Dayananda Sagar University
Department of Computer Science & Engineering
School of Engineering
Dayananda Sagar University
Kudlu Gate, Bangalore - 560068

Major Project Report (Phase - 1)

on

Software Effort Estimation Using Machine Learning Techniques

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Submitted by:

B P Gayathri Ananya (ENG17CS0047)
Bharat Nilam (ENG17CS0050)
Chirag P D (ENG17CS0059)

Under the guidance of
Dr. Shyamsundar Pandeya

Dayananda Sagar University

School of Engineering, Kudlu Gate, Bangalore - 560068

CERTIFICATE

This is to certify that B P Gayathri Ananya, Bharat Nilam and Chirag P D bearing USNs ENG17CS0047, ENG17CS0050 and ENG17CS0059 has satisfactorily completed his/her Major Project (Phase - 1) as prescribed by the University for the 7th Semester B.Tech programme in Computer Science & Engineering for the Major Project (16CS481) course during the year 2020 at the School of Engineering, Dayananda Sagar University, Bangalore.

Date: Signature of Supervisor

Max Marks	Marks Obtained

Signature of Chairman
Department of Computer Science & Engineering

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B P Gayathri Ananya (ENG17CS0047)
Bharat Nilam (ENG17CS0050)
Chirag P D (ENG17CS0059)

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Abstract

In software engineering, the main aim is to develop a high-quality project that fall within scheduled time and budget, this procedure is called effort estimation. Effort estimation is crucial and important for a company to do because hiring more people than needed will lead to loss of income, and hiring less people than needed will lead to delay of project delivery. The aim of this study is to estimate software effort objectively by using machine learning techniques instead of subjective and time-consuming estimation methods. We would be using decision tree. We are using the boosting algorithm to increase the accuracy level of our ensemble model which is a combination of SVM, decision tree and GLM, ensemble learning will be tried on two public datasets namely Desharnais and Maxwell.

1 Introduction

Successful project is that the system is delivered on time and within budget and with the required quality.

In software development, effort estimation is the process of predicting the most realistic amount of effort (expressed in terms of person-hours or money) required to develop or maintain software based on incomplete, uncertain and noisy input.

Software researchers and practitioners have been addressing the problems of effort estimation for software development projects since at least the 1960s.

Most of the research has focused on the construction of formal software effort estimation models. The early models were typically based on regression analysis or mathematically derived from theories from other domains. Since then a high number of model building approaches have been evaluated, such as approaches founded on case-based reasoning, classification and regression trees, neural networks, genetic programming etc.

The most common estimation methods today are the parametric estimation models COCOMO, SEER-SEM and SLIM.

The product/software effort/cost-estimation techniques are applied to predict the effort required to finish the project. An incorrect estimation leads to increase in deadline and budget of the project which may further consequence to failure of the project.

Effort estimation is crucial and important for a company to do because hiring more people than needed will lead to loss of income, and hiring less people than needed will lead to delay of project delivery.

The estimation models and techniques are used in different phases of software engineering like budgeting, risk analysis, planning, etc.

2 Problem Statement

Develop an effective effort estimation model achieving best possible accuracy level, optimizing software projects by estimating efforts for the same using machine learning techniques.