

Software Characteristics

Software are defined as a collection of computer programs, procedures, rules and data. Software characteristics are classified into six major components: (according to the ISO/IEC 9126 standards)

1. Functionality: It refers to the degree of performance of the software against its intended purpose. It basically means are the required functions. Functionality covers Suitability, Accuracy, Interoperability, compliance, Security.

(a) suitability: according to the requirement of the client

(b) Accuracy: Should be able to give correct outputs.

(c) Interoperability: working should be not dependent on the environment used to develop one.

(d) Compliance: As per the industry standards

(e) Security: not be accessed by unauthorized people or bugs or virus.

2. Reliability: A set of attribute that Bear on the capability of software to maintain its level of performances understated conditions for a stated period of time. Reliability covers Recoverability, Fault tolerance, maturity.

(a) Recoverability: In case of sudden stopping or interrupts the software should come back to previous state in no time

(b) Fault tolerance: The dynamic errors should be handled by the software itself. The hardware fault also should be handled by the software itself to certain extent.

(c) Maturity: Should work for a long time with same efficiency and generate a reliable client base and market.

3. Efficiency: It refers to the ability of the software to use System Resources in the most Effective and Efficient Manner. The software should make effective use of storage space and executive commands as per desired timing requirement. Efficiency covers in-time, in-resources.

(a) In-time: said to be efficient when it generates the output on time, or in lesser time.

(b) In-Resources: The required resources as hardware requirements (RAM, Cache speed) should be less so that cost for operating should be less.

4. Usability: It refers to the extent to which the software can be used with ease. Or the amount of effort or time required to learn how to use the software should be less. Usability covers Understandability, Learnability, operability.

(a) Understandability: Should be easy to understand by the user who is naïve and non technical

(b) Learnability: The user should be able to learn to operate on the software.

(c) Operability: The working should be easy and processing data also should be user friendly.

5. Maintainability: Refers to the ease with which the modifications can be made in a software system to extend its functionality, improvement, performance or correct errors. Maintainability covers Testability, Stability, Changeability, Analyzability.

(a) Testability: should be tested in advance or with real time data so that while working with real environment there should be no error

(b) Stability: should be giving the output and results while handling the abrupt exceptions and errors on execution.

(c) Changeability: It should be able to change according to the new and upgraded system requirements and other environments

(d) Analyzability: The software should have the property of getting analysed by the new team of developers so that the upgradation can become easy.

6. Portability: A set of attributes that bears on the ability of the software to be transferred from one environment to another, without or minimum changes. Portability covers Adaptability, Installability, Replaceability.

(a) Adaptability: software should change the working according to the new environment (operating system and other supporting system softwares)

(b) **Installability:** software should be able to be installed to different machines while moving it to client side environment.

(c) **Replaceability:** It should have the property to get replaced with a upgraded one when gets out dated or when not in demand.

Other Important Characteristics:

7. Robustness: It refers to the degree to which the software can keep on functioning in spite of being provided with invalid data.

8. Integrity: It refers to the degree to which Unauthorized Access to the software data can be prevented.