

An Application of Data mining in Criminal Justice System

Abstract

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Since much of the full-text content is unique to the database, database provides records selected from the most important sources within the criminal justice field. It covers hundreds of journals from around the world, reflecting the increasing globalization of criminology studies.

The Criminal Justice Abstracts with Full Text database is unparalleled in content and coverage... In addition to criminal justice researchers, scholars in allied fields such as psychology and sociology will find this resource immensely useful.

Criminal Justice Abstracts offers much more content—for a broader span of years—than I thought possible, and the content is first-rate. So is the delivery system. It gets a ten and an enthusiastic recommendation. Not just for libraries serving criminal justice researchers, this file will be used by researchers across the disciplines. Highly recommended for public, academic, and special libraries.

Keywords: Data mining, data base, criminal justice system.

Introduction

Generally, data mining (sometimes called data or knowledge discovery) is the process of analyzing data from different perspectives and summarizing it into useful information - information that can be used to increase revenue, cuts costs, or both. Data mining software is one of a number of analytical tools for analyzing data. It allows users to analyze data from many different dimensions or angles, categorize it, and summarize the relationships identified. Technically, data mining is the process of finding correlations or patterns among dozens of fields in large relational databases.

What can data mining do?

Data mining is primarily used today by companies with a strong consumer focus - retail, financial, communication, and marketing organizations. It enables these companies to determine relationships among "internal" factors such as price, product positioning, or staff skills, and "external" factors such as economic indicators, competition, and customer demographics. And, it enables them to determine the impact on sales, customer satisfaction, and corporate profits. Finally, it enables them to "drill down" into summary information to view detail transactional data.

How does data mining work?

Classes

Stored data is used to locate data in predetermined groups. For example, a restaurant chain could mine customer purchase data to determine when customers visit and what they typically order. This information could be used to increase traffic by having daily specials.

Clusters

Data items are grouped according to logical relationships or consumer preferences. For example, data can be mined to identify market segments or consumer affinities.

Associations

Data can be mined to identify associations. The beer-diaper example is an example of associative mining.

Sequential patterns

Data is mined to anticipate behavior patterns and trends.

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**Problems in the Criminal Justice System
Evolving Technology**

The human understanding of science improves virtually every day – and some conclusions that seemed a certainty yesterday are disproved today by new and improved scientific methods. The same has happened with forensic science. Every year we have access to better and updated information than we had the year before.

DNA technology was a major break-through in science. It proves that better and more accurate science may be just around the corner – science that may help exonerate those who are wrongfully convicted of crimes. However, DNA evidence is rarely available and is subsequently used in less than 15% of capital murder trials.

Inaccurate Forensic Science

Advances in technology, such as DNA, supersede old and outdated science – science which is believed accurate at the time when it is presented. It helps disprove unintentional scientific errors or intentional false scientific (“expert”) testimony.

Several recent cases of innocent men convicted in Montana (and later found to be innocent) were cases involving “junk science” — science or expert testimony thought to be accurate at the time and later proved to be erroneous, misleading, or flat-out wrong.

The Appeals Process

Appeals often focus on the process of what occurred during the trial, not on the question of the man’s guilt or innocence. In some death penalty cases, significant evidence of innocence has arisen late in the process – yet the court, in some cases, is barred from hearing it!

Some individuals have expressed frustration with the criminal justice system – that the process should be sped up and that executions should be faster. But given that mistakes are already occurring (given at least 124 innocent men have been convicted of capital crimes and later exonerated), it is certain that the percentage of error will go up and more – not less – innocent people will be convicted and executed in the United States if appeals are shortened and executions are sped up. Are you willing to accept even more innocent people being put to death on your behalf?

Police Abuse

Although we hope our Police use their power judiciously, misconduct can occur. Police misconduct can be as subtle as an implied threat for failing to cooperate or as overt as the beating of Rodney King. Often, the police are under great pressure to act quickly, especially when the murder victim is white, prominent, a child or a police officer.

Often, the police develop a theory of the crime and then search out evidence—and suspects—that support that theory. Then, when they arrest someone, they proceed as if the suspect is already guilty. “The mentality and the pressure are to not let the guilty guy go free,” Chief of Police Friel, of Bensalem, Pennsylvania, explains. “You block out anything that doesn’t fit... You feel you have no

obligation to bring up evidence pointing to others. Why cloud the issue?”

Objective of criminal justice system

Criminal Justice refers to the agencies of government charged with enforcing law, adjudicating crime, and correcting criminal conduct. The criminal justice system is essentially an instrument of social control; society considers some behaviors so dangerous and descriptive that it either strictly controls their occurrence or outlaws them outright. It is the job of the agencies of justice to prevent these behaviors by apprehending and punishing transgressors or deterring their future occurrence. Although society maintains other forms of social control, such as the family, school, and church they are designed to deal with moral, not legal, miss behavior. Only the criminal justice system has the power to control crime and punish criminals.

So, the main objectives of the criminal justice system can be categorized as follows:

1. To prevent the occurrence of crime.
2. To punish the transgressors and the criminals.
3. To rehabilitate the transgressors and the criminals.
4. To compensate the victims as far as possible.
5. To maintain law and order in the society.
6. To determine the offenders from committing any criminal act in the future.

Review of criminal justice system

Criminal Justice Review (CJR) is a scholarly journal dedicated to presenting a broad perspective on criminal justice issues within the domestic United States. CJR provides a forum for social scientists to report research findings for informed policy making with respect to crime and justice through innovative and advanced methodologies. The journal provides an overview of law and crime and justice within the United States. It focuses on any aspect of crime and the justice system and can feature local, state, or national concerns.

As a peer-reviewed journal, CJR encourages the submission of articles, research notes, and commentaries that focus on crime and broadly defined justice-related topics. Both qualitative and quantitative pieces are encouraged, providing that they adhere to standards of quality scholarship. CJR seeks communication among disciplines in an effort to disclose valuable scholarly materials for the purpose of knowledge enhancement. CJR welcomes criminal justice and criminology scholars to submit their research on the United States who are interested in the development and improvement of public policy on crime and the justice system, along with various other related practices.

Concept and Hypothesis of Criminal Justice System

This project seeks answers on these types of questions, through the elaboration of a (legal) theoretical account of the criminal justice system. The object of inquiry is the criminal justice system as a legal framework for the exercise of public penal power, i.e., basically the enactment and implementation of different kinds of institutionalized decisions concerning crimes and their punishment. It

is, as a starting point, taken to consist of those normative and institutional elements that formally serves or surrounds this function – such as norms concerning the punishable offences and institutions that officially respond to the violation of these norms.

The aspiration is, however, not in first place to provide an account about a specific (national) criminal justice system as an existing empirical legal phenomenon, or about similarities and differences between different specific systems. The aspiration is instead to provide an account of the nature and meaning of the criminal justice system at a more general, conceptual and principled level, i.e., an account of the criminal justice system as a (legal) concept or idea. Another thing is that also such a theory must integrate and builds upon knowledge about existing criminal justice systems, and more generally take empirical premises into account. On the basis of such knowledge, this project eventually seeks to elaborate an overall normative model, a *principled framework*, for the criminal justice system consisting of the general principles that explains and prescribes the system's needed content, i.e., its constituting elements. Basically, these principles prescribe the systems' content, by either prescribing certain elements, such as the presence of certain norms (such as norms that defines punishable offences, prescribes certain procedures or certain forms of punishment), functions or institutions (such as the function of investigation or the presence of a defense or by governing the relations among such elements (such as the relation between substance and procedure). In other words, such a normative model provides an account of the principles that should steer the different elements of a criminal justice system, and their interrelations, as a whole. It could be therefore used to understand and evaluate existing or emerging (national or transnational) structures of penal power.

Research Design Criminal Justice System

Quantitative research methods are typically concerned with measuring criminological or criminal justice reality. To understand this process several terms must first be identified. Concepts are abstract tags placed on reality that are assigned numerical values, thus making them variables. Variables are then studied to examine patterns of relation, co variation, and cause and effect. At the most basic level, there exists at least one dependent variable and one independent variable. The dependent variable is commonly referred to as the outcome variable. This is what the researcher is attempting to predict. The independent variable is commonly referred to as the predictor variable, and it is the variable that causes, determines, or precedes in time the dependent variable (Hagan). Consider the following examples.

Criminological theorists may be interested in studying the relationship between impulsivity (independent variable) and criminal behavior (dependent variable). In studying such a relationship, scholars create a summated scale of items that is designed to indirectly measure the concept of impulsivity. Then, this impulsivity scale is used to predict involvement in criminal behavior. Criminal

justice scholars may be interested in studying the effects of a mandatory arrest policy (independent variable) on future patterns of domestic violence (dependent variable). In studying such a question, scholars typically evaluate the effect of an arrest, compared to some other sanction, on the future criminal behavior of the arrestee. Thus, quantitative research methods involve a pattern of studying the relationship(s) between sets of variables to determine cause and effect.

There are a number of different quantitative research methods available to researchers, most of which fall under the rubric of a research design, which loosely can be defined as the plan or blueprint for a study that includes the who, what, where, when, why and how of an investigation (Hagan). These research methods include: survey research, experimental and quasi-experimental research, cross-sectional research, longitudinal research, time series research, and meta-analysis.

Survey Research

Serving as the most frequently used mode of observation within the social sciences, including criminology (Maxfield and Babbie), survey research involves the collection of information from a sample of individuals through their responses to questions (Schutt). Survey research is generally carried out via mail, telephone, computer, or in person.

Typically, surveys contain a combination of open- and closed-ended questions. Open-ended questions ask the respondent to provide an answer to a particular question. For example, the respondent may be asked: "What do you think is the most important problem facing residents in your neighborhood today?" Then in their own words, the respondent would provide his or her answer. On the other hand, closed-ended questions ask the respondents to select an answer from a list of choices provided. For example, the question asked above would read exactly the same only now respondents are provided with a list of options to choose from: "What do you think is the most important problem facing residents in your neighborhood today? (a) crime, (b) drugs, (c) education, (d) employment, (e) family structure, (f) poverty, (g) health care, (h) child care, (i) extracurricular activities, (j) other."

Surveys offer a number of attractive features that make them a popular method of doing research. They are versatile, efficient, inexpensive, and generalizable. At the same time, survey methods may be limited due to problems in sampling, measurement, and overall survey design. When creating a survey, researchers should take care in making sure that the items in the survey are clear and to the point.

Experimental and Quasi-Experimental Research

Many experiments contain both a pre-test and a post-test. The former test measures the dependent variable prior to the experimental intervention while the latter test measures the outcome variable after the experimental group has received the treatment. Randomization is what makes the comparison group in a true experiment a powerful approach for identifying the effects of the treatment (Schutt). Assigning groups randomly to the

experimental and comparison groups ensures that systematic bias does not affect the assignment of subjects to groups. This is important if researchers wish to generalize their findings regarding cause and effect among key variables within and across groups.

The classic experimental design is one in which there is a pre-test for both groups, an intervention for one group (i.e., the experimental group), and then a post-test for both groups. Consider the following criminal justice example. Two police precincts alike in all possible respects are chosen to participate in a study that examines fear of crime in neighborhoods. Both precincts would be pre-tested to obtain information on crime rates and citizen perceptions of crime. The experimental precinct would receive a treatment (i.e., increase in police patrols), while the comparison precinct would not receive a treatment. Then, twelve months later, both precincts would be post-tested to determine changes in crime rates and citizen perceptions.

Cross -Sectional Research

Cross-sectional designs involve studies of one group at one point in time. Therefore, they offer a quick glimpse or snapshot of the phenomena being studied. Typically, they refer to a representative sample of the group and thus allow researchers to generalize their findings (Hagan). Cross-sectional research designs permeate criminology and criminal justice research. Hirschi's famous study of causes of delinquency utilized a cross-sectional design in which he asked male respondents a series of questions related to involvement in delinquent activities and emotional ties to social bonds.

Longitudinal Research

There are two commonly used longitudinal research designs, panel and cohort studies. Both study the same group over a period of time and are generally concerned with assessing within- and between-group change. Panel studies follow the same group or sample over time, while cohort studies examine more specific populations (i.e., cohorts) as they change over time. Panel studies typically interview the same set of people at two or more periods of time. For example, the National Crime Victimization Survey (NCVS) randomly selects a certain number of households from across the United States and interviews a member from each a series of seven times at six-month intervals. Cohort studies follow individuals or specific cohorts as they change over time. One classic example of a cohort study was conducted by Marvin Wolfgang and his colleagues in Philadelphia. The authors traced the criminal records of all boys born in Philadelphia in 1945 through the age of eighteen. Similarly, Tracy, Wolfgang and Figlio tracked the criminal history of males and females born in Philadelphia in 1958.

Time-Series Designs

Time-series designs typically involve variations of multiple observations of the same group (i.e., person, city, area, etc.) over time or at successive points in time. Typically, they analyze a single variable (such as the crime rate) at successive time periods, and are especially useful for studies of the impact of new laws or social programs (Schutt).

An example of a time-series design would be to examine the murder rate in the United States over the last twenty years or to compare the murder rate of the United States and Canada over the same period of time.

An interrupted time-series design analyzes a single variable at successive time periods with measures taken prior to some form of interruption (i.e., intervention) and other observations taken after the intervention. An example of an interrupted time-series design may be found in Spelman and Eck (1987).

Meta-Analysis

A recent advent in research methodology is the use of meta-analysis. This research approach is the quantitative analysis of findings from multiple studies. At its core, meta-analysis involves researchers pulling together the results of several studies and making summary, empirical statements about some cause and effect relationship. A classic example of meta-analysis in criminology was performed by Wells and Rankin and concerned the relationship between broken homes and delinquency. After observing a series of findings showing that the broken-homes-causes-delinquency hypothesis was inconclusive, Wells and Rankin identified fifty studies that tested this hypothesis. After coding the key characteristics of the studies, such as the population sampled, age range, measures (both independent and dependent) used, the authors found that the average effect of broken homes across the studies was to increase the probability of delinquency by about 10 to 15 percent. Perhaps more importantly, they found that the different methods used across the studies accounted for much of the variation in estimating the effect of broken homes. For example, the effect of broken homes on delinquency tended to be greater in studies using official records rather than self-report surveys.

The Five Pillars of the Criminal Justice System

The Community

The Filipino community produces our law enforcers (policemen, traffic enforcers, NBI agents, PDEA agents, COA auditors, Ombudsman fact-finding investigators, etc.); prosecutors (DOJ and Ombudsman prosecutors/investigators); judges (Municipal Trial Courts, Regional Trial Courts and Sharia Courts); justices (Sandiganbayan, Court of Tax Appeals and the Supreme Court); and correction officials and personnel (municipal jails, provincial jails, city jails, the Bureau of Corrections [Muntinlupa] and other correctional facilities).

Members of the community are also the victims of crimes, direct or indirect. They are also the beneficiaries of an efficient and effective criminal justice system in the form of a peaceful and fear-free environment.

Most crimes against property (theft, robbery, etc.) are dismissed because the victim does not testify in court, especially when the stolen property is recovered.

The Law Enforcement

To this group belong policemen, National Bureau of Investigation agents, Philippine Drugs

Enforcement Agency agents, the Military, Bureau of Customs police, Bureau of Immigration officers, Bureau of Internal Revenue examiners, Commission on Audit auditors, Ombudsman fact-finding investigators, Commission on Human Rights investigators, Land Transportation Office and Traffic enforcers, etc.

They enforce the law by ensuring compliance therewith, conduct investigations to uncover commissions of crimes and violations of laws, file criminal cases before the prosecutor's (fiscal's) office (if the offender is not a government employee/official) or the Office of the Ombudsman (if the offender is a government employee/official), and testify in court if a criminal charge is lodged in Court by the prosecutor's office or the Office of the Ombudsman.

The Prosecution

They conduct preliminary investigations (if the respondent was not caught in the act of committing the crime) or inquest proceedings (if the respondent was caught in the act of committing the crime) to determine whether or not there is probable cause (reasonable ground) to prosecute the respondent in court. If they found probable cause, they lodge a criminal charge against the respondent before the court. Otherwise, they dismiss the case.

Once the criminal case is filed in court, the court issues a warrant of arrest against the accused (if he was not caught in the act of committing the crime) or commitment order (if the accused was caught in the act of committing the crime and he has not yet posted bail or the offense is non-bail able because the crime is punishable by life imprisonment, *reclusion perpetua* or death).

The Courts

To this group belongs the Municipal Trial Courts (for crimes punishable by imprisonment not exceeding six (6) years), the Shari'a Circuit Courts in the ARMM (for criminal violations of the Muslim Code), the Regional Trial Courts (for crimes punishable by imprisonment of more than six years, and appeals from the decisions of the Municipal Trial Courts), the Sandiganbayan (for crimes committed by government officials with salary grade 27 and above regardless of the penalty prescribed for the offense charged, and appeals from the decisions of the Regional Trial Court in criminal cases against government employees below salary grade 27), the Court of Appeals (for appeals from the decisions of the Regional Trial Courts in criminal cases against non-government people), and the Supreme Court (for appeals from the decisions of the Court of Appeals, Sandiganbayan and automatic review of decisions of the Regional Trial Courts and the Sandiganbayan where the penalty imposed is *reclusion perpetua* or death)

Corrections

To this group belong the various Jails (Municipal, City and Provincial Jails), the Bureau of Corrections and other correctional facilities. While the criminal case is pending in court, the accused shall be detained at the Municipal, City or Provincial Jail unless he posts a bail bond for his provisional liberty

and if the offense is bail able. After conviction, the convict will be sent to the Bureau of Corrections to serve his sentence.

Conclusion

The Law Commission has provided us with an informative and valuable report on the very important issue of child abuse in Canadian institutions. The report illustrates the Law Commission's role as an independent advisor to the Government of Canada on legal issues. The Commission's analysis is also an important resource to all levels of government as well as other public and social institutions to understand the complex issues involved, and to find effective and sensitive solutions in ongoing efforts to address child abuse.

The Commission's report provides the Government of Canada with an opportunity to take stock of where we stand in light of its overall findings. It is encouraging that the values and concerns that emerge from this study are very much in line with those of the Government. Also, it is evident that many of our programs and efforts are being directed at the real problems, and there is reason to believe that progress is being made.

A continuing priority of the Government is to improve the experience of victims of crime in the criminal justice process, also a key concern of the Commission. Over the years, we have put into place a variety of Criminal Code protections for victims that help facilitate their participation in giving testimony, make their safety a primary consideration in bail decisions, and allow them to participate in the sentencing process by submitting a victim impact statement. Recently, the Government has introduced legislation to protect victims at preliminary inquiries, undertaken consultations on better protections for children under the criminal law and in criminal proceedings, concluded an Early Childhood Development agreement with the provinces and territories, and amended the Criminal Records Act to enhance the ability of police to better explore the criminal backgrounds of dangerous persons seeking to work with children. A Policy Centre for Victim Issues has also been established to ensure that the victim's perspective is taken into account in policy development.

Suggestions

I would like to suggest that there are some things we can do to make our criminal justice system more fair, its actions less oppressive, and its results more reliable. If you ever found yourself or a loved-one in the hands of the government, you might very well wish that reforms like this were in place.

So, here are twelve suggestions for criminal justice system reforms:

1. Videotape police interrogations of suspects and child witnesses. In no other way can juries reliably judge the proper weight to give such evidence when ultimately presented in court.
2. Enforce the right to jury trial, unanimous 12 person jury, and standard of proof beyond a reasonable doubt in all criminal prosecutions.
3. End the modern role of grand juries as the government's tool of inquisition, and return them

- to their historic role of judging the government's case. Allow the witnesses to have counsel and a genuine right against self-incrimination that the government cannot get around as easily as they can now. End the long grand jury terms that keep many classes of people off grand juries.
4. Establish a parent-child privilege, similar to the husband-wife privilege that encourages children to confide in their parents without fear that their secrets will be revealed, and avoids the brutal practice of forcing children against their will to act against their parents and destroy their own families.
 5. Require that prosecutors turn over to the defense all information they and the police have about the case and the witnesses, and that they do so as soon as reasonably possible, well before trial. Require that prosecutors follow the same ethical rules as other attorneys.
 6. Abandon the practice of consistently using excuses to exclude defense evidence at trial. This would include such things as finding a defense theory "speculative" or "irrelevant." Let the defense present its theory and evidence whether the judge agrees with it or not. Allow the jury to resume its historic role of judging the justness of a possible conviction under the facts and circumstances of the case, so as to act as a check on runaway government power.
 7. Allow a defendant the right and opportunity to complain about his attorney, fire his attorney, and be permitted to get a new attorney, more than once if he feels it is necessary. Some limits on substitutions may be proper, but present practice in many jurisdictions requires the defendant to be stuck with his first lawyer no matter what, even if the lawyer doesn't take the time to investigate, or is deliberately malicious, or insists his client plead guilty when the client insists he is innocent.
 8. Reinstate the rule that on appeal, an error is not "harmless error" unless harmless beyond a reasonable doubt. Many unfair trial practices are upheld because of dubious guesswork that the error probably didn't make any difference.
 9. On appeal and habeas corpus, eliminate the whole pack of legal technicalities such as finality, time limits, deferential standards of review, etc. that require courts to refuse to hear legal claims presented by people who have been convicted. The parade of arbitrary technicalities, beginning with the U.S. Supreme Court case of *Stone v. Powell* (1976), prevent many prisoners from having their legal issues fairly considered and having justice done.
 10. End drug prohibition, which has never worked anyway, and redirect precious resources to protecting citizens against actual crime. This will also end the practice of informantism, where any crime can be excused or reduced as long as the criminal is willing to accuse someone else of involvement with drugs, which often leads to injustice. Society will not be harmed by ending prohibition as many high ranking government leaders are former drug users, and if they could be permitted to live their lives without arrest and imprisonment without serious damage to society, so can the people unlucky enough to have gotten caught. Society will gain real benefits because drug prohibition causes significant increases in crime and violence, much as alcohol prohibition did, and because violent police raids will slow to a trickle, directed only against real crime. Without the oppression of drug prohibition, youth and minorities will not be so much a constant focus for police harassment, and a violent angry youth culture will have less place to take root.
 11. Discard the legal fiction that forfeiture is not punishment, and allow forfeitures only in connection with conviction for a crime. Require the government to prove the facts, instead of requiring the citizen to prove he is innocent. Stop practice of making forfeiture victim pay large sum of money and follow complicated procedures in order to challenge forfeiture. End laws that say that innocent owners can be forced to forfeit property. By ending drug forfeitures, we will remove the major excuse and financial incentive for police to spend their evenings stopping large numbers of cars (as is routinely done in some areas), seizing money from helpless motorists (especially out-of-state motorists) for forfeitures that fund their police departments, until they find a motorist with drugs to arrest.
 12. Reverse the practice of making so many things new federal crimes. Reduce federal criminal jurisdiction to its proper constitutional scope, punishing such things as treason, counterfeiting, and piracy on the high seas, and have the states exercise general police powers. Enforce Ninth Amendment limits on government power. Maintain a federal presence that will ensure that states and localities treat people fairly and constitutionally.

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