



A Conceptual Modeling Framework to Measure the Effectiveness using ML in Business Analytics

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Abstract: *The purpose of this article is to introduce price analytics as a tool for business. Improving outcomes using supervised machine learning for find solutions to the challenges of determining appropriate pricing for a variety of goods and shopping for goods at the best possible price. Important and necessary important to do research on business analytics many factors, dimensions, and methods for enhancing productivity of business processes, managerial effectiveness, and decision making to get an edge in the market. The use of Machine Learning in the workplace can improve results in allowing us to make prompt, informed judgments based on the data we've stored knowledge. Methods such as supervised learning are used to achievement in business, both qualitatively and quantitatively, by the entrepreneur. In this step, we accomplish this after determining the optimal pricing and distributing it. Instantly update the costs of anything in stock. Because of this, it's possible that the operational effectiveness and efficiency by the highest possible profit, the rate of all of the bookkeeping work and determining the best possible pricing to reach the goal set by the business owners. To summarize, it may be argued that Because of the incredibly competitive corporate environment, cutting-edge scientific research is needed. In particular machine learning technologies with the rise of supervised learning, data mining methods, and corporate optimization of prices in a corporate setting using analytics essential, number one, must-have, etc. Machine learning with an instructor is called supervised learning. By entering the system's recommendations on what to do and what not to do the right values for the variables to get the expected outcome. Some of the many facets of in the corporate world, including domains, orientations, and methodologies..*

Keywords: Machine Learning

I. INTRODUCTION

In today's cutthroat corporate environment, competition is fierce. Rivalry between its own subsets. The key to commercial success is we need to strengthen our strategic, tactical, and Methods by using AI, data mining, and other using analytics in business to find answers to difficult questions. Machine Learning is a technique for automating data analysis.

The process of creating an analytical model. AI is a subfield of computer science. Which educates the computer to draw conclusions from its own data and make judgments with little to no human input. Machine learning with human supervision is known as supervised machine learning. Method for accomplishing a goal or duty. Data analysis in business Gathering, organizing, processing, and analyzing data information for commercial purposes, employing statistical models and iterative techniques for converting information into useful business knowledge Therefore, it's easier to make sound choices. As a result, our team has created an algorithm for optimal pricing employing method of machine learning that is overseen by humans. Multiple factors variables that can be controlled and ones that can only Price optimization using regulated factors

Definition of Independent Variable symbolically stands for a variable being adjusted in an experiment. Quantity that is the focus of study is known as a dependent variable.



Whose worth is contingent on certain kinds of manipulation and command a variable is a factor that remains unchanged or under the control of a test, a trial, a trial run. Variables used in cost-benefit analyses and price optimization include price compared to competitors, cost-based pricing, value-based pricing, interest rate, starting cost price, markdowns, MRP, incentives, and a best-case scenario the asking price, and the need for a return on investment. Different approaches to pricing optimization Machine learning, data mining, and related areas of mathematics in addition to the use of statistical methods. The use of the business analysis outcomes from pricing optimization, sales figures, Companies, distributors, suppliers, etc., can benefit from optimization revenue and long-term viability for your company. In essence, the important price the optimal pricing for goods, services, and experiences was determined using an optimization process. The company's end goal. They'll flock to you if you do this. To put their money into the businesses and help they flourish towards achieving corporate goals for stability. It is also crucial that choose the most appropriate goal, such how much is the optimal cost, and merchandise, in light of the present level of price competition in the market; what is the optimal selling price in order to maximize profit? Selling in less than a year; time periods of any length. You may achieve this through pricing. pricing analysis for cost cutting and profit maximization calculating supply and demand for certain goods based on past market trends and seasonality. Therefore cost Optimizing business analytics can lead to improved choice making about optimal product pricing while keeping up with supply and demand in a seasonal market.

New computing paradigms, such as ambient, ubiquitous, and pervasive computing, have become a reality because to advancements in computers, sensors, and communication technologies. These models intertwine computer [1] Systems that seamlessly integrate into people's homes and adapt to their lifestyles are ideal. The significance of context in essentially, these contexts may be thought of as the materialization of the surroundings, or the conditions in which one is placed conditions within which a system can function [2]. The power of context requirements and system versions can take use of to fulfil its needs. Additionally, the importance of context, which, under these frameworks, asks for some flexibility to develop novel strategies for designing adaptive systems, Adapting to new circumstances. The RE has advocated a goal-oriented approach to analysis. Literature in order to capture the software's goal necessities [3]. Objectives are a convenient symbol for encapsulating the hopes and fears of many parties involved. Provide an easy-to-use interface for gathering and analyzing user needs. This shifting context has a substantial bearing on the efficacy of any given aim. A stakeholder's present objectives and the various in order to make them happy.

II. LITERATURE SURVEY

ML is a body of norms that programmers follow to improve their own performance. To gain knowledge through seeing and interacting with real-world situations [1]. Some researchers claimed that AI programmers may competently in a certain context. In addition, it is capable of a wide range of uses.

Analysis in business of an example of machine learning is Intelligence simulation software.

As a result, fewer people will be needed to accomplish the same amount of labor, which is both good for the economy and as we deal with the issues. Invoking the might of Shakti and company. Explained at [3] learning under supervision, in which cases examples are provided with known

if there are labels for the proper outputs, the learning supervisory system. The four distinct categories of supervised learning, unsupervised learning, and other forms of machine learning

And Reinforcement Learning (RL). Algorithms are given in supervised machine learning.

Using a certain group of inputs to produce a specific set of results. In order for an algorithm to learn, it must see labelled samples of machine learning, inputs and outputs are used to find a generic function that maps inputs to the desired outputs [6]. Using the labelled samples provided, an algorithm is able to learn.

Contrast to when an algorithm is just partially supervised in machine learning, uses a dataset that has both labelled and unlabeled data to learn data without labels, when the expected result is typically absent. The process of teaching a computer to learn based on previous experimental data, automatically.

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Provide an easy-to-use interface for gathering and analyzing user needs. This shifting context has a substantial bearing on the efficacy of any given aim. a stakeholder's present objectives and the various in order to make them happy. Let's take a tour as an example. a guide whose primary purpose is to aid vacationers while on a prearranged trip. A tourist has not "now it's time for lunch" triggers the discover a restaurant" is the intended purpose of this guide, and if tourist is a vegetarian" applicable, the manual needs to locate a cafe that has vegetarian options. To be effective, a tour guide assistance system must be tailored to the needs of individual tour guides, taking into account their specific objectives, justifications, and abilities.

Change one's behavior based on the circumstances. The following is a preliminary contemplation.

Such that helpful features, including Putting up a list of nearby eateries that provide meal that is suitable for vegetarians.

III. BUSINESS ANALYTICS

Analytical tools for businesses tools and methods for doing statistical analysis so as to boost financial results using evidence-based decision-making. Among the most crucial tools in any important components of a thriving enterprise.

For example, one of the crucial

Critical in determining a company's financial performance. Optimization. The use of a business analytics approach in Price optimization decisions must be made for enhanced efficiency. AAAC, Inc., Advanced Analytical Consulting According to [4], while calculating prices, experts use "factual, scientific techniques for cost determination. The three key areas of interest in business analytics are the domain, the direction, and the method [5]. Domains and sub domains are categories of information, such as: Management, business, human resources, advertising, and optimization management, operations, supply chain, and organization behavior the system, the information system, the financial system, etc. Orientation to think in a certain dimension.

IV CONTEXTUAL GOAL MODEL

The goal-oriented framework is flexible enough to accommodate a wide range of outcomes. The each of these variations may have different uses depending on the circumstances. Clarification of when and where each such variation permits, among other things,

For the methodical generation of variations applicable to different settings. Goal model variations are enumerated, and distinct context specification for each of them. This is obviously a difficult and time-consuming process due to a huge number of possible variations and the inherent complexity of each version when considered together. To In order to avoid enumerating the possible permutations, we suggest defining goal-model-specific context for a group of variation points.

4.1 Or-decomposition

To what extent may a secondary objective or An Or-decomposition may find that a certain subtask needs a reasonable setting? Such as, for the sake of enlightenment

In order to learn more about a certain artwork, a guest can go to as singular terminal Nonetheless, the terminal must be close by and accessible, while also being user-friendly to the guest. terminus (C4) (C4). As an alternative, the guest might use his or her own digital assistant to be utilised to communicate meaning when the work in question

Educating oneself about art is not difficult, and neither is the possessing the aptitude and familiarity with PDAs (C5). In order to receive information from a member of the aid staff, a visitor must either not be able to use a personal digital assistant (PDA) or be conversant with terminals. in the capacity of a very special guest (C6). Telling a museum employees by means of a recorded message delivered through his If a room does not have speakers, they can be installed.

infuse the information with audio artistic elements (C11). Team members at the museum

can deliver information through a call to visitors when The personal digital assistants of both employees and guests are free (C15)



4.4 Actors Dependency

Achieving a target, or failing to do so, is a viable outcome for any given actor get anything done by passing it off to someone else, but only under certain conditions. Take, for instance, the reliance depicted in Fig. The availability of a staff person who is fluent in the guest's language and has a thorough understanding enough babbling about the artwork (C10).

Variation point	Visual syntax	Semantics
Root goal activation		Let G be a root goal. G is activated iff context C_i holds.
OR-Decomposition		Goal G_i (task T_i) can be achieved (executed) via G_j (T_j) iff context C_i holds.
AND-Decomposition		The achievement of goal G_i (the execution of task T_i) requires goal G_j (task T_j) iff context C_i holds.
Means-end decomposition		Goal G_i can be achieved via task T_j iff context C_i holds.
Actor dependency		Actor A can achieve goal G_i (execute task T_i) via delegation to actor B iff context C_i holds.
Contribution to soft-goals		Goal G_i (task T_i) contributes positively to softgoal SG_j iff context C_i holds. It contributes negatively iff context C_j holds.

Table 1 Semantics for the contextual variation points.

4.5 And-decomposition

An And decomposition's subgoal or subtask may (not) be necessary depending on the situation; in other words, certain sub goals or subtasks may not be applicable in all cases.

Constantly required in order to accomplish the ultimate objective when using an And-decomposition One example of a subgoal is the phrase "guest learns about a work of art" must be achieved if the museum goer is still in the gallery proper and shows interest in the artwork (C1).

The erm "context" is used throughout the rest of the work."Conjunction of contexts at the variation points of the first five goals of a goal model variant" to denote the first five goals that have a common context kinds. Specifically, this is true if the goal model variation in question implying that the variety in question is relevant. Each version of the goal model is judged based on its performance in the context of the contributions to soft goals. The Museum Guide Objective Model and its Variant in relation to the relevant setting.

V. CONTEXT ANALYSIS

Context may need to be studied in the same way that objectives do. On Objective analysis, on the one hand, provides a methodical to learn about the paths an actor might take to get a desired result. Alternatively, a methodical approach to finding out what's going on can be achieved through context analysis. there are a variety of types of evidence an actor might check to determine ifin this sense, a context is necessary.



Code 1 EBNF grammar for world predicates formulae
Formula :- World_Predicate | (Formula) | Formula AND Formula
| Formula OR Formula

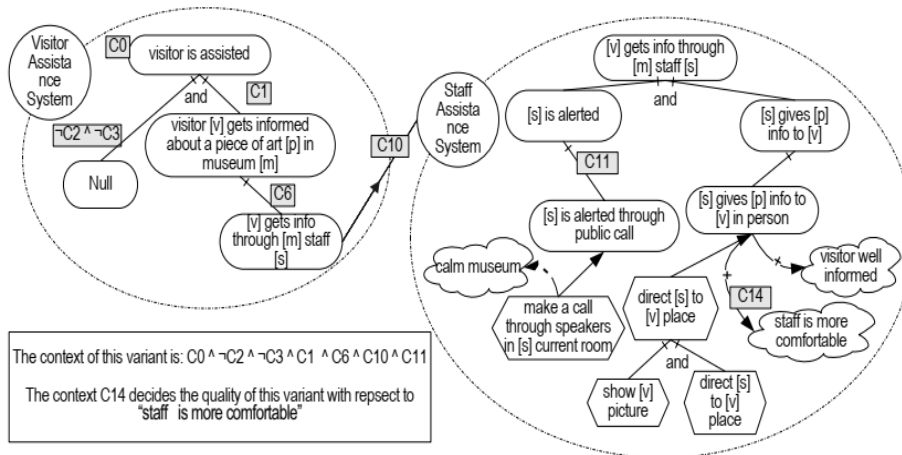


Figure 2a: variant of the museum-guide goal model and its context.

A performer has a straightforward means of confirming information. There are the Potential to collect the relevant information and calculate meaning or significance of a fact. A fact is not up for debate. What this means is that when a truth is true for an actor, that others will find the same to be true. A few examples of world predicates are "visitor is in the same room as a piece" and "visitor is in the same room as a the arts", "the guest is on the same level and corridor as the artwork" are data points off of which the museum guide database may infer probabilities. The location of the visitor, which may be determined using a the topology of the museum and the location system

How AI and ML Can Drive Better Business Outcomes

Artificial intelligence (AI) and machine learning (ML) are two of the most promising new technologies with applications ranging from high-level data analytics to driverless cars. Technology like this is also assisting businesses in making the most of the vast quantities of data they collect every day. Every business has to deal with huge troves of corporate data and is beginning to understand the immense potential hidden inside those records.

The most cutting-edge uses of AI and ML have the potential to utterly transform business as we know it. Using AI and ML, businesses can make sense of vast volumes of data, both organised and unstructured, leading to more informed business choices and better results.

"Data analytics evolves into full-fledged data science if you introduce machine learning. Lots of businesses are currently located there. Myles Brown, a Senior Cloud and DevOps Advisor at ExitCertified, claims that after 10 years of data collection, the company has only used it to find answers to queries they already knew the answers to. "Now there's a whole academic field based on the idea that we have no idea how much we don't know. We will search for commonalities, and in doing so, we may uncover facts we had not previously considered.

According to McKinsey, an organisation that studies the business world, 82% of businesses who embrace ML and AI get a financial return on their investments. In addition, the study found that 23% of North American businesses are now using ML to power at least one internal process.

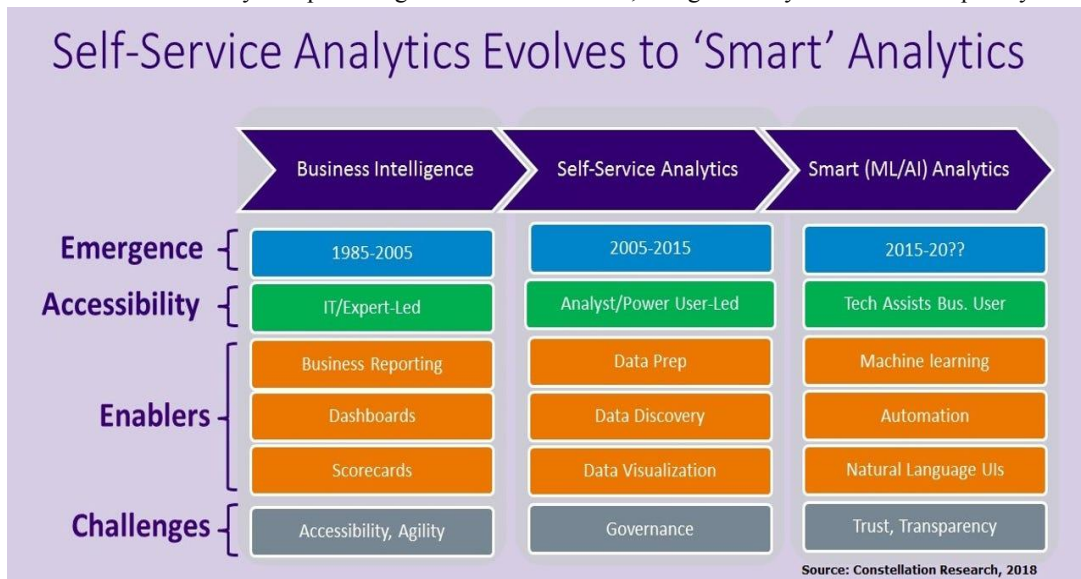
Without a doubt, artificial intelligence (AI) and machine learning (ML) are propelling this next generation of data analytics with the end goal of bettering company outcomes. Value from companies' internal data repositories has recently reached new heights. "With the new tools at our disposal, it amounts to a gamble against progress. Brown adds, "I don't know what I'm going to want to do with this in the future, so I'm going to cling onto it." This is where



analytics on data may help. Looking back at previous events is the most effective method for predicting the future. The time has come to analyses this information and discover any hidden patterns.

Many ML tools are hosted in the cloud because analytics projects like these delve into vast volumes of data. Every major vendor adds something unique to ML, both in terms of capabilities and complexity. "Consider the services offered by Amazon and Microsoft Azure. Brown comments, "They both say we'll give you three levels of ML. They have already trained the model, so all they need to do is assist you comprehend it and make it easier to grasp.

Google doesn't have the biggest market share, but it does offer excellent analytics. The Google cloud is the place to be if you're interested ML or AI, adds Brown. This is a common refrain we hear from businesses who have amassed a large amount of data but have yet to put it to good use. Furthermore, Google's analytic tools are frequently chosen.



Language Machine Learning: Pros and Cons:

Pros:

1. Easily identifies trends and patterns
2. No human intervention needed (automation)
3. Handling multi-dimensional and multi-variety data

Cons:

1. Data Acquisition
2. Time and Resources
3. High error-susceptibility

VI. CONCLUSION

In this study, we present a goal-oriented structure for modelling and assessing needs across different settings. We augmented the pos goal model to account for the connection between goal attainment and environmental factors. Consequently, context is established hierarchy-based evaluation. According to the results of the context analysis, a methodical approach to determining what information the system check to make sure an analyzed setting is accurate.

With the expanded goal model now formally defined, we have created two reasoning methods to support it. This first method provides a means through which variances in needs can be derived with regard to emphasis on context and user needs. This line of thinking isa tool used during execution for picking which variation to utilize aim model alternatives that may be used in the system. The second method is used to determine the bare minimum of work that must be done to get an outcome.The method of facilitating the achievement of user objectives under all relevant conditions.

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