



## Effective Application of Rule Based Expert System for Crime against Women in Indian Judiciary Domain

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**Abstract:-** Knowledge of law is very complicated because it consists of variety of laws, sections and sub sections. The application in the field of law through computer has progressed. The research in artificial intelligence has given one area for applied research. The authors of the paper have an objective to use legal knowledge and reasoning strategies in crimes against women in Indian judiciary system for quality decision making. The authors have developed a method to transform rules of crimes against women laws into legal expert systems prototype for proposal of crimes against women in satara district with respect to the Indian Judiciary system.

**Keywords:-** Expert system, Indian penal code (IPC), Artificial intelligence, Expert system shell, Expertise.

### I. INTRODUCTION:-

*A. Statement Of The Problem:-*

In this paper the authors used law as knowledge. The paper consists of structure of legal knowledge and the use of this knowledge in the development of prototype of legal expert system.

*B. Purpose:-*

The main purpose of this research paper is to develop a prototype of rule based expert system with special reference to crime against women in Indian law. The development of Rule Based Expert System will help in the process of crime analysis. This will help the common man in understanding the necessary information related to crime as well as it will save time of advocates and police when used in police stations and offices in advocates. It will also help to take decisions in the case of crime against women

### II. SIGNIFICANCE OF THE STUDY:-

The present study will provide legal information as well as decisions which is necessary to understand by women. The aim of study is not to replace a human advocate, but provide a advice or suggestion to a woman who requires it. If she is satisfied with this information, she can approach the advocate for final suggestion. This saves time and money, hence, we feel that this study will help to common man and also provide decision making tool for a human legal expert for making better production decisions.

### I. Research Background:-

*A. Legal Terminology:-*

The criminal jurisprudent came into existence in India from the ancient time of Manu. After some time crime has revolutionized the concept of criminal law in 1600, in India Queen Elizabeth granted a charter in East India Company. It gave power to law. This Charter laws renewed as time passes.

Accordingly, the first Indian law commission was constituted in 1834 under the charter Act of 1833 to investigate the jurisdiction powers, rules of the courts operated in British India. In preparing the penal code, they made not only the English and Indian laws and regulations but also other code like Napoleon etc. on 1860, the code i.e. Bill was passed as Indian Penal Code. It consists of all Rules, Regulations, and Orders criminal law in India and provided uniform criminal law for all the people in the British India.

It consists of anti – social acts, Economic offences, criminal law. It is modern branch of law. The criminal law of India had been codified in the penal code is the substantive law. This penal code consists of separate laws on crime against women. Although women may be victims of any of the general crimes such as murder, robberies, cheating etc. only the crimes which are directed specifically against women are known as ‘Crimes against Women’. Various new legislations have been made in existing laws, with a view to handle these crimes effectively. These are broadly classified under two categories.

I) The crimes under the Indian Penal Code (IPC).

II) The crimes under the Special and Local Laws (SSL)

**I) The crimes under the Indian penal code (IPC) –**

It consists in following criminal activity which are listed below –

i) Rape (Sec.376 IPC)

ii) Kidnapping and abduction for specified purpose (Sec. 360-373 IPC).

- iii) Homicide for dowry, dowry death or their attempts (section 302/304 B IPC)
- iv) Torture both mental and physical (section 498 A IPC).
- v) Molestation (sec. 354 IPC)
- vi) Sexual Harassment (sec. 509 IPC)
- vii) Importation of girls (up to 21 years of age C section 366 B IPC)

## **II) The crimes under the Special and Local Laws (SSL) -**

It consists of all laws which are not gender specific, the provisions of law affecting women significantly and amendments carried out to keep pace with emerging requirements. The gender specific laws are

- i) Immoral Traffic (Prevention Act 1956)
- ii) Dowry prohibition Act, 1961
- iii) Indecent presentation of women (prohibition) Act, 1986
- iv) Commission of sati (prevention) Act 1987

Above listed crimes have continuously increased day by day. The analysis of crime wise according to IPC included from the survey that rape has been observed increases from 2006; rape cases have been further categorized as incest Rape and other Rape cases. Incest Rape case has decreased in 2009 as compared to 2010. In 2010 increase in overall rape cases. Maharashtra state has accounted for highest cases. The rape victims are girls under 14 years of age, with teenaged girls and women in the age group of 18-30 years. There is no age limitation to this crime. This crime occurs over 50 years age also parents and close family members are involved in these cases.

Kidnapping and abduction (Sec. 363-373 IPC).-These cases have also reported increasing continuously. Delhi has reported the highest rate.

*Dowry Deaths (sec. 302-304 B IPC)* -These cases have increased by 0.1% over the previous year.

*Torture (Cruelty by husband and relatives) (sec. 498-A IPC)* -Torture cases in the country have increased day by day.

*Mole station (sec. 354 IPC)* -According to section 354 of the IPC, whoever assaults or uses criminal force on any woman, intends outrage her modesty. An assault is something less than the use of criminal force. It consists of an attempt by a person having ability to do with force any hurt or violence.

*Sexual Harassment (sec. 376 IPC)* -Sexual harassment or according to section 375 of the IPC, a man is said to commit 'rape' who expect sexual intercourse with a women under following circumstances.

*i) Against her will*

*ii) Without her consent*

*iii) With her consent, when her consent obtained by putting her or any other person in whom she is interested in fear of death or of hurt.*

*iv) With her consent, when the man knows that h is not her husband and that her consent is given because she believes that he is another man to whom she is or believes herself to be lawfully married.*

*v) With her consent, when at the time of giving such consent by reason of unsoundness of minor intoxication of the administration by him, personally or through another of any stupefying or unwholesome substance, she is unable to understand the nature and consequences of that to which she gives consent.*

*vi) With or without her consent when she is under sixteen years of age.*

Also according to section 376 IPC punishments is provided by sub-sections like police officer commits rape, by superintendent of jail, or of remand home, etc by management staff of hospital with any woman in that, hospital, rape by man with his wife during separation, intercourse by man with woman in above sub-section can be punished with imprisonment of some years.

*Vii) Importation of Girls (366-B IPC)*- This includes whoever imports into India from any country outside India or from the state of Jammu and Kashmir any girl under the age of twenty one years with intent that she may be or knowing it to be likely that she will be forced or seduced to illicit intercourse with another person. The punishment for this offence shall be imprisonment for 10 years with fine.

Other types of crimes are crime head wise analysis i.e. special laws. It includes immoral traffic prevention cases were reported from Tamilnadu and Andhra Pradesh. Next special law is sati prevention Act. No case was registered under this ac. The indecent representation of women (Prohibition) Act and Dowry prohibition Act. are the special laws for women?

The researcher takes first type of crimes i.e. the crimes under the Indian Penal Code for study. In that ,those crimes which are occurred in satara district in Maharashtra state especially studied. This is in short the procedure for verifying the title. There are many other aspects involved but they are out of the scope of this paper.

### *B. expert system components terminology-*

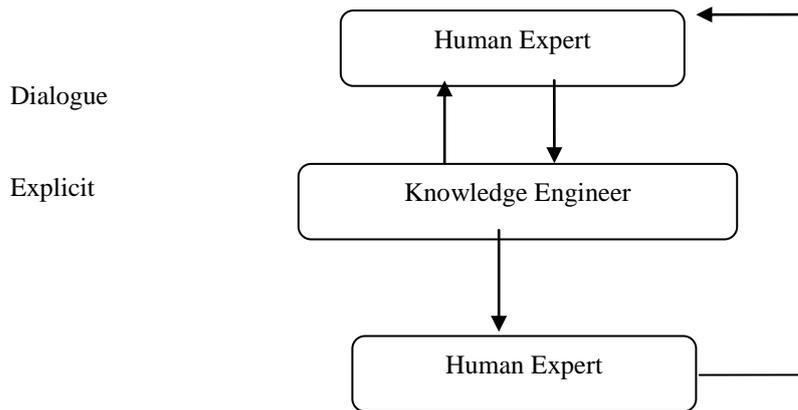
An expert system is used expertise knowledge i.e. knowledge of expert person in the application area. The process of building an expert system is commonly known as knowledge engineering. This gives knowledge acquisition from a human experts and coding it into the knowledge base of the expert system.

The main phases in knowledge engineering are

1) After acquiring knowledge from the human expert. The knowledge engineer has coded explicitly it into expert system knowledge base. The dialogue process is represented.

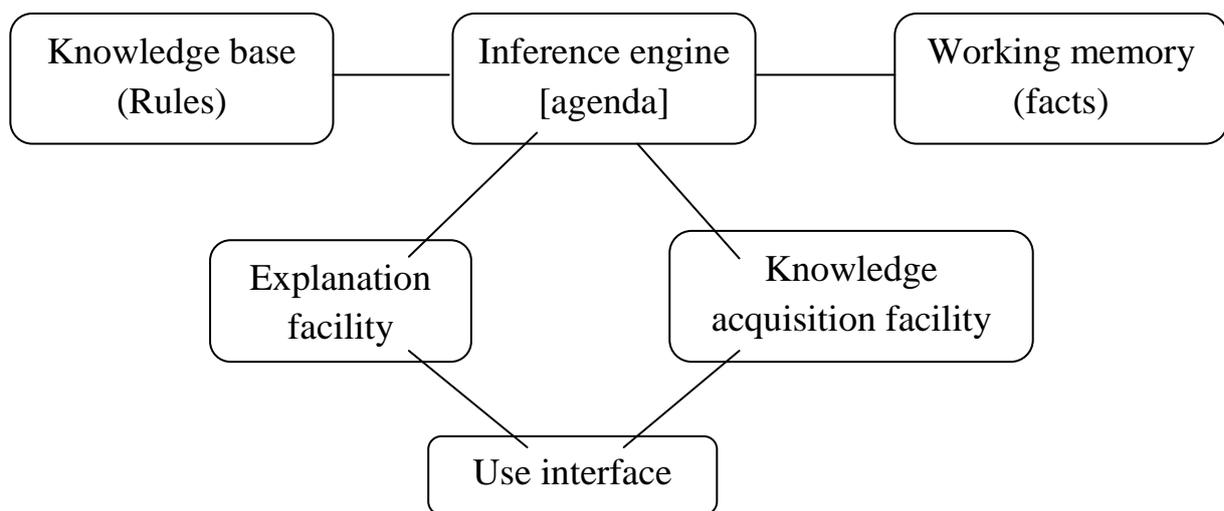
2) After the coding stage, human expert evaluates the expert system and gives feedback to the knowledge engineer.

3) The knowledge engineer alters the knowledge base in order to reflect experts comment.



**Fig. 1. Basic concept of expert system**

Expert system is computerized consulting service because the system do not get bored or tired or died or old. It preserves and propagates the knowledge so that it can be useful to others. The expert system uses this domain knowledge to solve problem in the knowledge base in the form of rules. Hence it is also called as rule based Expert System. It explains the expert system reasoning to the user. It uses the knowledge for reasoning to the user by global database of facts and these facts are used in the form of rules with highest priority as shown in fig. 1.2



**Fig. 1.2 Structure of rule based experts system.**

Decision making or reasoning takes place by two methods and backward chaining. Forward chaining is data driven i.e. system starts with initial set of elements in the working memory and keeps on firing rules until there are no rules which can be applied. There is no single, unique goal state. The goal is required to satisfy some constraints. Backward chaining is a goal driven. It involves decomposing a problem into sub problems and solving each one of them, goal is reduced to sub goal and each sub goal is again reduced further and so on until they are solvable directly. Inference engine can use the fact by above two chaining strategies and make appropriate decision.

### **III. METHODOLOGY:-**

#### *A. Expert System Designing:-*

Problem solving with identifying the knowledge used is one of the most important part of expert system design in our case. The task of acquiring the knowledge used in decision making in the process of evaluation of proposal of crime against women law involved survey of literature available and close interaction in the form of interviews and questionnaires, discussing with criminal lawyers etc.

The authors have to select expert system shells and from that development of expert system is carried out. In this case the authors have two choices i.e. one web based application and another window based application. From these one application can be selected.

#### *B. Steps in Implementation:-*

The detailed analysis is carried out. After going through the analysis following procedure takes place.

1) Expert system shell concepts need to be used.

- 2) Discussions and interviews with the legal experts in the field.
- 3) The rules are framed using the legal knowledge.
- 4) Testing and Implementation.

After going through series of discussions and the interviews were held with the practicing advocates, who are experts in crime against women law. The discussions consist of understanding the concept of laws of crime against women. The rules are then framed. We had also discussions and interviews with academicians who are teaching law. The discussion makes great help in framing of the rules.

#### **IV. FUTURE SCOPE OF THE STUDY:-**

In the present research work the authors undertake the development of rule based expert system for the crimes against women in Indian legal domain.

#### **V. CONCLUSION**

The authors try to develop a Rule Based Expert System prototype. Hence their opinion is that it is possible to develop a comprehensive Rule Based Expert system for crime against women which can act as great tool for experts in the field of law.

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