**Right Price: An AI-Based Cost Estimation System**

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| A Project Report Presented to  The Faculty of the Computer Engineering Department |
| San Jose State University In Partial Fulfillment Of the Requirements for the Degree Bachelor of Science in Computer/Software Engineering |

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| By |
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| 12/2019 |

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**ABSTRACT**

**Right Price: An AI-Based Cost Estimation System**

By Manmeet Gill, Sidarth Shahri, Manpreet Singh, and Karthik Tella

Online shopping has grown massively over the past couple of years. A very popular online market is buying or selling old or used items. Instead of having an old or no longer used device lying around, someone could sell it for some money instead. However, there was no real way of knowing the current market prices of those items. It would not make sense to overpay or to sell for less than the value of the device.

Manually visiting several seller websites and looking at various listings was not feasible if one wished to unload many products in a short time period. Looking for price quotes on the market for a variety of products was very time-consuming. Therefore, there was no effective way to find the average market price of an item. Additionally, there were issues with sellers misquoting their prices, both accidentally and intentionally. Furthermore, the price of used products on the market should have degraded with time as the product deteriorated, occupied valuable virtual “shelf space”, and continued to be a burden on the seller. Therefore, the seller would lower the price to sell the product faster.

Our product aims to do most of the tedious work for the user and returns a value that is the average market price of the given product based on the gathered data. Data would be gathered by web scraping data from various used marketplaces such as Amazon, Craigslist, ebay, etc. Then, using and filtering the dataset, AI models can be trained to predict the price of certain items given some parameters based on the average prices of similar items in the dataset.

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| Acknowledgments |
| [Your Acknowledgement statements are presented here]. |

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[On the same line as each section heading, list the major contributors to that portion of the document.  Note, it is an academic integrity violation to list your name on a section if you were not a major contributor.  Similarly, it is an academic integrity violation if you are a major contributor but allow another group member to list his/her name unless (s)he was as significant contributor.]

[Update each of the following sections reflecting what was actually implemented. Ensure that it is written in the proper tense as a common mistake is just to copy the 195A report that is in the future tense, not the tense that reflect the end of 195B after the project has been completed. This requires some attention when you are updating the report in the middle of the semester and items are not quite complete yet.

While EACH section should be reviewed and updated, the following highlights in green note areas that have been changed from the 195A Report Format that may require particular attention. Highlight all changes in this report from 195A in yellow]

# Introduction

**1.1 Project Goals and Objectives**[Describe what are the goals and objectives of the project. In addition, it covers the context in which the project was placed.]

**1.2 Problem and Motivation**[Describe the problem, motivation, and needs of your project. You need to address why this project is important and what is the problem you have addressed.]

**1.3 Project Application and Impact**

[Describe the application of your project results, and its impacts to academic, industry, and society.]

**1.4 Project Results and Deliverables**

[Describe your actual project results (such as a system, and a component) and project deliverables (such as report, prototype, code, etc.).]

**1.5 Project Report Structure**

[Introduce the following sections of the document].**Chapter 2 Background and Related Work**

* 1. **Background and Used Technologies**

[Provide the necessary background of this project, including concepts and knowledge (e.g design patterns, asynchronous programming, project estimation, scientific and mathematical theories), along with technologies (e.g. PhP, MySql). In addition, provide an updated table of courses you have taken that you applied to the project and how you applied them.]

* 1. **Literature Search**

[Similarly, present your updated literature search adding to those that you explained in Chapter 1 of 195A workbook.]

* 1. **State-of-the-art Summary**

[A smaller, one page summary follows the literature review. Please refer to ‘State-of-the-Art Summary’ section in Chapter 1 of 195A workbook. You should provide an updated state-of-the-art summary here.]

# Chapter 3 Project Requirements

**3.1 Domain and Business Requirements**

[Use UML 2 activity diagram to draw process summary diagram and a set of process decomposition diagrams. Draw a domain class diagram of business classes with attributes; draw a set of state machine diagrams for key business classes.]

**3.2 System (or Component) Functional Requirements**

[List an organized set of statements of what the system does. Use “shall” and “should” statements to recognize what was mandatory and optional respectively. Note, if any, which requirements have changed from 195A. This section must include textual description accompanied with tables.]

**3.3 Non-functional Requirements**

[List an organized set of statements describing requirements placed on the system, e.g., performance, capacity, availability, compliance to standards, security, etc. This section must include textual description accompanied with tables. Ensure these requirements (as well as those stated in Section 3.2) can be measured in Chapter 7 on testing. For example, “The system shall be fast” is not an appropriate requirement, but The system commands shall deliver .9 second response time in the first 3 months 99 percent of the time as measured end-to-end.]

* 1. **Context and Interface Requirements**

[Specify the context environments supporting your development, testing, and deployment of your project results. You also need to describe the interface requirements for your hardware/software components and system.]

* 1. **Technology and Resource Requirements**

[List the requirements for hardware (devices, components, systems, etc.) and software (compiler, database, middleware, etc.), technologies. This section must include textual description accompanied with tables.]

# Chapter 4 System Design

**4.1 Architecture Design**

[Describe a general architectural solution for your system. This section must include textual description accompanied with diagrams.]

* 1. **Interface and Component Design**

[Draw the actual component diagram with textual description. This section must include textual description accompanied with diagrams]

* 1. **Structure and Logic Design**

[Present the detailed structure and logic design for your hardware/software components and processes. This section must include textual description accompanied with diagrams. If scientific or mathematical fundamentals are used for your project algorithm, specify what kind of formula or theory has been applied.]

* 1. **Design Constraints, Problems, Trade-offs, and Solutions**

**4.4.1 Design Constraints and Challenges**

[Present your design constraints in different perspectives, such as economic, resources, society and environment, hardware/software, mathematical/scientific theories and safety and reliability.]

**4.4.2 Design Solutions and Trade-offs**

[Document your approaches to cope with the given constraints. Present your design trade-off decisions and solution selections to deal with these constraints and problems and challenges.]

# Chapter 5 System Implementation

**5.1 Implementation Overview**

[This chapter describes your implementation scope, used platform and language, dependent hardware/software, and implementation dependencies.]

* 1. **Implementation of Developed Solutions**

[Present the detailed solutions, such as techniques, methods, algorithms, etc.]

* 1. **Implementation Problems, Challenges, and Lesson Learned**

[High light the major implementation problems and challenges. It also summarizes the implementation lessons learned.]

**Chapter 6 Tools and Standards**

**6.1. Tools Used**

[This section specifies the selected hardware/software tools for use. Please specify why you selected these tools, and where and how these tools were used.]

**6.2. Standards**

[This section describes the standards you used in your project. These standards could be related to hardware/software system and its components, requirements, design, interface, testing, protocols, documentation, and so on.]

**Chapter 7 Testing and Experiment**

**7.1 Testing and Experiment Scope**

[Describe an overview of your test process and experiment scope, including its test processes, test focuses and objectives, and selected test criteria at the component (e.g. unit testing) and system (e.g. integration testing) levels. This section must include textual description accompanied with figures and/or tables.]

**7.2 Testing and Experiment Approach**

[Describe the selected test strategies, test methods and techniques, as well as selected test coverage criteria. Test design content and test design summary could be included here, such as test case distribution and summary. These results must tie back to the requirements stated earlier. This section must include textual description accompanied with figures and/or tables.]

**7.3 Testing and Experiment Results and Analysis**

[Describe testing and experiment results and analysis. For example, test execution and test result summary, performance test result analysis, test coverage, bug distribution report, and so on. This section must include textual description accompanied with figures and/or tables.]

# Chapter 8 Conclusion and Future Work

References

[List most influential documents (articles, books, web pages, white papers, etc.) related to the project. Use APA 6.0 format.]

Appendices (Optional)

Appendix A – Appendix Title

[Typical example: you can include a specific standard here.]

Appendix B – Appendix Title

[Typical example: you can include a specific interface detail here.]