Concordia University

Department of Computer Science and Software Engineering

SOEN 6481: Software Systems Requirements Specification

Instructor: Dr. Rodrigo Morales
Summer 2020
Team 18

Glossary of Terms
Smart Home + System

Definitions of Terms:

"**Acceptance**: The process of assessing whether a system satisfies all its

Acceptance test A test that assesses whether a system satisfies all its requirements.

Activity diagram A diagram type in UML which models the flow of actions in a system or in a component including data flows and areas of responsibility where necessary

Actor: A person, a technical device in the context of a system that interacts with the system. 2. Especially in goal-oriented RE: a technical device that may act and process information in order to achieve some goals.

Adequacy degree to which a requirement expresses the stakeholder's true desires and needs

Application domain parts of the real world that are relevant for determining the context of a system.

Artifact An intermediate or final result of system development

Attribute the characteristic property of an entity.

Bug Defect

Completeness (of requirements) 1. single requirement: degree to which a requirement contains all necessary information. requirements specification: degree to which the specification contains information that is necessary for developing a system that satisfies the stakeholders' needs.

Component 1.the delimitable part of a system. In software architecture: An encapsulated set of coherent objects or classes that jointly provide a service.

Configuration A consistent set of logically coherent units. The units are individually identifiable artifacts or parts of artifacts in at most one version per unit.

Constraint A requirement that limits the solution space beyond what is necessary for meeting the given functional requirements and quality requirements.

Correctness The degree to which the information contained in an artifact is probably true. In RE, correctness is frequently used as a synonym for adequacy.

Customer A person or organization who receives a product or service. stakeholder.

Customer requirements specification A coarse description of the required capabilities of a system from the customer's perspective. Usually supplied by the customer.

Decision table A systematic representation of a complex decision that depends on multiple criteria and options.

Defect A spot in an artifact that is incorrectly described. eg: fault, bug

Domain A range of relevant things (for some given matter); an application domain.

Effectiveness degree to which something actually happens in the way it ought to happen. In RE, typically the degree to which a system actually enables its users to achieve their goals as stated in the system's requirements.

Efficiency The degree to which a result is achieved with minimum consumption of resources.

Elicitation Requirements elicitation

End-user User

Error A discrepancy between an observed behavior or result and the specified behavior or result. An error typically is a symptom for the existence of a fault or defect in some artifacts. In colloquial English, there is sometimes no distinction between the notions of error and fault.

Fault Defect

Fault Tolerance The capability of a system to continue normal operation despite the presence of (hardware or software) faults. Fault tolerance may be stated as a quality requirement

Feature A delimitable characteristic of a system that provides value for stakeholders. Normally comprises several requirements and is used for communicating with stakeholders on a higher level of abstraction and for expressing variable or optional characteristics.

Functional requirement A requirement concerning a result of behavior that shall be provided by a function of a system (or of a component or service).

Functionality The capabilities of a system as stated by its functional requirements.

Glossary A collection of definitions of terms that are relevant in some domains. Frequently, a glossary also contains cross-references, synonyms, homonyms, acronyms, and abbreviations

Goal A desired state of affairs (that a stakeholder wants to achieve). Goals describe the intentions of stakeholders. They may conflict with one another

Maintainability The ease with which a software system can be modified to correct faults or adapt the system to changing needs. Maintainability may be stated as a quality requirement.

Non-functional requirement A quality requirement or a constraint. Performance requirements may be regarded as another category of non-functional requirements. In this glossary, performance requirements are considered to be a sub-category of quality requirements. Synonym: Extra-functional requirement

Priority (of a requirement) Documents the importance of a requirement in comparison to other requirements according to given criteria.

Quality The degree to which a set of inherent characteristics of an entity fulfills requirements. The entity may be a system, service, product, artifact, process, person, organization, etc. An inherent characteristic is a distinguishing feature of or property of an entity that is inherent to the entity and has not been assigned explicitly. This is the notion of quality that is generally used in the industry. Note that quality in this definition just means fitness for intended use, as stated in the requirements. This is in contrast to the colloquial notion of quality which is typically connoted with goodness or excellence.

Redundancy Multiple occurrences of the same information or resource

Reliability The capability of a system to maintain a specified level of functionality and performance when used under specified conditions. Reliability may be stated as a quality requirement.

Requirement 1. A condition or capability needed by a user to solve a problem or achieve an objective. 2. A condition or capability that must be met or possessed by a system or system component to satisfy a contract, standard, specification, or other formally imposed documents. 3. A documented representation of a condition or capability as in (1) or (2). Note: The definition above is the classic one from IEEE Std 610.12 of 1990. Alternatively, we also give a more modern definition: 1. A need perceived by a stakeholder. 2. A capability or property that a system shall have. 3. A documented representation of a need, capability or property.

Requirements analysis 1. Analysis of elicited requirements in order to understand and document them. 2. Synonym for requirements engineering.

Requirements document A document consisting of a requirements specification. Frequently used as a synonym for requirements specification.

Requirements elicitation The process of seeking, capturing and consolidating requirements from available requirements sources. May include the re-construction or creation of requirements. Synonym: Requirements discovery

Requirements engineer A person who – in collaboration with stakeholders – elicits, documents, validates, and manages requirements.

Requirements Engineering A systematic and disciplined approach to the specification and management of requirements with the following goals: (1) Knowing the relevant requirements, achieving a consensus among the stakeholders about these requirements, documenting them according to given standards, and managing them systematically, (2) Understanding and documenting the stakeholders' desires and needs, (3) Specifying and managing requirements to minimize the risk of delivering a system that does not meet the stakeholders' desires and needs. Abbreviation: RE Note: All three goals address important facets of RE: (1) process orientation, (2) stakeholder focus, and (3)the importance of risk and value considerations.

Risk An event that threatens the success of an endeavor, e.g., of developing or operating a system. A risk is typically assessed in terms of its probability and potential damage

Safety The capability of a system to achieve an acceptable level of probability that operating the system will not result in harming people, or the environment. Safety requirements may be stated as quality requirements or in terms of functional requirements

Scenario 1. A description of a potential sequence of events that lead to a desired (or unwanted) result. 2. An ordered sequence of interactions between partners, in particular between a system and external actors. Maybe a concrete sequence (instance scenario) or a set of potential sequences (type scenario, use case). 3. In UML: An execution trace of a use case.

Security The capability of a system to protect (a) its data and resources against unauthorized use and (b) its legitimate users against denial of service

Sequence diagram A diagram type in UML which models the interactions between a selected set of objects and/or actors in the sequential order that those interactions occur.

Specification A systematically represented a description of the properties of an entity (a system, a device, etc.) that satisfies the given criteria. It may be about required properties (requirements specification) or implemented properties (e.g., a technical product specification).

Stakeholder A person or organization that has a (direct or indirect) influence on a system's requirements. Indirect influence also includes situations where a person or organization is impacted by the system.

State machine A model describing the behavior of a system or component by a finite set of states and state transitions. State transitions are triggered by events and can in turn trigger actions and new events. Related terms: A state machine with atomic states is called a finite-state automaton. State machines having states that are hierarchically and/or orthogonally decomposed are called statecharts.

UML Abbreviation for Unified Modeling Language, a standardized language for modeling problems or solutions.

Usability The capability of a system to be understood, learned, used, and liked by its users. Usability (or parts thereof) may be stated as quality requirements.

Use case A description of the interactions possible between actors and a system that, when executed, provide added value. Use cases specify a system from a user's (or other external actor's) perspective: every use case describes some functionality that the system must provide for the actors involved in the use case.

Use case diagram A diagram type in UML that models the actors and the use cases of a system. The boundary between the actors and the use cases constitutes the system boundary.

User A person who uses the functionality provided by a system. Also called end-user"

Reference: **International Requirements Engineering Board: Home - IREB**
Martin Glinz A Glossary of Requirements Engineering Terminology Version 1.7 May 2017
All definitions are derived from A Glossary of Requirements Engineering Terminology Version 1.7 May 2017(Writer: Martin Glinz)