

AGGRESSIVE RISK MANAGEMENT IN SOFTWARE RELIABILITY USING GENETIC PROGRAMMING

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Abstract: Presently a day's, in light of expanding exceptional create improvement, hazard is one of the component to do responsibility based information administrations, and it is significant actuality on programming unwavering quality being developed of items continuously programming application advancement. Customarily propose Fuzzy Logic approach for assessing programming administrations, a model utilizing delicate processing procedure like Fuzzy Logic to productively assess the product aggregative hazard in light of some of these variables with a specific end goal to limit chances in programming advancement and upgrade quality and unwavering quality of programming. As most programming undertakings have fragmented data and indeterminate relations between exertion drivers and the required improvement exertion, the grey relational analysis technique has been connected in building a formal programming exertion estimation demonstrate for this review. The GRA in the dark framework hypothesis is a critical thinking strategy that is utilized when managing comparability measures of complex relations. This paper inspects the possibilities of the product exertion estimation display by incorporating a Genetic Algorithm to the GRA. The GA strategy is embraced to locate the best attack of weights for every product exertion driver in the likeness measures.

Keywords: Fuzzy Logic Based Approach, Artificial Neural Networks, Genetic programming.

1. Introduction

The genetic programming (GP) paradigm procures the applicable framework to develop this type of search in an efficient and resourceful way, as it can

adaptable for any type of problem. So many techniques are worn for making risk analysis but where genetic programming have ease of understand, use and also a simplest way. The fundamental theme of this paper is to make risk analysis during the software development for product improvement and in addition to take care of genuine issues. While coming to the risk analysis, there are a lot of risks that occurs every now and then. A small portion of them identified with administration, specialized, budgetary, technical, legal, staff and so on. Genetic programming (GP) is a system whereby PC projects are encoded as an arrangement of qualities that are then adjusted (advanced) utilizing a developmental calculation (regularly a hereditary calculation, "GA") – it is an utilization of (for instance) hereditary calculations where the space of arrangements comprises of PC projects. The outcomes are PC programs ready to perform well in a predefined undertaking. The strategies used to encode a PC program in a counterfeit chromosome and to assess its wellness concerning the predefined undertaking are local in the GP strategy and still the subject of dynamic research.

While going to the technical sort of problems this joins the issues which are specialized like programming, less hardware and some other stuff. The significant issue dependably begins with a language like in which code must be composed and to check whether they can have the capacity to deal with code which they know about. The advance of the venture is likewise essential where an opportunity to time work must be conveyed to the venture head. It is likewise essential to arrange the required hardware amid the arranging stage when there are less of segments are hard to execute.

Ever coming with the new technologies, the genetic programming is getting a very interesting topic to make up some research and implement the new ideas. Technically, Genetic Algorithm is a phenomenon which uses a kind of parent child relationship. That means the child behavior is completely dependent on parent itself only. So, there are many problems that are faced recently and among them online bank fraud transaction is the major one which happens very frequently. So in order to solve that we use a new method of approach using genetic algorithm so there might be some reduce in the fraud transactions over the entire world.

2. Risk management in software engineering

Risk is an important factor which plays a key role during the software development. This always occurs during the stages of the lifecycle of the software engineering. It is important to overcome those risks and find a solution so that the software development process will be fastened and delivered to the customer with in the time. "Risk in itself is not bad; risk is essential to progress, and failure is often a key part of learning. But we must learn to balance the possible negative consequences of risk against the potential benefits of its associated opportunity." The risk management follows some sort of process that completes a whole process where it takes the main objectives like identifying the risks and addressing them also eliminating them can cause a successful development or may become a threat to development and leaves it more expensive.

2.1. The Risk Management Process

The process of risk management follows a sequence of step by step process that can be divided into two phases. One type of phase is called as risk assessment and the other type of phase is called as risk control. The risk assessment further extracted into some other important factors like identification, analysis, and prioritization of risks. Like that risk control also gets extracted into some factors like risk planning, risk mitigation, and risk monitoring.

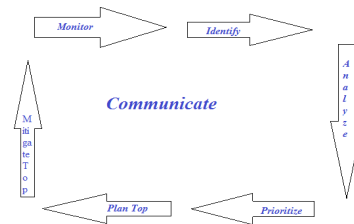


Figure 1. Cycle of the Risk Management Process

2.2. Strategies for Risk Management

There are various types of stages where the risks in the software can be identified and developed as well which can be referred as risk management strategies. The strategies of risk could be further extracted into three types of classes named as one is careful and the second class is typical and the last class is named as flexible. While coming to the careful class, it is majorly defined when there is new project given to the fresher's team who are having not much knowledge about how to manage the project and how to complete all the factors and get work done in time. The second stage is about the typical stage which describes about well-defined like having a support for project. Having knowledge about previous projects and implementing them on a new project as well can be considered as typical stage of risk management. While coming to the third stage flexible, this involves experienced candidates who did many projects before and having a tight grip on it and also tries to implement their new techniques to develop the software. Based on these three stages the risk management process is implemented.

3. Methodology

The danger is the significant certainty that influences the product cost and reliability. The figuring procedure for making danger examination is by utilizing fuzzy logic technique. This logic comprises of various numbers extend from 0 to 1 which are known as fuzzy numbers. These numbers are taken in light of the significance of danger that happens in programming improvement which is known as review of significance. Even though there are many techniques that are meant for making risk analysis the method we use here is the simplest among all the other ones. The main theme of this paper is to make risk analysis during the software development so that the product can be designed

perfectly without any errors and can be delivered within time. While coming to the risk analysis, there are a lot of risks that occurs from time to time. Some of the risks are like related to management, technical, financial, legal, personnel...etc.

The management category of risk is related to manage the project like which are related to the new trainees like fresher's and giving the project to them may lead to this risk. It's more like the new trainees may not be able to handle the project efficiently and also when there is a less coordination between the team members then the development team has to face these risks and need to find a solution to solve it immediately.

While coming to the technical kind of risks this comes along with the problems which are technical like programming, less equipment and some other stuff. The major problem always starts with a language like in which language the code has to be written and to check whether they can be able to handle the code which they are familiar with. The progress of the project is also very important where the time to time work must be delivered to the project head. It is also important to plan the required equipment during the planning stage because when there are less of components it is difficult to deliver the product. The team members must be alert at these technical type risks and must be able to solve them immediately.

Financial is the term which is related to the money based. The cost plays a major role in the development of software. Based on the type of product the cost for the equipment must be estimated during planning. This kind of risk is also called as budget risks like product having high budget but cannot able to afford and many other things which are related to this comes under budget risks respectively. The legal risks are related to the product that must be declared as legal to ensure that there would be no problem from the government side. This category include change in equipment, health issues and safety issues, also the government regulation is important. So, there are not only a few kind of risks but these risks appear from time to time and the project team must be able to handle it effectively so that the product can be completed before the deadline. Hence, in order to consider all these risks we use a concept called risk analysis. The risk analysis is done through the soft computing techniques and among them we used genetic programming computation technique.

4. Proposed system

There are many research methods and tools for experiments which are having quality and also the non-experimental factors are essential in research. The quality is limited when we do not use the combination of two types of method. The basic elements of Genetic Programming approach is to combine into an isolated design to undertake as a combined method. The way of the combined procedures might be different at the type of the elements of approaches of genetic programming are meshed together. The main point of using these methods is to find the corresponding evidence from different kinds of methods.

4.1 Strategies of Integration

There exist four types of strategies for the combination of Genetic Programming approach. Those are stated as follows, Data Transmission, Typology Development, Extreme Case Analysis, and Data Consolidation.

Data transmission

When some data is transmitted from one format to another format for analysis is considered as data transmission.

Typology Development

The data is classified form one type of set is applied to another type of set is reviewed as typology development.

Extreme Case Analysis

The third parties are exposed to view by one type of analysis and exploring with other methodologies is considered as extreme case analysis.

Data Consolidation

The creation of variables which are meant for further purpose of making research is considered as data consolidation.

4.2 Two Routes towards the Integration in the Analysis

Let us examine in the view of data handling, there are two types of routes to the integration which makes different kinds of strategies and they are like [1] Combining all the data types with in the analysis, are used for the main theme of making analysis statistically as well as comparing the coded material. This might occurs majorly by the

combining the both numerical data also with textual data.

[2] The conversion of data from one format to other format for making analysis. The conversion between the qualitative codes to other codes is mainly used in the statistical analysis by the contributing the qualitative analysis.

4.2.1 Combination of Numerical Data with Text Data for Fraud Detection Analysis

The data management is the combination of different formats of data along with their procedures for functioning. The main intent of text handling spreadsheets and databases has advertised some solutions to the problems that occur due to lack in data management, and they opened up some of the new possibilities to have the deep rooted analysis on this data. They were not able to solve the conceptual issue temporarily which arises when different formats of data were eventually combined.

5. Output

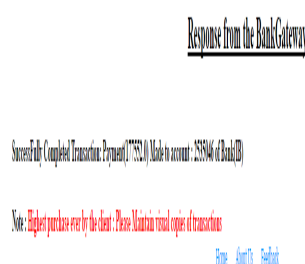


Figure 2. Response when the customer made high transaction

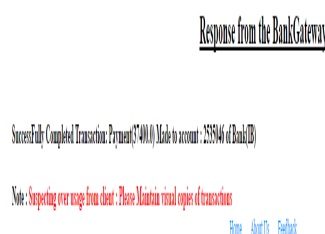


Figure 3. Normal transactions made by client

6. Acknowledgement

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integrity by using the concepts of confidentiality and authentication during the transmission of messages.

7. Conclusion

Until today, there is a lot of research is going based on many soft computing techniques and the analysis that was made on the research was made very noticeable to the researchers. Genetic Programming is the one that is having major research to implement more ideas in software development. The future work can be possessed for further more research on genetic algorithm. For present, this mode of algorithm is used to solve the real world problems and get rid of them.

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