Software Requirements Specification

Laptop Recommendation Expert System

by

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to

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1 Introduction

1.1 Purpose

The purpose of the project is to develop a model for Laptop Recommendation System based on rule based Expert System.The Laptop Recommendation System helps users in choosing a laptop that will satisfy their performance requirements and budget constraints. The expert system will ask various questions to the user and according to the answers received, the system will give the output i.e. the name of the Laptop along with its price.

1.2 Scope

Dozens of manufacturers are pushing out dozens of new models every year. The best way of finding the perfect laptop for ones needs is to know what the available options are.There's a wide variety of sizes, features and prices, which makes choosing the right laptop a challenge. This expert system will help the users to choose a laptop that is best for their budget. The system also helps those users who do not understand the technical jargon written in specifications. It recommends in the domain of interest based on company preference and pricing. For a given set of input, recommendation system recommends the laptop based on rules and facts in knowledge base. Recommendations can be further refined by improving the knowledge base.

1.3 Overview

The document will explain the purpose and features of the system. It also explains the interfaces of the system, what the system will do, and how the system will react to external user. It describes the informal requirements and is used to establish a context for the technical requirements specification in the next chapter. The requirements specification section of this document describes in technical terms the details of the functionality of the product.

2 Methodology

2.1 Input for the System

It requires information about the budget, purpose and technical requirements that the user is looking for, which will be entered by the user as answers to some predefined questions.

2.2 Output of the System

The details of one or more laptops appropriate for the given contraints are displayed.

2.3 Knowledge Representation

The proposed system is rule-based system and makes inferences with symbols, which require translation of specifications and the budget knowledge in the standard symbolic form. In the first phase, the technical specifications and budget of the laptops are recorded.
In the second phase, a set of rules is created where each rule contains in IF part that has the specifications and in THEN part that has the model that satisfies the given criteria.
The inference engine (forward reasoning) is a mechanism through which rules are selected to be fired. It is based on a pattern matching algorithm whose main purpose is to associate the facts (input data) with applicable rules from the rule base.
Finally, the name of the laptops are produced by the inference engine. This expert system then displays the name of the best suited product for the user.

3 External Interface Requirements

3.1 User Interface

The user interface will be a Prolog console where user selects the brand and pricing and the expert system recommends the preferred laptop.

3.2 Software Interface

SWI-Prolog is used for programming the rule based expert system.

4 Non-functional Requirements

User Friendliness The user-interface should be easy to use. The user interface plays a major role; hence software shall be such that people with minimal knowledge about computers can also operate it without any difficulty.

Maintainability Software shall be easy to update and troubleshoot.

Flexibility Software shall be able to accomodate new constraints and functionalities released in subsequent versions.

Portability Software shall be compatible with a wide range of platforms so that users with different resource constraints can be served.

5 Functional Requirements

1. The software shall allow input of users preferred technical specifications, namely laptop type, users budget, preferred brand.
2. The software shall display the recommended laptops based on user specifications.
3. User should have a clear purpose for buying the laptop and should specify:
    - Laptop type required
    - Budget
    - Preferred Brand