



# Automated Software Cost and Effort Estimation System

## Final Year Project Documentation

Submitted by

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## Abstract

Cost and effort estimation is a critical part of any major project. A wrong estimate can lead to a catastrophic failure. According to a survey, over 60% of all software projects fail to complete within their estimated cost and time budget. On top of that, our methods for calculating the cost and effort of a software project are not very accurate. Most of the organizations make project managers calculate the current project's cost and effort by comparing it to a similar project they have completed before. This method is flawed since it assumes that the features of the project are exactly the same as the features of the previous projects. This is obviously not true as different projects have different features that are driven from their scope, industry, and other factors. We aspire to develop a system that can introduce new and far better solutions to the problem of cost and effort estimation. Our system will provide many ways of estimating effort including custom machine learning techniques, traditional mathematical methods as well as providing a platform to make manual estimations and discussion between experts and managers, easier and seamless.

## Dedication

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## Acknowledgements

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## 1 Introduction

# Introduction to Problem

### Abstract

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### Outline

- Introduction
- Purpose
- Objectives
- Existing Solutions
- Proposed Solution
- Novelty
- Executive Summary

## 1.1 Introduction

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## 1.2 Purpose

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## 1.3 Objective

Following are the most important objectives of the project.

- Improve the accuracy of software cost and effort estimation techniques.
- Get upto 50% of software development organizations to swtich to automated software cost and effort estimation techniques.
- Get managers to switch to our product by automating their current estimation workflows and then integrating our specialized techniques with their existing workflows.
- Making our product compatible with most of today’s tredning programming languages and their popular frameworks.
- Making our product relevant among the software development organizations and get 20 large software development organizations and/or 50 medium scale organizations to switch to our product by the end of 2023. And to integrate our product with their existing management routines.

## 1.4 Existing Solutions

There are a few existing solutions in this problem space. Some of them are now not maintained and are deprecated. Following is a list of similar projects

- **SEER For Software**  
SEER is a general purpose estimation tool that also has a product for software projects’ estimation. It accepts input in form of SLOC (Source lines of code), function points, use cases and some more less popular options. After processing these inputs using proprietary models, the output of the program is as follows: Project time duration, development hours and accuracy of estimations.
- **TruePlanning ®**  
This product is calculates its estimates using the PRICE model. Developed in 1975, TruePlanning is also a general purpose estimation system.

## 1.5 Disadvantages

Following are some serious shortcomings or disadvantages with the currently existing solutions

- Outdated models that cannot adapt to today’s rapidly changing and extremely diverse development languages and frameworks.
- No platform to enable communication between management and developers to discuss and agree to a better estimate
- Older and less commonly used input formats like SLOC and function points
- Outdated subscription methods. All of these programs implement a *One Time Payment* method. The disadvantage here is that the one time payment is a huge sum of money and may throw off a potential customer’s interest in the product.

## 1.6 Purposd Solution

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## 1.7 Novelty

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## 1.8 Executive Summary

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## 2 Software Requirements Specification

# Introduction to Problem

### Abstract

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### Outline

- Introduction
  - Purpose
  - Scope
- Overall Description
- User Characteristics
- Specific Requirements
  - Functional Requirements
  - Non-Functional Requirements

## 2.1 Introduction

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### 2.1.1 Purpose

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### 2.1.2 Scope

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## 2.2 Overall Description

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## 2.3 User Characteristics

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## 2.4 Specific Requirements

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### 2.4.1 Functional Requirements

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### 2.4.2 Non Functional Requirements

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