Fraud Detection in Health Care Insurance using Data Mining by Integrating Hospital and Health Insurance System

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Abstract: Fraud is widely spread and it can be very costly to the health- care insurance system. It involves intentional deception intended to result in an unauthorized benefit. It is shocking because the incidence of health insurance fraud increasing every year. In order to detect and avoid the fraud, data mining techniques are applied. This includes some basic knowledge about health care system and its behaviors, analysis of the health care insurance data. Data mining is divided into two learning techniques, supervised and unsupervised learning is employed to detect fraud claims. But, since each of the above techniques has its own advantages and disadvantages, by combining the advantages of both the techniques, a hybrid approach for detecting fraud claims in healthcare insurance industry is proposed.So, to make healthcare insurance industry free from fraud, it is necessary to focus on the elimination of fake claims arriving through health insurance. According to the recent survey, it is found that the number of false claims in the industry is near about 15 percent of total claims. Insurance companies in USA losses over 30 billion USD annually to healthcare insurance frauds. The statistics is increasing in developing country like India as well.

Keywords: Database, Data Mining, web Application, ECM

I. INTRODUCTION

In this paper, this application will help to insurance companies to maintain the transparency into the process of any kind health related claims. Which may send the report from the hospitals. It maintain the live interaction between the hospitals and insurance companies. At the both side, they will clear about their commitment.

The system will generate report of gathered data from patient, hospital, medical shop and insurance company.

Clustering is done using ECM and verification of data is done using SVM. Generated report will send to patient, hospital and insurance company. In future we can add this system with CCTV real time system. Where live interaction has been happen. Data collected from Patient, Hospital, Medical, Insurance can affect the whole process, because the data is wrong after verification insurance will not claim. In every years, it is shocking because the incidence the fraud in health insurance.
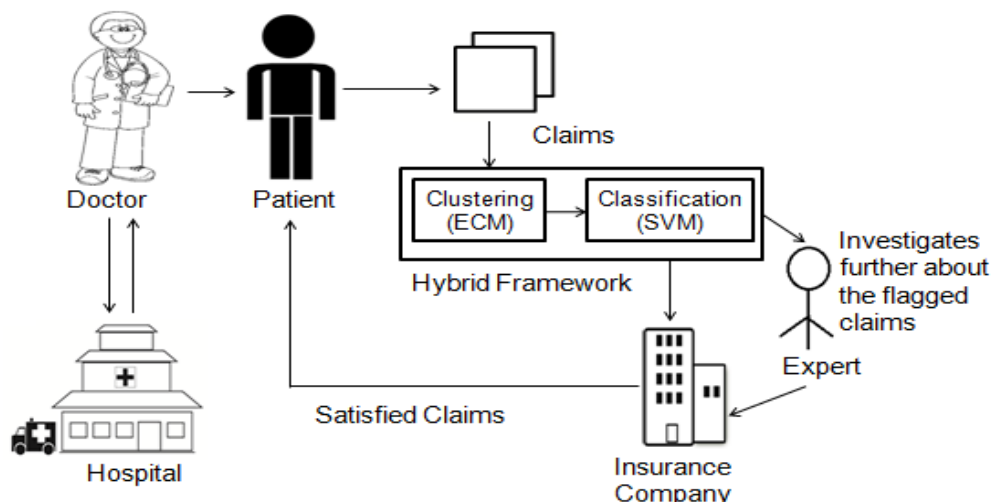
II. RELATED WORKS

FIG 1. EXISTING SYSTEM

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There are 3 sub categories mentioned in the healthcare insurance fraud. They are as given below-

1.   Service providers: It involves the party who provide health services to the insurance subscribers and The first categories provide service to the health insurance subscriber get payment from insurance subscriber for the service. It include doctor, hospital and user

2.   Insurance companies: It Includes the ones who receive the regular premiums from their subscribers and pay them back the settlement amount. Insurance Carriers include governmental healthcare departments and private insurance companies. The second categories involves ones who receive daily premiums.

3.   Insurance Subscribers: The services they render from the service providers and make the payments for that's services. The subscribers in turn get the reimbursement (settlement amount) from the the insurance carriers. Insurance Subscribers include patients.

In this system patient is not involved in whole process. Service providers can give fake and additional data to insurance providers. And this system uses supervised and unsupervised techniques, so there are some drawbacks of this techniques.

survey Papers \ Features	Author & Publication Date	Transparency	Secure authentication	Clustering	Classification	Patient Involvement	Real time Interaction
Fraud Detection using Data Mining Techniques	Sachin Bojewar, Ankit Sanghavi 13 August 2012	✗	✗	✓	✗	✗	✗
statistical methods for health care fraud detection	Jionghua Jin, Jianjun Shi 13 october 2010	✗	✗	✓	✗	✗	✗
Health Insurance Claim Fraud Detection: A Survey	V. Kathiresan, Dr. S. Gunasekaran Faseela V. S 2 March 2015	✗	✓	✓	✓	✗	✗
Fraud Detection in Health Insurance using Data Mining Techniques	Vipula Rawte, G Anuradha 17 Jan 2015	✓	✓	✓	✓	✗	✗
Propose System		✓	✓	✓	✓	✓	✓

III. PROPOSED SYSTEM

Now-a-days, there is large amount of data stored in real world databases and it continues to grow fast. It is an earlier methods of detecting health care fraud is time-consuming and unreliable.

So, we need another method for the semi-automatic methods that will discover the hidden/unknown knowledge in such databases. Data mining is a core part of the KDD process. Data mining automatically filtering through the large amounts of data to find known and unknown patterns bring outs valuable new perceptions and the predictions. Data mining techniques has been used by many healthcare organizations for the fraud detection in their system.

The data mining methods mainly considers the big data for identifying the structures (variables) with the appropriate prediction power in order to yield the reliable and the robust large-scale models and analyses.

The effect of excessive fraud claims is billing amounts, higher patient costs, excessive per doctor patients, and so on. This access can be identified by using the special analytical tools for detection of fraud in medical/healthcare system.

The provider statistics includes the total number of patients, total amount bills, total number of visits, per-patient average of the visit numbers, per-patient average of the billing amounts, per-patient average of medical test costs, per-patient average of medical tests, per-patient average of prescription and many more.
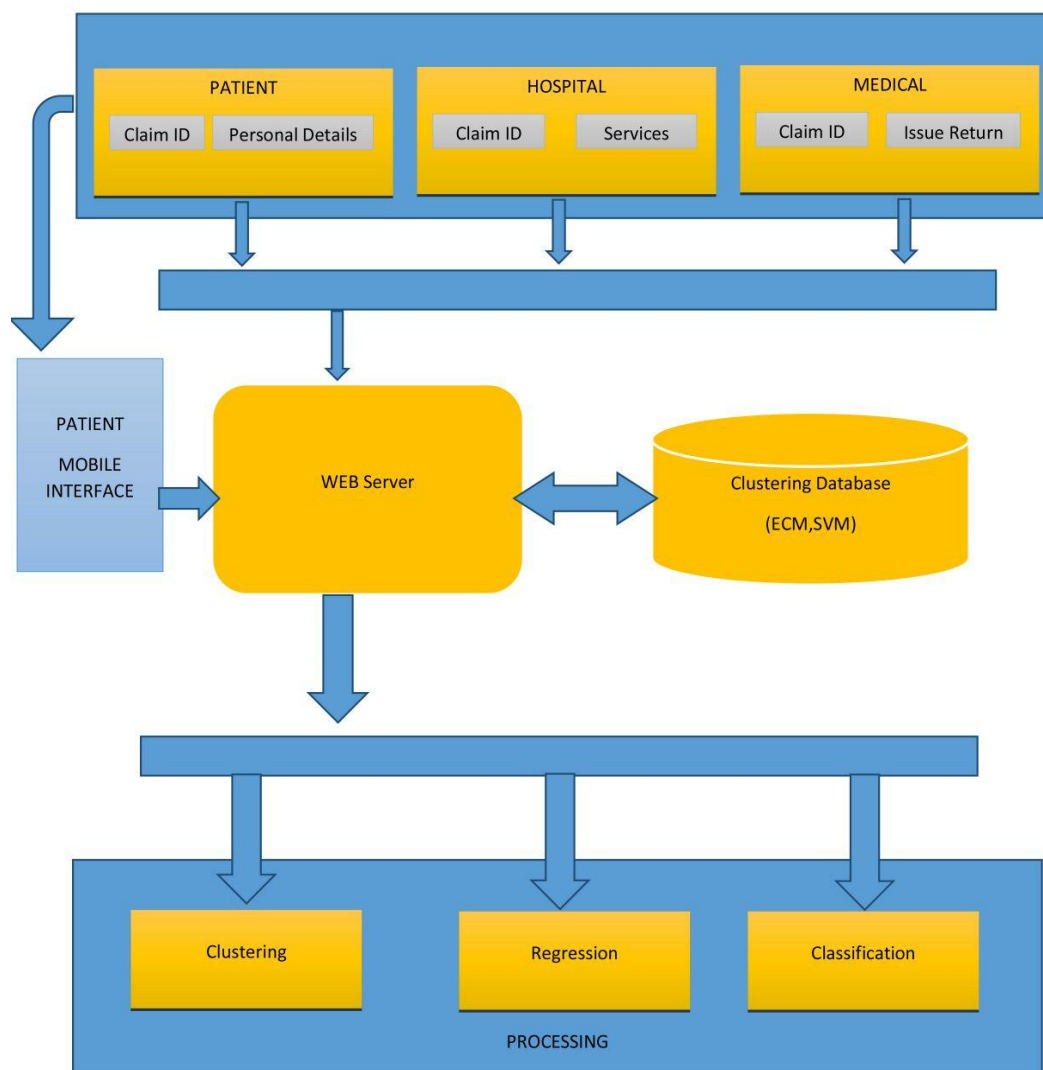
Fig 2. Architecture of Proposed System

WORKING OF PROPOSED SYSTEM

In the purpose system, patient is included directly in the claim process. Where System generate the one unique Claim ID .This Claim ID forward to the hospital, medical shop patient and insurance company. After patients treatment is completed patient send a data regarding treatment to the server.

Hospital also send a data to the server treatment which was provided by them to a patient and medical shop provides information about the medicines which are received and return by a patient. Insurance company also provide a data which they received from hospital and medical. Clustering of this data done at server side by use of ECM and verification of this data done by use of SVM. Generated report is send to the patient, hospital and insurance company.

In this system, all users like patient, hospital and Insurance Co. can view and print the result.

IV GOALS AND OBJECTIVES

- Maintain Transparancy
- Reduce Frauds
- Easy To Use
- Reliable
- More Secure

VI CONCLUSION

Fraud becomes more sophisticated and the volume of data grows. We can surely reduce the ratio of frauds. At the both side they will clear about their commitment and the transparency. Service Provider's fraud detection is only one small part of the bigger program of combating the healthcare insurance fraud. The traditional methods of fraud detection are time consuming and inefficient, hence Data mining is a better methodology as it provides fast and accurate results.

Data mining includes several techniques, out of which Naïve Bayes Classification is one such technique, which provides high accuracy and speed over the large datasets.

REFERENCES

[1] 2015 International Conference on Communication, Information and Computing Technology (ICCICT), Jan.16-17, Mumbai, India Fraud Detection in Health Insurance Using Data Mining Techniques, IEEE paper 2015.

[2] Dr. Biswendu Bardhan "Fraud in Health Insurance",

[3] http://healthcare.finacialexpress.com/200711/market13.shtml

[4] http://www1.lsbu.ac.uk/water/enztech/insurrance.html

[5] http://www.medipense.com/en/remote-patient-monitoring.asp

[6] Health Insurance Claim Fraud Detection: A Survey (International Journal Of Latest Trends in Engineering and Technology (IJLTET))

[7] http://www.medindia.net/patient/insurance.html

[8] www.trendwiseanalytics.com