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Start-up profit Prediction

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Abstract: More institutions, governments, and private organizations are investing in and encouraging people to use these firms to explore their ideas. Companies are easily raising millions of dollars and achieving unicorn status in just a few years. There is a dearth of systematic empirical data on entrepreneurship enthusiasm. As a result, the purpose of this research was to look at the link between entrepreneurial enthusiasm, entrepreneurial orientation, and perceived performance. We give our system a single database with R&D, Administration, Marketing, and State as inputs, and we use the DNN algorithm to generate profit.

Keywords: Start-up, Deep neural network (DNN);

I. INTRODUCTION

The purpose of this subsection is to clarify how key concepts are employed throughout the text. These concepts are further discussed in chapter.
Start-up: Start-ups and scale ups are sometimes mentioned indifferently. Both start-ups and scale ups are subjects of study in this research. To avoid excessive repetition, these may also be referred to as companies, organizations, entities, subject of study, and so forth.
Predictor: the independent variables of this research are primarily discussed as predictors. To avoid repetition, these may also be referred to as factors or simply independent variables.
Criteria: the dependent variables of this research are primarily discussed as criteria. To avoid repetition, these may also be referred to as measures of success, success metrics, or simply dependent variables.
Success: in this research, success is defined as a dichotomous variable. A start-up is classified as successful or not successful depending on the dependent variable used.

II. MOTIVATION

Start-ups aim to be disrupters .The definition of success is relative. Success can occur at different levels, from simply surviving to being a unicorn. World-class, radical innovators, game-changers, and so forth. Hackneyed words that may sound appealing to the common, not to the experienced investors. For them, predicting start-up success is a science; some rely on numbers to assess worthiness; some judge from more qualitative attributes. Most of the quantitative studies that predict start-up's success rely on hard data that is available in business databases. In this study we go beyond those approaches by exploring a broader selection of variables. A total of thirty-seven variables obtained from thorough desk research and discussions with knowledgeable actors are explored as candidates of start-up success. Nowadays, social media has become a powerful tool for advertising. The internet, social media, mobile apps, and other digital devices have become part of daily lives for majority of population all over the world. Recent statistics have indicated that the most popular social network is Facebook, with over 2.7 billion monthly active users as of the second quarter of 2020 [10].

II. LITERATURE SURVEY

Qian Gao et.al[1] This study builds a supply chain network model based on a comparison of old and modern supply chains to address issues such as inadequate communication, uncirculated information, and imbalanced supply and demand. In businesses After three algorithms and three commodities forecasting models have been developed, In comparison, a model incorporating network neural commodity demand prediction was used. The particle swarm optimization (PSO) algorithm and the approach are used to comprehensively .Using the supply chain; assess the predictive effect and algorithm performance.

Greg Ross et.al[2] This paper develops a ML model called CapitalVX to predict the outcomes for start-ups, such as whether they will succeed through an IPO or acquisition, fail, or remain private, using a big data set of venture capital financing and related start-up firms from Crunch base. The out-of-sample accuracy of forecasts on start-up results and

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follow-on investment is 80-89 percent when using a large feature collection. According to the findings, VC/PE firms could profit from employing machine learning to assess possible investments based on publicly available data, freeing up time to mentor and monitor the investments they make.

Dr. Daniel Cockayne et.al[3] From a methodological and epistemological standpoint, this study investigates the process of determining the parameters of economic geography research. I'm curious as to what this signifies. While it is true that identifying research parameters is challenging, it is equally true that specifying them precisely is tough. In an endeavor to maintain complexity and nuance, research may be counterproductive.

Sue McNamara et.al[4] The authors present an innovative instructional strategy to teaching organizational behavior that is based on Kolb's experiential and problem-based learning paradigm. The sample class is scaffold over the course of the semester by having student teams construct and maintain an authentic simulated start-up business while also engaging in ongoing reflection.

PETR HAJEK et.al[5] To optimize the predicted port of backorder decisions, they propose a machine learning model using an under sampling technique. This is accomplished by including the proposed port-based metric into the prediction model and adjusting the decision threshold to find the best backorder method. We show that the suggested inventory backorder prediction model outperforms state-of-the-art machine learning methods for big unbalanced data in terms of prediction and port function.

Richard Florida et.al[6] High-tech businesses, entrepreneurial start-ups, and venture capital have all been found to cluster across metropolitan areas in previous studies. This study explores three hypotheses about the clustering of innovation, entrepreneurship, and high-tech industry based on extensive ZIP code data on start-up activity and venture capital investment:(1) that start-up activity and venture capital investment will cluster inside metro areas into discrete micro clusters; (2)that dense metropolitan districts or ZIP codes will see a significant amount of start-up activity and venture capital funding(3) that start-up clustering and venture capital funding will differ by industry or type of technology.

Sang Hoon Jung et.al[7] For start-up businesses, social media marketing is a crucial and important instrument that may help them overcome marketing limits with ease and minimal expenses. Predicting a start-social up's media engagement level can help them assess the efficiency of their social media marketing activities and provide a number of advantages in terms of strategic marketing. The goal of this research is to provide a methodology that incorporates data science procedures with machine learning models to account for the continuous progress of business intelligence approaches.

JAVIER ARROYO et.al[8] Machine learning data-driven technologies, which are already used in the hedge fund sector, can close this gap. Because data from thousands of companies throughout the world is now available through platforms like Crunch base, these approaches are now possible. Previous academic studies have only used one or a few subsets of explanatory variables to predict two types of exits: being purchased by another company and issuing shares to the public. These occurrences are usually associated with large returns, but also higher risk, making it difficult for a venture fund to achieve recurring and sustainable returns.

Dominik Dellermann et.al[9] Validating a business model is one of the most important responsibilities for entrepreneurs. As a result, entrepreneurs endeavour to get information from other actors, such as feedback, to analyze the validity of their beliefs and make judgments. Previous work on decisional guidance for business model validation, on the other hand, does not provide a solution for the highly uncertain and complicated environment of early-stage businesses. The goal of this work is to create design concepts for a Hybrid Intelligence decision support system (HI-DSS) that blends human and machine intelligence capabilities. To create a prototype artefact and a set of design principles, we used a design science research technique. Our research contributes to prior work on decision assistance for business models and provides prescriptive information for HI-DSS.

Ramanjaneya Reddy M et.al [10] Social computing entails using online social media technologies like Facebook, Twitter, YouTube, and LinkedIn to reach out to customers in novel ways. Businesses of all kinds are using social media to reach out to a new audience and strengthen relationships with existing consumers. When launching a new business, the main concerns are coming up with a product or service offering, finding first consumers, forming partnerships to help the firm grow faster, and making sure the company has enough money to survive. The question is whether social networking can help a firm get off the ground.

IV. PROBLEM STATEMENT

Predicting the success of start-up enterprises is critical for both entrepreneurs and investors. Due to a lack of relevant data

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and acceptable general methodologies, it is challenging. DNN algorithms can anticipate the future. For both start-up companies and venture capital (VC) firms, predicting the future success of start-ups is critical. Predicting the future development of themselves and their competitors can help start-up organizations alter their development strategy and effectively grab opportunities.

V. PROPOSED SYSTEM

The proposed system consists of two phases: training and testing, which when combined produce a benefit for any firm. Database, data preprocessing, and DNN classifier are all part of the training step. Fill out the form and prepare it for testing. In order to get results, both the training and testing phases are critical. As everyone knows, business is the industry that will provide us with life-changing opportunities to safeguard our future. Our proposed approach is built for start-up prediction.

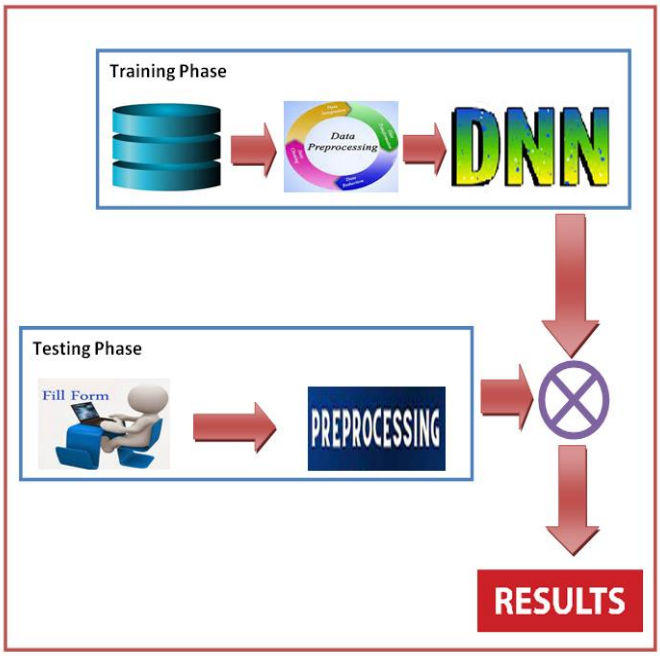

Figure 5.1: System Architecture

We developed our system for predicting start-up in today's generation because young men will prefer to go into business. So, we use database as an input, and database data contains R&D, Administration, Marketing, and the present state of the firm. Using these requirements, we produce profit. We can collect data from users and our system will generate output based on that data, thus it's mostly used by businesses, and any new start-up will benefit from it.

We will provide input in the form of a database, which will be processed using preprocessing, or the user will provide input in the form of R&D, Administration, Marketing, and the state in which the user wishes to invest, and we will preprocess that data using preprocessing, after which we will use the DNN classifier. DNN classifier has 70% training data and 30% testing data. Based on the data or input, DNN classifier returns a profit. As study subjects, start-ups benefit from this research in a variety of ways. Most significantly, certain start-up entrepreneurs will receive a summary of the findings as research participants. Founders of start-ups can learn what the literature and informed ecosystem actors believe are the most important predictors of start-up success. They can also determine which factors are the most essential, as determined by the predictive model. Start-up founders will be able to analyses the links between success factors and criteria.

DNN

Deep learning is a type of machine learning that uses artificial neural networks and representation learning to learn. There are three types of learning: supervised, semi-supervised, and unsupervised.

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Deep-learning architectures such as deep neural networks, deep belief networks, deep reinforcement learning, recurrent neural networks, and convolutional neural networks have been used in fields such as computer vision, speech recognition, natural language processing, machine translation, bioinformatics, drug design, medical image analysis, climate science, material inspection, and board game programmers, producing results that are comparable to, and in some cases superior to, traditional methods.

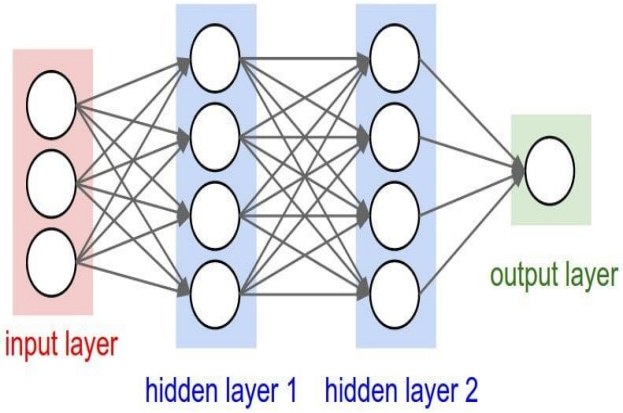

Figure 5.2: Deep Learning

An artificialDeep neural network (or simply neural network) has an input layer of neurons (or nodes, units), one or two hidden layers of neurons (or even three), and a final layer of output neurons. A neural network is made up of layers that are connected. The inputs constitute the first layer, and an acyclic graph of weighted edges and nodes connects them to an output layer. Multiple hidden layers can be inserted between the input and output layers. The majority of predictive tasks can be completed with just one or a few hidden layers. Recent research has demonstrated, however, that DNNs with several layers can be quite effective in complicated tasks like picture or speech recognition. Increasing levels of semantic depth are represented by consecutive layers. The neural network is trained on the input data to learn the link between inputs and outputs. The graph's direction is from the inputs to the hidden layer and then to the output layer. The weighted edges connect all nodes in one layer to nodes in the next layer. A value is calculated at each node in the hidden layers and the output layer to compute the network's output for a specific input. The weighted total of the node values from the preceding layer is used to determine the value. The weighted total is then subjected to an activation function.

VI. RESULTS AND DISCUSSIONS

First is the home page of our system then go to registration page and for registration fill the form and submit. System will ask about parameters as an input, and database data contains R&D, Administration, Marketing, and the present state of the firm. Using these requirements, we produce profit. We can collect data from users and our system will generate output based on that data using DNN.

Step I: Home Page

This is Home Page of our System.

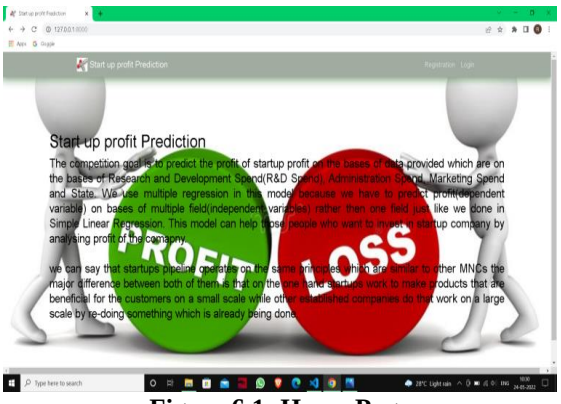

Figure 6.1: Home Page

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Step II: Registration Form

Register to our system to fill given information to be part of our system.

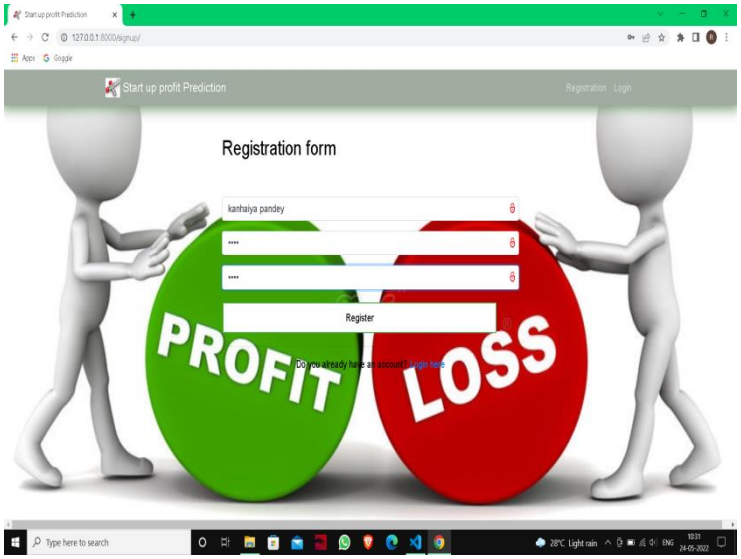

Figure 6.2: Registration Page

Step III: Provide Parameter

User can give the parameter to the system as R&D, Administration, Marketing, and the present state of the firm.

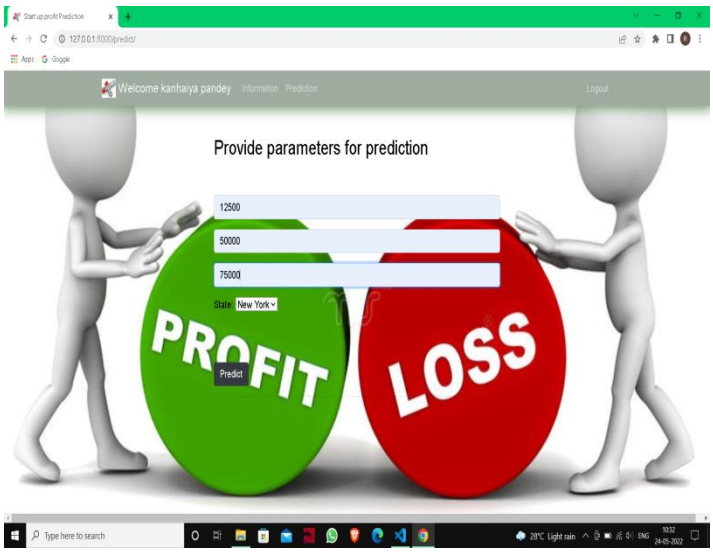

Figure 6.3: Provide Parameter

Step IV: Predicated Results

System will give input and predicate the output as profit using DNN algorithm.

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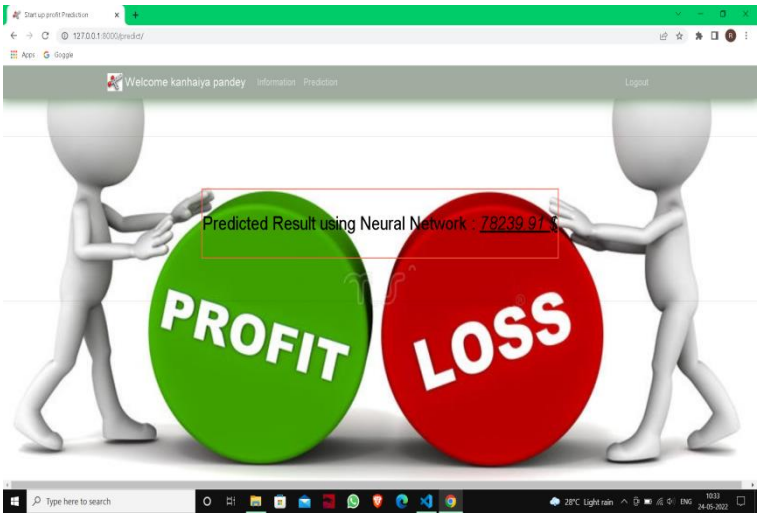

Figure 4: Predicated Results

VII. CONCLUSION

In this project, we study the system for start-up predication for business to know the idea of profit to businessman so that any user wants to know about business profit he/she will use this application for future use. The users have thought about investing and according to that he/she would invest money for business. Our goal is to assist start-up people who are looking for some investment and profit ideas so that they can make a suitable strategy for the future and know how much money their firm will make. To forecast start-up profit, we employ a DNN classifier. After a period of qualitative study includes getting to know the founders and business, start-up investors typically do their own financial examination of possible target companies. DNN algorithms can provide real-time exit predictions as well as a feature analysis that identifies features of a firm that make it a smart investment on the other hand, it could raise red flags.

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