

Project Proposal¹ : Top Deal Auto v2

Quality Management

- **Functional Suitability:** *The software should meet the functional requirements specified by the client, such as adding, updating, deleting, and searching for car records, generating sales reports, managing inventory, etc. The quality metrics for this characteristic are:*
 - *Number of errors found in testing: The software should have less than or equal to 5% of the total test cases fail due to functional errors.*
 - *Number of defects per KLOC: The software should have less than or equal to 5 defects per thousand lines of code (KLOC) related to functional issues.*
- **Usability:** *The software should be easy to use, learn, and operate by the end-users, such as car dealers, customers, and managers. The quality metrics for this characteristic are:*
 - *User satisfaction: The software should achieve a high score (at least 4 out of 5) on a user satisfaction survey that measures the aspects of usability, such as efficiency, effectiveness, learnability, and satisfaction.*
 - *Task completion time: The software should enable the users to complete the common tasks, such as adding a sales record, searching for a car, or generating a report, within a reasonable time (less than 5 minutes).*
- **Reliability:** *The software should perform consistently and correctly under normal and abnormal conditions, such as high load, network failure, or invalid input. The quality metrics for this characteristic are:*
 - *Availability: The software should be available for use at least 99% of the time, meaning that the downtime should be less than 1% of the total operating time.*
 - *Fault tolerance: The software should be able to recover from errors and resume normal operation within a short time (less than 1 minute).*
- **Security:** *The software should protect the data and the system from unauthorized access, modification, or deletion, such as hacking, phishing, or malware. The quality metrics for this characteristic are:*
 - *Number of security breaches: The software should have zero security breaches that compromise the confidentiality, integrity, or availability of the data or the system.*
 - *Number of security vulnerabilities: The software should have zero security vulnerabilities that can be exploited by malicious actors, such as SQL injection, cross-site scripting, or buffer overflow.*
- **Maintainability:** *The software should be easy to modify, test, and deploy by the developers, such as adding new features, fixing bugs, or updating the system. The quality metrics for this characteristic are:*
 - *Code readability: The software should follow the coding standards and conventions that make the code easy to read, understand, and maintain, such as consistent indentation, naming, and documentation.*
 - *Code complexity: The software should have a low cyclomatic complexity, which measures the number of linearly independent paths through the code, such as branches, loops, or conditions. The software should have an average cyclomatic complexity of less than 10 per function or method.*

¹ This document is by no means a “full project proposal”. It has been simplified and customized for the purposes of SWE30010 teaching. The full project proposal includes many other sections which have not been discussed during the first few weeks of SWE30010 teaching.