feature space.

An example of a typical computer vision computation pipeline for face recognition using k-NN including feature extraction and dimension reduction pre-processing steps (usually implemented with Open CV):

1. Haar face detection
2. Mean-shift tracking analysis
3. PCA or Fisher LDA projection into feature space, followed by k-NN classification

V. Dimension reduction

For high-dimensional data (e.g., with number of dimensions more than 10) dimension reduction is usually performed prior to applying the *k*-NN algorithm in order to avoid the effects of the curse of dimensionality.

VI. Decision boundary

Nearest neighbor rules in effect implicitly compute the decision boundary. It is also possible to compute the decision boundary explicitly, and to do so efficiently, so that the computational complexity is a function of the boundary complexity.

VII. Data reduction

Data reduction is one of the most important problems for work with huge data sets. Usually, only some of the data points are needed for accurate classification. Those data are called the prototypes and can be found as follows:

1. Select the class-outliers, that is, training data that are classified incorrectly by k-NN (for a given k)
2. Separate the rest of the data into two sets: (i) the prototypes that are used for the classification decisions and (ii) the absorbed points that can be correctly classified by k-NN using prototypes. The absorbed points can then be removed from the training set.

Selection of class-outliers

A training example surrounded by examples of other classes is called a class outlier. Causes of class outliers include:

- random error
- insufficient training examples of this class (an isolated example appears instead of a cluster)
- missing important features (the classes are separated in other dimensions which we do not know)
- too many training examples of other classes (unbalanced classes) that create a "hostile" background for the given small class

Class outliers with k-NN produce noise. They can be detected and separated for future analysis. Given two natural numbers, k>r>0, a training example is called a (k,r)NN class-outlier if its k nearest neighbors include more than r examples of other classes.

VIII. ARCHITECTURE

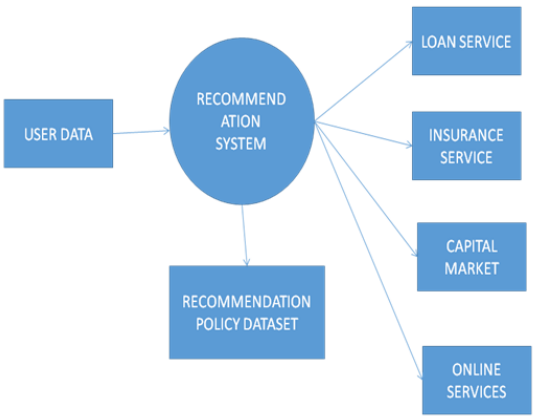

Fig.1 Architecture

IX. USER DATA

In this the user will have to enter the particular data which mention in the field of the form. Predictive modeling is essentially an exercise in empirical data analysis. Modelers search through mountains of data for repeatable, statistically significant relationships with the target (underwriting

 ISSN: 2454-4248
78 – 81

decision in this case), and generate the algorithm that produces the best fit.

X. RECOMMENDATION SYSTEM

Recommendation algorithms are best known for their use on e-commerce web sites, where they are used to create additional business opportunities by suggesting additional products and services. Generally, the recommendation are created by collating feedback from various users who have purchased the same or different products, as well as comparing the features of the products themselves.
Algorithm:

Schema recommendation (User data)

Step 1: Fetch user details into array list.

Step 2: Use iterator fetch details of required loan/insurance from database.

Step 3: Using iterator implement attribute comparator to match user details with database.

Step 4: Store all result in comparator and sort in a descending order.

Step 5: Show max compared result to user.

XI. RECOMMENDATION DATASET

Many financial decisions are difficult to analyze because of the variety of available strategies and the continuous nature of the problem. However, if the alternatives and time frame can be restricted, then decision analysis can be a useful analysis tool. For example, a loan officer is faced with the problem of deciding whether to approve or deny an application for a one-year $30,000 loan at the current rate of 15% of interest.

XII. LOAN SERVICE:

Loan servicing is the administration aspect of a loan from the time the proceeds are dispersed until the loan is paid off. This includes sending monthly payment statements and collecting monthly payments, maintaining records of payments and balances, collecting and paying taxes and insurance.

XIII. DATA FLOW DIAGRAM:

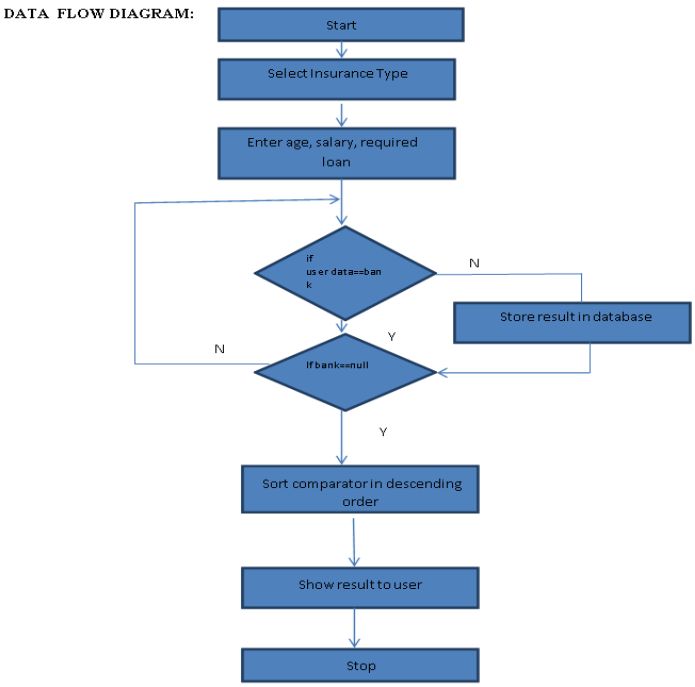

Fig. 3.2 Loan Data Flow

XIV. INSURANCE SERVICE

Insurance is a means of protection from financial loss. It is a form of risk management primarily used to hedge against the risk of a contingent, uncertain loss. An entity which provides insurance is known as an insurer, insurance company, or insurance carrier. A

 ISSN: 2454-4248
78 – 81

person or entity who buys insurance is known as an insured or policyholder.

DATA FLOW DIAGRAM:

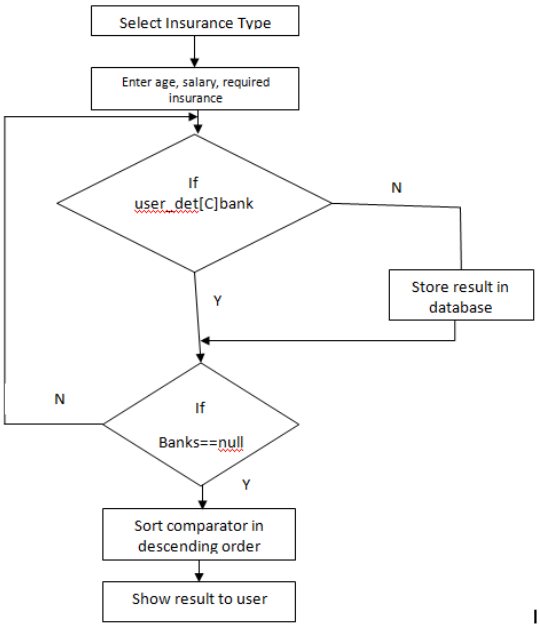

Fig 3.3 Insurance Data Flow

CAPITAL MARKET

A capital market is a financial market in which long-term debt or equity-backed securities are bought and sold. Capital markets are defined as markets in which money is provided for periods longer than a year. Capital markets channel the wealth of savers to those who can put it to long-term productive use, such as companies or governments making long-term investments.

XV. ONLINE SERVICES

An online service refers to any information and services provided over the Internet. These services subscribers to communicate with each Y also provide unlimited access to information. Online services can range from simple to complex. A basic online service may help subscribers gain needed data through a search engine, while a complex one might be an online mortgage application from a bank. Online services may be free or paid.

XVI. CONCLUSION

This website provides multiple services at one place such as capital market, online services, banking/financial services and insurance services.Also provide a facility such as side by side comparing of loan and insurance.It also provides feedback service such as feedback play an important role for other visitor to the website in future.

REFERENCES

[1] ZaiqiangHuo “Data Mining: the Investment Value Analysis on China's Bank Stocks Based on Residual Income Model” IEEE 2014.
[2] George H. John “Mortgage Data Mining” Global Business Intelligence SolutionsIBMAlmaden Research Center 1997.
[3] Zhao Dan “Data Mining Applications in the Banking Industry in China” Southwest University for Nationalities, Chengdu, P.R.China 2008.
[4] Irina Ionita “A Decision Support Based on Data Mining in e-Banking” IEEE 2011.
[5] Bharath K. Samanthula “*k*-Nearest Neighbour Classification over Semantically Secure Encrypted Relational Data” IEEE 2015.
[6] AhmetBoyaci “Data mining application in banking sector with clustering and classification methods” IEEE 2015.
[7] Nikita Uttarwar “k-nn data classification technique using semantic search on encrypted relational data base” Dept. of Computer Engineering AISSMS,COE, Pune, India 2016