

Task: 2

Data Mining Applications

In this era of internet and rapid developments any resource are generating huge data in each and every day. Data is the most precision and expensive things for Machine Learning and Data Science [1]. Collection of data and store of the data and followed by processing of the data is really challenging and have insightful meaning. So any size of data has great meaning if you do analysis with the data and able to find the hidden pattern of the data to extract the information is really good.

Data mining is a process of data to extract the information form the data-set. For data mining there is number of option is there but to read the data in computer language is easy in Python and R programming if you using tool then Weka is a good for data mining and analysis of the data.

There is so many application of data mining like- Healthcare, Market analysis, Education, Engineering, Fraud detection, Lie Detection, Manufacturing Fault detection, Customer segmentation, Banking, Research, Criminal Investigation, Bio Informatics, etc. Here I'll describe the major application of data mining and it's application in Healthcare and Customer segmentation.

Data mining application in Healthcare domain:

Healthcare is a great domain for apply data mining [2] [3]. It's a process of prediction or forecasting form the data. Competitive analysis of the data and find the hidden pattern from the data and apply the prediction statistics whats happened with the patients and give an suggestion for further instruction or some information to recover the problem or come out form the situation. If there is too many data so by analysis the data by Machine Learning or Data Science and Neural Network we can explore the complex structure of the data and explore each of the structure to know more about and deploy the predictive analysis structure for successful application.

Source of Healthcare data:

1. RHIhub Rural Health Information hub. Link: <https://www.ruralhealthinfo.org/topics/statistics-and-data/data-sources-and-tools>
2. Health Data. Link: <https://healthdata.gov/>
3. Agency for Healthcare Research and quality. Link: <https://www.ahrq.gov/data/index.html>
4. U.S National Library of Medicin. Link: https://www.nlm.nih.gov/nichsr/stats_tutorial/section3/index.html

Data collection:

Basically data collection means to keep the record of your data. In early days in healthcare data is collected by pen and paper after that this data is store in a computerized format. But now a days data collection is easy it's most of the part is done by a electronics system with a short span of time it will collect data from body and started doing analysis to find the common pattern and match with the existing one and give report in a glance.

Some application:

Treatment effectiveness:

To predict the treatment effectiveness using data mining very effective. Taking the symptom form patients and doing the comparative analysis on the data and finding the similarities and categorize it. If the category of predictive analysis is match with the critical analysis then suggest the effectiveness

of the disease. We can categorize the effectiveness is several group and commanded the undergo operation as advice.

Fraud and abuse detection:

To find the disease and calming the re-commanded medicine, operation or report is use full by using this process. In this way detecting the fraud undergo operation or medicine irrelevant report commanded by doctors easily can be trapped. Where the systematically procedure will give best suggestion for medical recommendation. Using the fraud and abuse detection procedure Texas system recover \$2.2 million of there revenue.

Data mining application in Customer Segmentation:

Customer segmentation will help for business analysis and market prediction by predicting the characteristic or behaviors of the customers [4]. To target a group of customer instead of individuals and take an action which have a great effectiveness on business analysis. Customer segmentation is the analysis of the data from the back behaviors of the customer and find the opinion of a customer and group all the similar type of customer for further analysis and take an action on them [5] [6]. Customer segmentation allow to monitor over time so the changes become understandable.

Source:

1. data.world (<https://data.world/datasets/customer>)
2. Keggel Data-sets (<https://www.kaggle.com/datasets>)
3. Website, Bank, Online marketing.

Data Collection:

Early days data is collected from pen and paper resource only. Now in digitize world data is automatically generating form customer behaviors on online may be traveling, internet browsing, banking, shopping, etc.

Insightful ideas form customer data:**Behavioral Analysis:**

To segment the customer by their behavioral is importance. It's possible by data analysis and find the behavior of a customer by his or her financial, opinion, internet browsing.

Shopping or marketing analysis:

By analysis of a customer shopping or card used for shopping it is easy to predict for any customer willingness for shopping or marketing or online purchase and further recommendation can be done with system after analysis of the data.

Product recommendation:

product recommendation for a customer is possible only by analysis the customer purchase that the customer is done before. So by analysis the product the system can give suggestion which type of product is recommendable for any particular customer. When we talk about procedure recommendation then you can take an examples of Netflix movie recommendation, amazon product recommendation, any online shopping website product recommendation.

Potential benefits of data mining in selected Healthcare and Customer Segmentation:

There is potential and effective benefits is there for data mining in Healthcare and Customer Segmentation domain. Because in Healthcare disease prediction is an analysis of data that is already preserve before and in customer segmentation analysis of the transaction data gives insightful good ideas about the customer transaction movement. So data mining and analysis on Healthcare data and Customer Segmentation have very importance feature for prediction analysis.

Recent developments and exciting on Healthcare and Customer Segmentation:

Healthcare is a rapid developments areas with data mining and analysis on the data. Where the last developments in healthcare areas are – Patient-Centric diagnosis approach, Precision medicine recommendation, Healthcare Cybersecurity.

In Customer Segmentation recent noticeable developments are – To know about a customer segment strategy uses of target technology, Target customer segmentation using Artificial Intelligence.

Significance of data mining for Healthcare and Customer Segmentation:

There is strip significance importance in Healthcare and Customer Segmentation that help to improve business growth and quality of life like-

Business developments and know about deployment strategy.

Know about future business direction.

Easy way prediction of patients disease.

Time consuming for test analysis and diagnosis.

Legal and ethical concerns for Data mining in Healthcare and Customer Segmentation:

Data mining has meaningful legal concerns in Healthcare and Customer Segmentation because it has great importance for future prediction in Healthcare. But there may be Illegal concerns for Customer Segmentation if the data is disclose for all then it may not be good for security reason. So if the data mining and it's application to serve better human life, then it's good.

References:

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