# CPRE

# Certified Professional for Requirements Engineering

Requirements Engineering Glossary

Persian translation

Original English version

by Martin Glinz

## About the Author

Martin Glinz is a full professor emeritus at the University of Zurich (UZH). From 1993 until 2017, he was a professor of Informatics at UZH's Department of Informatics. From 2007–2016, he was the department head. His interests include requirements and software engineering — in particular modeling, validation, quality, and evolution.

He received a diploma degree in Mathematics in 1977 and a Dr. rer. nat. in Computer Science in 1983, both from RWTH Aachen University. Before joining the University of Zurich, he worked in industry for ten years, where he was active in software engineering research, development, training, and consulting. He retired in summer 2017, but he is still active in Requirements Engineering research, education, and service.

Martin Glinz has over 35 years of experience in Requirements Engineering, both academic and industrial. He is on editorial boards and program committees of major journals and conferences in software and requirements engineering and served as general chair, program chair, steering committee chair and organizer for the top international conferences in his field. He is a full member of the International Requirements Engineering Board (IREB), where he chairs the IREB Council. He received the ACM SIGSOFT Distinguished Service Award and the IEEE International Requirements Engineering Conference Lifetime Service Award in 2016 and the IEEE International Requirements Engineering Conference Most Influential Paper Award in 2017.

### Preface

In the preface to the first edition of this glossary, published in May 2011, I wrote:

> *When looking for definitions of terms in Requirements Engineering, one can find definitions for almost any term by searching the web. However, such searching requires effort and the quality of the results is unpredictable. Frequently, definitions found in different sources are inconsistent with each other. Existing glossaries in Requirements Engineering textbooks mostly focus on the topics covered in these books. Systematic translations of terminology into major languages other than English are missing completely.*
>
> *This glossary aims at collecting the existing knowledge on Requirements Engineering terminology and defining the core terminology carefully and consistently. In cases where more than one definition is in use or where terms are defined differently when viewed from different perspectives, multiple definitions or perspectives are included. For terms having both a general meaning and a specific meaning in a Requirements Engineering context, both meanings are defined. Important terms are annotated with hints and additional information.*

This glossary has closed the gap identified above. The principle of not just compiling existing definitions but defining the core Requirements Engineering terminology carefully and consistently, has also stood the test of time. Nevertheless, after almost ten years since its initial publication, it was time for a major revision.

A good glossary should be a stable work product: users need to rely on a common terminology — which is not possible when that terminology is constantly changing. On the other hand, it would be foolish to believe that terminology does not evolve over time. In particular, the major revision of the IREB CPRE Foundation Level syllabus required adaptations and extensions of the terminology. Doing a major revision was also an occasion to include important terms from the IREB CPRE Advanced Level syllabi (which did not yet exist when the glossary was initially published). Finally, IREB and ISTQB, the International Software Testing Qualification Board, had agreed in 2019 to harmonize the quality and testing terminology in their respective glossaries.

From the 128 terms defined in the first edition of the glossary, 42 (i.e., about one third) remained unchanged. 67 definitions underwent minor or merely syntactic changes. We re-wrote 17 definitions, deleted two ones, and added 85 new definitions. Major additions concern terminology about agile, modeling, prototyping, and product lines. We also added several basic terms such as activity, method, process, or technique.

Many major changes were due to the harmonization of terminology with ISTQB. However, we also modernized fundamental terms: for example, we simplified the definitions of requirement and Requirements Engineering and made major changes to the notes in the definition of system. The major revision of the glossary was also an occasion to mark explanatory notes clearly in all definitions, separating them from the main definition phrase.

The translations of the terminology into other languages, which were an integral part of the previous versions of this glossary, are now published as separate dictionaries of terminology. I gratefully acknowledge the work performed by all the translators.

Karol Frühauf owes my deepest thanks for carefully reviewing all my definition drafts and for fruitful discussions that led to major improvements of this glossary. I also thank Xavier Franch and Stan Bühne for many helpful comments. Most of all, I thank my wife Angelika. Without her love, patience and understanding, most of my professional work, including this one, would not have been possible.

Martin Glinz

Zurich, October 2020

### CPRE Online Glossary

The CPRE Glossary is available online in all supported languages:
https://www.ireb.org/en/cpre/glossary/

## Version History

| Version | Date | Change |
|---------|------|--------|
| 1.1.0 | May 2011 | Initial Document |
| 2.0.0 | April 2021 | Major revision and extension of terminology covered by this glossary, including important terms from the CPRE Advanced Levels. |
| | | Aligned with the terminology used in the CPRE Foundation Level 3.0. Implemented the alignment between the IREB and ISTQB glossaries. |
| | | Created independent dictionaries of RE terminology for languages other than English. |
| 2.0.1 | January 2024 | Updated to new corporate design |
| 2.1.0 | January 2024 | Correction of the swapped definitions for the terms *redundancy* and *refactoring* as well as for *statechart* and *state-transition diagram* |

# Table of Content

# 1 Definitions of Terms

Terms formatted in **bold** are key terms that have to be known on the IREB CPRE Foundation Level.

| Term (Persian) | Term (English) | Definition |
| --- | --- | --- |
| ابزار (در مهندسی نرم افزار) | **Tool** (in software engineering) | A (software) ⬆system that helps develop, operate and maintain systems.<br>**Note:**<br>In RE, tools support ⬆requirements management as well as modeling, documenting, and validating ⬆requirements. |
| ابهام | Ambiguity | The contrary of →unambiguity |
| اپیک | Epic | In agile development: An abstract description of a ⬆stakeholder need which is larger than what can be implemented in a single ⬆iteration. |
| اثربخشی | **Effectiveness** | The degree to which an ⬆item produces the intended results.<br>**Note:**<br>In RE, effectiveness frequently is the degree to which a ⬆system enables its ⬆users to achieve their ⬆goals. |
| ارتباط | Association | In UML: A relationship between two ⬆classes in a ⬆UML ⬆class model. |
| اِسپایک | Spike | In agile development: A task aimed at gaining insight or gathering information, rather than at producing a ⬆product ⬆increment. |
| اسپرینت | **Sprint** | An ⬆iteration in ⬆agile development, particularly when using ⬆Scrum. |
| استاندارد | **Standard** | A formal, possibly mandatory set of regulations for how to interpret, develop, manufacture, or execute something.<br>**Note:**<br>In RE, there are RE-relevant standards issued by ISO/IEC and IEEE. |
| استخراج (نیازمندی ها) | **Elicitation** (of requirements) | → Requirements elicitation |

| Term (Persian) | Term (English) | Definition |
|---|---|---|
| استخراج نیازمندی ها | **Requirements elicitation** | The process of seeking, capturing and consolidating ⬆requirements from available ⬆sources, potentially including the re–construction or creation of requirements. |
| اسکرام | Scrum | A popular ⬆process framework for ⬆agile development of a ⬆system. |
| اشتراک لفظی | Homonym | A term looking identical to another term but having a different meaning.<br>**Note:**<br>For example, bill as a bank note and bill as a list (of materials) are homonyms. |
| اعتبارسنجی | **Validation** | The ⬆process of confirming that an ⬆item (a ⬆system, a ⬆work product or a part thereof) matches its ⬆stakeholders' needs.<br>**Note:**<br>In RE, validation is the process of confirming that the documented ⬆requirements match their ⬆stakeholders' needs; in other words: whether the right requirements have been specified. |
| افزونگی | **Redundancy** | Multiple occurrence of the same information or resource. |
| اکتشاف نیازمندی ها | Requirements discovery | → Requirements elicitation |
| امکان پذیری (یک نیازمندی) | Feasibility (of a requirement) | The degree to which a ⬆requirement for a ⬆system can be implemented under existing ⬆constraints. |
| امنیت | **Security** | The degree to which a ⬆system protects its data and resources against unauthorized access or use and secures unobstructed access and use for its legitimate ⬆users.<br>**Note:**<br>Security requirements may be stated as ⬆quality requirements or in terms of ⬆functional requirements. |
| انتشار | **Release** | A ⬆configuration that has been released for installation and use by ⬆customers. |

| Term (Persian) | Term (English) | Definition |
|---|---|---|
| انشعاب | Branch | A line of ⬆configurations or ⬆work product ⬆versions that forks away from the main line (or from another branch) at some point in time.<br>**Note:**<br>A branch is created by making a copy of some configuration or work product version and making this copy the root of the branch. A branch may be merged with the main line or with another branch at some later point in time. |
| انشعاب نیازمندی ها | Requirements branching | → Branch |
| **انطباق** | **Conformity** | The degree to which a ⬆work product conforms to regulations given in some ⬆standard. |
| **اولویت** | **Priority** | The level of importance assigned to an ⬆item, e.g., a ⬆requirement or a ⬆defect, according to certain criteria. |
| اولویت بندی | Prioritization | The process of assigning priorities to a set of ⬆items. |
| **ایمنی** | **Safety** | The capability of a ⬆system to achieve an acceptable level of probability that the system, under defined conditions, will not reach a state in which human life, health, property, or the environment is endangered.<br>**Note:**<br>Safety ⬆requirements may be stated as ⬆quality requirements or in terms of ⬆functional requirements. |
| **اینکریمنت** (در توسعه نرم افزار) | **Increment** (in software development) | An addition to a ⬆system under development that extends, enhances or refactors (⬆refactoring) the existing parts of the system.<br>**Note:**<br>In ⬆agile development, every ⬆iteration produces an increment. |
| آزمون پذیرش | Acceptance test | A test that assesses whether a ⬆system satisfies its ⬆requirements.<br>**Note:**<br>Typically used by ⬆customers to determine whether or not to accept a system. |

| Term (Persian) | Term (English) | Definition |
|---|---|---|
| بازرسی | **Inspection** | A formal ⬆review of a ⬆work product by a group of experts according to given criteria, following a defined procedure. |
| بازسازی | Refactoring | The improvement of the internal ⬆quality of source code, particularly the structure of the code, without changing its observable behavior. |
| بازیگر | **Actor** | A person in some ⬆role, a ⬆system or a technical device in the context of a subject under consideration that interacts with that subject.<br>**Note:**<br>In RE, the subject under consideration typically is a ⬆system. In testing, it may be a test ⬆object. |
| باگ | Bug | → Defect |
| بک لاگ | Backlog | → Product backlog, → sprint backlog |
| بک لاگ اسپرینت | Sprint backlog | A set of ⬆product backlog items that have been selected to be implemented in the current ⬆sprint. |
| بک لاگ محصول | **Product backlog** | An ordered, typically prioritized collection of work items that a development team has to work on when developing or evolving a ⬆system.<br>**Note:**<br>Items include ⬆requirements, ⬆defects to be fixed, or ⬆refactorings to be done. |
| بورد داستان | Storyboard | A series of sketches or pictures that visualize the execution of a ⬆scenario. |
| بیان مشخصات به همراه مثال | Specification by example | A ⬆technique that specifies test cases and ⬆requirements for a ⬆system by providing examples of how the system should behave. |
| پذیرش | Acceptance | The process of assessing whether a ⬆system satisfies all its ⬆requirements. |
| پِرسونا | **Persona** | A fictitious character representing a group of ⬆users with similar needs, values and habits who are expected to use a ⬆system in a similar way. |

| Term (Persian) | Term (English) | Definition |
| --- | --- | --- |
| **پیکربندی** | **Configuration** | A consistent set of logically coherent ⬆items. The items are individually identifiable ⬆work products or parts of work products in at most one ⬆version per item. |
| پیکربندی نیازمندی ها | Requirements configuration | → Configuration |
| تامین کننده | Supplier | A person or organization who delivers a ⬆product or ⬆service to a ⬆customer. |
| تحلیل ساختیافته | Structured Analysis | An approach for specifying the ⬆functionality of a system based on a hierarchy of ⬆data flow diagrams. Data flows as well as persistent data are defined in a data dictionary. A ⬆context diagram models the sources of incoming and the destinations of outgoing ⬆data flows. |
| تحلیل نیازمندی ها | Requirements analysis | ▪ Analysis of elicited ⬆requirements in order to understand and document them.<br>▪ Synonym for ⬆Requirements Engineering. |
| **تحمل پذیری خطا** | **Fault tolerance** | The capability of a ⬆system to operate as intended despite the presence of (hardware or software) ⬆faults.<br>**Note:**<br>Fault tolerance may be stated as a ⬆quality requirement. |
| (در زمینه فنی) ترکیب | Composition (in a technical context) | ▪ An ⬆item that is composed of a set of items; forming a whole–part relationship.<br>▪ The act of composing a whole from a set of parts. |
| تسک | Task | A coherent chunk of work to be done. |

| Term (Persian) | Term (English) | Definition |
|---|---|---|
| تصدیق | Verification | The process of confirming that an ↑item (a system, a work product, or a part thereof) fulfills its ↑specification.<br>**Note:**<br>Requirements verification is the process of confirming that the ↑requirements have been documented properly and satisfy the ↑quality criteria for requirements; in other words, whether the requirements have been specified right. |
| **تصدیق پذیری** (یک نیازمندی) | **Verifiability** (of requirements) | The degree to which the fulfillment of a ↑requirement by an implemented ↑system can be verified.<br>**Note:**<br>Such ↑verification can be performed, for example, by defining ↑acceptance test cases, measurements or ↑inspection procedures. |
| تضاد (درباره نیازمندی ها) | Conflict (about requirements) | → Requirements conflict |
| **تضاد نیازمندی ها** | **Requirements conflict** | ▪ A situation where two or more ↑requirements cannot be satisfied together.<br>▪ A situation where two or more ↑stakeholders disagree about certain ↑requirements.<br>**Note:**<br>Requirements conflicts have to be solved by ↑requirements negotiation. |
| **تطابق** | **Compliance** | The adherence of a ↑work product to ↑standards, conventions, regulations, laws, or similar prescriptions. |
| تغییر پذیری | Changeability | → Modifiability |
| **تفصیل** (نیازمندی ها) | **Elaboration** (of requirements) | An umbrella term for requirements ↑elicitation, ↑negotiation and ↑validation. |

| Term (Persian) | Term (English) | Definition |
|---|---|---|
| تکرار | **Iteration** | <ul><li>In general:<ul><li>The repetition of something, for example, a procedure, a process or a piece of program code.</li></ul></li><li>In agile development:<ul><li>A ⬆timeboxed unit of work in which a development team implements an ⬆increment to the ⬆system under development.</li></ul></li></ul>**Note:**<br>In agile development, iteration and ⬆sprint are frequently used as synonyms. |
| تکنیک | Technique | A documented set of coherent actions for accomplishing a ⬆task or achieving an objective. |
| تِم | Theme | In agile development: A collection of related ⬆user stories. |
| جدول تصمیم | Decision table | A tabular representation of a complex decision, specifying which actions to perform for the possible combinations of condition values. |
| جریان داده | Data flow | A sequence of data items flowing from a producer to a consumer. |
| جریان کنترلی | Control flow | The order in which a set of actions is executed. |
| چابک | **Agile** | <ul><li>In general:<ul><li>Able to move quickly and easily.</li><li>Quick, smart, and clever.</li></ul></li><li>In software development:<ul><li>A development approach which builds a product ⬆incrementally by dividing work into ⬆iterations of fixed duration (⬆timeboxes).</li></ul></li></ul>**Note:**<br>Agile development is characterized by focusing on delivering a working product in each iteration, collaboration with ⬆stakeholders with frequent feedback and adaptation of plans after each iteration based on feedback and changed ⬆requirements. |
| چارت حالت | **Statechart** | A ⬆state machine having states that are hierarchically and/or orthogonally decomposed. |

| Term (Persian) | Term (English) | Definition |
|---|---|---|
| چشم انداز (یک سیستم یا محصول) | **Vision** (for a system or product) | A conceptual imagination of a future ⬆system or ⬆product, describing its key characteristics and how it will create value for its ⬆users. |
| چندینگی | Multiplicity | → Cardinality |
| خدمت | **Service** | The provision of some ⬆functionality to a human or a ⬆system by a provider (a system, organization, group or individual) that delivers value to the receiver.<br>**Note:**<br>In systems engineering, software engineering and Requirements Engineering, services are typically provided by a ⬆system for a ⬆user or another system. |
| خط تولید محصول | Product line | A jointly managed set of systems (provided as products or services) that share a common core and have a configurable set of ⬆variants for satisfying needs of particular ⬆customers or market segments.<br>**Note:**<br>The points in a product line where there is more than one ⬆variant to select from are called ⬆variation points.<br>**Synonym:** Product family |
| خط مبنا | **Baseline** | A stable, change-controlled ⬆configuration of ⬆work products.<br>**Note:**<br>Baselines serve for ⬆release planning and release definition as well as for project management purposes such as effort estimation. |
| خط مبنای نیازمندی ها | Requirements baseline | A ⬆baseline for a set of ⬆requirements. |

| Term (Persian) | Term (English) | Definition |
|---|---|---|
| خطا | **Error** | ▪ A human action that produces an incorrect result.<br>▪ A discrepancy between an observed ⬆behavior or result and the specified behavior or result.<br><br>**Note:**<br>In practice, both meanings are used. Where needed, the meaning of error can be disambiguated by using human error and observed error or observed fault, respectively. |
| خطا | **Fault** | → Defect |
| داستان (در زمینه مهندسی نیازمندی ها) | Story (in an RE context) | → User story |
| داستان کاربر | **User story** | A description of a need from a ⬆user's perspective together with the expected benefit when this need is satisfied.<br>**Note:**<br>▪ User stories are typically written in ⬆natural language using a ⬆phrase template and are accompanied by ⬆acceptance criteria.<br>▪ In ⬆agile development, user stories are the main means for communicating needs between a ⬆product owner and the development team. |
| دامنه | **Domain** | A range of relevant things (for some given matter); for example, an ⬆application domain. |
| دامنه کاربرد | **Application domain** | Those parts of the real world that are relevant for determining the ⬆context of a ⬆system. |
| درخواست تغییر | **Change request** | In RE: A well-argued request for changing one or more ⬆baselined ⬆requirements. |
| دوره زمان ثابت | Timebox | A fixed, non-extendable amount of time for completing a set of ⬆tasks. |

| Term (Persian) | Term (English) | Definition |
|---|---|---|
| دیدگاه | Viewpoint | A certain perspective on the ⬆requirements of a ⬆system.<br>**Note:**<br>Typical viewpoints are perspectives that a ⬆stakeholder or stakeholder group has (for example, an end user's perspective or an operator's perspective). However, there can also be topical viewpoints such as a security viewpoint. |
| ذینفع | **Stakeholder** | A person or organization who influences a ⬆system's ⬆requirements or who is impacted by that system.<br>**Note:**<br>Influence can also be indirect. For example, some stakeholders may have to follow instructions issued by their managers or organizations. |
| رفتار | **Behavior** | The way in which a ⬆system reacts to stimuli, changes its state and produces observable results.<br>**Note:**<br>Stimuli may be events or changes of conditions. Their origin may be external or system–internal. |
| روش | Method | The systematic application of a ⬆technique (or a set of techniques) to achieve an objective or create a ⬆work product. |
| رویداد مرور فرآورده ها | **Walkthrough** | A ⬆review in which the author of a ⬆work product leads the reviewers systematically through the work product and the reviewers ask questions and make comments about possible issues. |
| ریسک | **Risk** | A possible event that threatens the success of an endeavor.<br>**Note:**<br>A risk is typically assessed in terms of its probability and potential damage. |
| زبان | Language | A structured set of signs for expressing and communicating information.<br>**Note:**<br>Signs are any elements that are used for communication: spoken or written words or expressions, symbols, gestures, sounds, etc. |

| Term (Persian) | Term (English) | Definition |
|---|---|---|
| زبان طبیعی | **Natural language** | A ⬆language that people use for speaking and writing in everyday life. <br> **Note:** <br> This is in contrast to *artificial languages* that people have deliberately created for specific purposes such as programming or specifying. |
| زبان مدلسازی | **Modeling language** | A ⬆language for expressing ⬆models of a certain kind. May be textual, graphic, symbolic or some combination thereof. |
| زبان مشخصات | Specification language | An artificial ⬆language that has been created for expressing ⬆specifications. |
| زمینه | **Context** | ▪ In general: <br>   ▪ The network of thoughts and meanings needed for understanding phenomena or utterances. <br>▪ Especially in RE: <br>   ▪ The part of a ⬆system's environment being relevant for understanding the system and its ⬆requirements. <br><br>**Note:** <br>1) Context in the second meaning is also called the ⬆system context. |
| زمینه سیستم | System context | The part of a ⬆system's environment that is relevant for the definition as well as the understanding of the ⬆requirements of a ⬆system to be developed. |
| سناریو | Scenario | ▪ In general: <br>   ▪ A description of a potential sequence of events that lead to a desired (or unwanted) result. <br>▪ In RE: <br>   ▪ An ordered sequence of interactions between partners, in particular between a ⬆system and external ⬆actors. May be a concrete sequence (instance scenario) or a set of potential sequences (type scenario, ⬆use case). |

| Term (Persian) | Term (English) | Definition |
|---|---|---|
| سیستم | **System** | <ul><li>In general:<ul><li>A principle for ordering and structuring.</li></ul></li><li>In engineering:<ul><li>A coherent, delimitable set of elements that – by coordinated action – achieve some purpose.</li></ul></li></ul>**Note:**<ul><li>A system may comprise other systems or ⬆components as sub-systems.</li><li>The purposes achieved by a system may be delivered by<ul><li>deploying the system at the place(s) where it is used,</li><li>selling/providing the system as a ⬆product to its ⬆users,</li><li>having providers who offer the system's capabilities as ⬆services to users.</li></ul></li><li>Systems containing both software and physical ⬆components are called *cyber–physical systems*.</li><li>Systems spanning software, hardware, people and organizational aspects are called *socio–technical systems*.</li></ul>**Important:** In all definitions referring to system in this glossary, system is an umbrella term which includes<ul><li>⬆*Products* provided to ⬆customers,</li><li>⬆*Services* made available to ⬆customers,</li><li>Other work products such as *devices*, *procedures* or *tools* that help people or organizations achieve some goal,</li><li>System ⬆*components* or ⬆*compositions* of systems.</li></ul> |
| سینتَکس | **Syntax** | The rules for constructing structured signs in a ⬆language. |
| شیء | **Object** | <ul><li>In general:<ul><li>Anything which is perceivable or conceivable (→ item).</li></ul></li><li>In software engineering:<ul><li>an individual ⬆item which has an identity, is characterized by the values of its ⬆attributes and does not depend on another item (→ entity).</li></ul></li></ul> |

| Term (Persian) | Term (English) | Definition |
|---|---|---|
| صحت | Correctness | The degree to which the information contained in a ⇧work product is provably true. **Note:** In RE, correctness is sometimes used as a synonym for ⇧adequacy, particularly when validating a ⇧requirement rigorously against formally stated properties in the ⇧context of a ⇧system. |
| **صفت** | **Attribute** | A characteristic property of an ⇧entity or an ⇧object. |
| **ضرورت** (یک نیازمندی) | **Necessity** (of a requirement) | The degree to which an individual ⇧requirement is a necessary part of the ⇧requirements specification of a ⇧system. |
| **طراحی** | **Design** | <ul><li>A plan or drawing produced to show how something will look, function or be structured before it is made.</li><li>The activity of creating a design.</li><li>A decorative pattern [This meaning does not apply in the software engineering ⇧domain].</li></ul> **Note:** <ul><li>In software product development, we distinguish between *creative design* which shapes the look and feel of the product, i.e., its perceivable form, function and quality, and *technical design* (also called software design) which determines the inner structure of the product, in particular the software architecture.</li><li>The creative design of products is also called *product design*.</li><li>The creative design of digital solutions is called *digital design*.</li></ul> |
| **عدم ابهام** (نیازمندی ها) | **Unambiguity** (of requirements) | The degree to which a ⇧requirement is expressed such that it cannot be understood differently by different people. |
| عمل | Practice | A proven way of how to carry out certain types of ⇧tasks or ⇧activities. |
| **عملکرد** | **Functionality** | The capabilities of a ⇧system as stated by its ⇧functional requirements. |
| فرآورده | Artifact | Synonym for ⇧work product. |

| Term (Persian) | Term (English) | Definition |
|---|---|---|
| فرآیند | **Process** | A set of interrelated ↑activities performed in a given order to process information or materials.<br>**Note:**<br>The notion of process includes *business processes* (e.g., how to commission and send ordered goods to ↑customers), *information processes* (e.g., how to deliver records from a database that match a given query), and *technical processes* (e.g., cruise control in a car). |
| فعالیت | Activity | An action or a set of actions that a person or group performs to accomplish a ↑task. |
| قابلیت اصلاح | **Modifiability** | The degree to which a ↑work product or ↑system can be modified without degrading its ↑quality. |
| قابلیت اعتماد | **Reliability** | The degree to which a ↑system performs specified functions under specified conditions for a specified period of time.<br>**Note:**<br>Reliability may be stated as a ↑quality requirement. |
| قابلیت حمل | Portability | The ease with which a ↑system can be transferred to another platform while preserving its characteristics. |
| قابلیت درک | **Understandability** | The degree to which an ↑item is comprehensible to its intended users.<br>**Note:**<br>Typical items are: a ↑system, a ↑work product, or a part thereof. |
| قابلیت ردیابی | **Traceability** | ▪ In general:<br>　▪ The ability to establish explicit relationships between related ↑work products or ↑items within work products.<br>▪ In RE:<br>　▪ The ability to trace a ↑requirement<br>　　▪ back to its origins,<br>　　▪ forward to its implementation in design and code and its associated tests,<br>　　▪ to requirements it depends on (and vice-versa). |

| Term (Persian) | Term (English) | Definition |
|---|---|---|
| قابلیت نگهداری | Maintainability | The ease with which a ⬆system can be modified by the intended maintainers.<br>**Note:**<br>Maintainability may be stated as a ⬆quality requirement. |
| قالب عبارت | Phrase template | A template for the syntactic structure of a phrase that expresses an individual ⬆requirement or a ⬆user story in ⬆natural language. (→ requirements template) |
| قالب فرم | Form template | A template providing a form with predefined fields to be filled-in. (→ requirements template)<br>**Note:**<br>In RE, form templates can be used to specify ⬆use cases or ⬆quality requirements. |
| قالب مستند | Document template | A template providing a predefined skeleton structure for a document. (→ requirements template)<br>**Note:**<br>In RE, document templates can be used to structure ⬆requirements documents. |
| **قالب نیازمندی ها** | **Requirements template** | A template for specifying ⬆requirements.<br>**Note:**<br>In RE, several forms of templates are used. ⬆*Phrase templates* are used for specifying individual ⬆requirements or ⬆user stories. ⬆*Form templates* can be used to specify ⬆use cases or ⬆quality requirements. ⬆*Document templates* provide a predefined structure for ⬆requirements documents. |
| **قید** (در مهندسی نیازمندی ها) | **Constraint** (in RE) | A ⬆requirement that limits the solution space beyond what is necessary for meeting the given ⬆functional requirements and ⬆quality requirements. |
| **کارایی** | **Efficiency** | The degree to which resources are expended in relation to results achieved. |

| Term (Persian) | Term (English) | Definition |
|---|---|---|
| کاربر | **User** | A person who uses the ↑functionality provided by a ↑system.<br>**Note:**<br>Users (also called end users) always are ↑stakeholders of a ↑system. |
| کاربر نهایی | End user | → User |
| کاربردپذیری | **Usability** | The degree to which a ↑system can be used by specified ↑users to achieve specified ↑goals in a specified context of use.<br>**Note:**<br>Usability particularly includes the capability of a ↑system to be understood, learned, used, and liked by its intended ↑users. |
| کاردینالیتی | Cardinality | <ul><li>In modeling:<ul><li>The minimum and maximum number of ↑objects in a relationship.</li></ul></li><li>In mathematics:<ul><li>The number of elements in a set.</li></ul></li></ul>**Note:**<br>In ↑UML, the term multiplicity is used for cardinality. |
| **کامل بودن** (نیازمندی ها) | **Completeness** (of requirements) | <ul><li>For a single ↑requirement:<ul><li>The degree to which the specification of a requirement is self–contained.</li></ul></li><li>For a ↑work product covering multiple requirements:<ul><li>The degree to which the work product contains all known requirements that are relevant in the scope of this work product.</li></ul></li></ul> |
| **کفایت** (یک نیازمندی) | **Adequacy** (of a requirement) | The degree to which a ↑requirement expresses the ↑stakeholders' true and agreed desires and needs (i.e., those they had actually in mind when stating the requirement). |
| کلاس | **Class** | A representation of a set of ↑objects of the same kind by describing the structure of the objects, the ways they can be manipulated and how they behave. |
| کمیته راهبری | Steering committee | A committee that supervises a project. |

| Term (Persian) | Term (English) | Definition |
|---|---|---|
| کیفیت **Quality** | | ▪ In general:<br>   ▪ The degree to which a set of inherent characteristics of an item fulfills ⬆requirements.<br>▪ In systems and software engineering:<br>   ▪ The degree to which a ⬆system satisfies stated and implied needs of its ⬆stakeholders.<br><br>**Note:**<br>Quality in this definition 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. |
| گوناگونی Variability | | ▪ The degree to which a ⬆system can be changed or customized.<br>▪ In product lines: The ⬆features that can differ among the members of the ⬆product line. |
| گونه Variant | | One of the possible forms that an ⬆item (e.g., a ⬆requirement) may have. |
| الگوی فرآیند Process pattern | | An abstract, reusable ⬆model of a ⬆process which can be used to configure and instantiate a concrete process for a given situation and ⬆context. |
| ماشین حالت **State machine** | | A ⬆model describing the behavior of a ⬆system by a finite set of *states* and state *transitions*. State transitions are triggered by *events* and can in turn trigger *actions* and new events. |
| مالک محصول Product owner | | A person responsible for a ⬆product in terms of ⬆functionality, value and ⬆risk.<br>**Note:**<br>The product owner maintains and prioritizes the ⬆product backlog, makes sure that the ⬆stakeholders' ⬆requirements as well as market needs are elicited and adequately documented in the ⬆product backlog and represents the stakeholders when communicating with the development team. |

| Term (Persian) | Term (English) | Definition |
|---|---|---|
| متدولوژی | Methodology | • The systematic study of ⬆methods in a particular field, in particular, how to select, apply or evaluate methods systematically in a given situation.<br>• A set of ⬆methods being applied in some combination. |
| مترادف | **Synonym** | A word having the same meaning as another word. |
| محدوه (توسعه سیستم) | **Scope** (of a system development) | The range of things that can be shaped and designed when developing a ⬆system. |
| محصول (در زمینه نرم افزار) | **Product** (in the context of software) | A software-based ⬆system or a ⬆service provided by a system which is developed and marketed by a ⬆supplier and used by ⬆customers. |
| محصول کاری | **Work product** | A recorded, intermediate or final result generated in a work ⬆process.<br>**Synonym:** ⬆Artifact |
| مدل | **Model** | An abstract representation of an existing part of reality or a part of reality to be created.<br>**Note:**<br>• The notion of reality includes any conceivable set of elements, phenomena, or concepts, including other models.<br>• Models are always built for *specific purposes* in a *specific context*.<br>• With respect to a model, the modeled part of reality is called the *original*.<br>• In RE, ⬆requirements can be specified with models. |
| مدل جریان داده | Data flow model | A model that describes the ⬆functionality of a ⬆system by ⬆activities, data stores and ⬆data flows.<br>**Note:**<br>Incoming data flows trigger activities which then consume the received data, transform them, read/write persistent data held in data stores and then produce new data flows which may be intermediate results that trigger other activities or final results that leave the system. |

| Term (Persian) | Term (English) | Definition |
|---|---|---|
| مدل دامنه | **Domain model** | A ⬆model describing phenomena in an ⬆application domain.<br>**Note:**<br>▪ In RE, domain models are created with the intention to understand the ⬆application domain in which a planned ⬆system will be situated.<br>▪ Static domain models specify (business) objects and their relationships in a ⬆domain of interest.<br>▪ Domain story models specify visual stories about how actors interact with devices, artifacts, and other items in a ⬆domain. |
| مدل رفتاری | **Behavior model** | A ⬆model describing the ⬆behavior of a ⬆system, e.g., by a ⬆state machine. |
| مدل زمینه | **Context model** | A ⬆model describing a ⬆system in its ⬆context. |
| مدل شیء | **Object model** | A ⬆model describing a set of ⬆objects and relationships between them. |
| مدل فرآیند | **Process model** | A ⬆model describing a ⬆process or a set of related processes. |
| مدل فعالیت | **Activity model** | A ⬆model of the flow of actions in some part of a ⬆system. |
| مدل کلاس | **Class model** | A model consisting of a set of ⬆classes and relationships between them. |
| مدل موجودیت–رابطه | Entity–relationship model | A ⬆model of data that are relevant for a ⬆system or of the data of an ⬆application domain, consisting of a set of entity types that are each characterized by ⬆attributes and linked by relationships.<br>**Abbreviation:** ER Model |
| مدل مورد کاربرد | Use case model | A ⬆model consisting of a set of ⬆use cases, typically together with a ⬆use case diagram. |
| مدل نیازمندی ها | Requirements model | A ⬆model that has been created with the purpose of specifying ⬆requirements. |
| مدل ویژگی | Feature model | A ⬆model describing the variable features of a ⬆product line, including their relationships and dependencies. |

| Term (Persian) | Term (English) | Definition |
|---|---|---|
| مدل هدف | **Goal model** | A ⬆model representing a set ⬆goals, sub-goals and the relationships between them.<br>**Note:**<br>Goal models may also include tasks and resources needed to achieve a goal, actors who want to achieve a goal, and obstacles that impede the achievement of a goal. |
| مدیریت تغییر | **Change management** | A controlled way to effect or deny a requested change of a ⬆work product. |
| مدیریت نیازمندی ها | **Requirements management** | The process of managing existing ⬆requirements and requirements-related ⬆work products, including the storing, changing and tracing of requirements (⬆traceability). |
| مذاکره | Negotiation | → Requirements negotiation |
| مذاکره نیازمندی ها | **Requirements negotiation** | A ⬆process where ⬆stakeholders are working toward reaching an agreement to resolve ⬆requirements conflicts. |
| مرز زمینه | **Context boundary** | The boundary between the ⬆context of a ⬆system and those parts of the ⬆application domain that are irrelevant for the ⬆system and its ⬆requirements.<br>**Note:**<br>The context boundary separates the relevant part of the environment of a system to be developed from the irrelevant part, i.e., the part that does not influence the system to be developed and, thus, does not have to be considered during Requirements Engineering. |

| Term (Persian) | Term (English) | Definition |
|---|---|---|
| مرز سیستم | **System boundary** | The boundary between a ⬆system and its surrounding ⬆context.<br>**Note:**<br>▪ The system boundary delimits the system as it shall be after its implementation and deployment.<br>▪ At the system boundary, the external interfaces between the ⬆system and its ⬆context have to be defined.<br>▪ The system boundary frequently coincides with the ⬆scope of a ⬆system (which denotes the range of things that can be shaped and designed). However, this is not always the case: there may be components within the system boundary that have to be re-used as they are (i.e., cannot be shaped nor designed), while in the system context there may be things that can be re-designed when the system is developed (which means that they are in scope). |
| مرور | **Review** | An evaluation of a ⬆work product by an individual or a group in order to find problems or suggest improvements.<br>**Note:**<br>Evaluation may be performed with respect to both contents and conformance. |
| مستند نیازمندی ها | **Requirements document** | A document consisting of a ⬆requirements specification.<br>**Note:**<br>Requirements document is frequently used as a synonym for requirements specification. |
| مشترکات | Commonality | The parts of a ⬆product line that are shared by all its members. |
| مشتری | **Customer** | A person or organization who receives a ⬆system, a ⬆product or a ⬆service.<br>Also see ⬆stakeholder. |

| Term (Persian) | Term (English) | Definition |
|---|---|---|
| مشخصات | **Specification** | <ul><li>As a work product:<ul><li>A systematically represented description of the properties of an ↑item (a ↑system, a device, etc.) that satisfies given criteria.</li></ul></li><li>As a process:<ul><li>the process of specifying (↑eliciting, documenting and ↑validating) the properties of an ↑item.</li></ul></li></ul>**Note:**<br>A specification may be about required properties (↑requirements specification) or implemented properties (e.g., a technical product specification). |
| مشخصات نیازمندی ها | **Requirements specification** | A systematically represented collection of ↑requirements, typically for a ↑system, that satisfies given criteria.<br>**Note:**<ul><li>In some situations we distinguish between a ↑*customer* requirements specification (typically written by the ↑customer) and a ↑*system* requirements specification or ↑*software* requirements specification (written by the supplier).</li><li>Requirements specification may also denote the ↑*process* of specifying (↑eliciting, documenting and ↑validating) requirements.</li></ul> |
| مشخصات نیازمندی های سیستم | **System requirements specification** | A ↑requirements specification pertaining to a ↑system.<br>**Note:**<br>A system requirements specification is frequently considered to be a synonym for ↑requirements specification.<br>**Abbreviation:** SyRS |
| مشخصات نیازمندی های مشتری | **Customer requirements specification** | A coarse description of the required capabilities of a ↑system from the ↑customer's perspective.<br>**Note:**<br>A customer requirements specification is usually supplied by the ↑customer. |

| Term (Persian) | Term (English) | Definition |
|---|---|---|
| مشخصات نیازمندی های نرم افزار | **Software requirements specification** | A ⬆requirements specification pertaining to a software ⬆system. **Abbreviation:** SRS |
| مشکل | Problem | A difficulty, open question or undesirable condition that needs investigation, consideration, or solution. |
| معنا | **Semantics** | The meaning of a sign or a set of signs in a ⬆language. |
| معیار پذیرش | **Acceptance criteria** | In agile: Criteria that the implementation of a ⬆user story must satisfy in order to be accepted by the ⬆stakeholders. **Note:** Acceptance criteria may also be written for ⬆backlog items other than user stories. |
| منبع (نیازمندی) | Source (of a requirement) | → Requirements source |
| منبع نیازمندی ها | **Requirements source** | The source from which a ⬆requirement has been derived. **Note:** Typical sources are ⬆stakeholders, documents, existing ⬆systems and observations. |
| موجودیت | Entity | ▪ In general: ▪ Anything which is perceivable or conceivable (→ item). ▪ In entity–relationship–modeling: ▪ an individual ⬆item which has an identity and does not depend on another item (→ object). |
| مورد | Item | Anything which is perceivable or conceivable. **Synonyms:** entity, object |

| Term (Persian) | Term (English) | Definition |
|---|---|---|
| مورد کاربرد | **Use case** | A set of possible interactions between external ⬆actors and a ⬆system that provide a benefit for the actor(s) involved.<br>**Note:**<br>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. |
| مولفه | **Component** | ▪ In general:<br>  ▪ A delimitable part of a ⬆system.<br>▪ In software architecture:<br>  ▪ An encapsulated set of coherent ⬆objects or ⬆classes that jointly achieve some purpose.<br>▪ In testing:<br>  ▪ A part of a ⬆system that can be tested in isolation.<br>**Note:**<br>When viewed in isolation, a component is a ⬆system by itself. |
| مهندس نیازمندی ها | **Requirements Engineer** | A person who – in collaboration with ⬆stakeholders – elicits, documents, validates, and manages ⬆requirements.<br>**Note:**<br>In most cases, requirements engineer is a ⬆role and not a job title. |
| مهندسی نیازمندی ها | **Requirements Engineering** | The systematic and disciplined approach to the ⬆specification and management of ⬆requirements with the goal of understanding the ⬆stakeholders' desires and needs and minimizing the risk of delivering a ⬆system that does not meet these desires and needs.<br>**Abbreviation:** RE |
| نسخه | **Version** | An occurrence of an ⬆item which exists in multiple, time–ordered occurrences where each occurrence has been created by modifying one of its previous occurrences. |

| Term (Persian) | Term (English) | Definition |
| --- | --- | --- |
| نقش | **Role** | <ul><li>In general:<ul><li>A part played by a person in a given context.</li></ul></li><li>In ↑UML ↑class models:<ul><li>The parts played by the linked ↑objects in an ↑association.</li></ul></li></ul> |
| نقشه داستان | Story map | A two-dimensional arrangement of ↑user stories.<br>**Note:**<br>A story map helps understand the ↑functionality of a ↑system, identify gaps and plan releases. |
| نقص | **Defect** | An imperfection or deficiency in a ↑work product that impairs its intended use.<br>**Synonyms:** bug, fault |
| نقطه تنوع | Variation point | A point in a ↑product line where an element of the product line (typically a variable or a ↑feature) can be chosen from a set of ↑variants. |
| نما | **View** | An excerpt from a ↑work product, containing only those parts one is currently interested in.<br>**Note:**<br>A view can abstract or aggregate parts of the work product. |
| نمودار انتقال حالت | State-transition diagram | → State machine diagram. |
| نمودار برن داون | Burndown chart | A diagram plotting the work items that remain to accomplish on a time scale. |
| نمودار توالی | **Sequence diagram** | A diagram type in ↑UML which models the interactions between a selected set of ↑objects and/or ↑actors in the sequential order in which those interactions occur. |
| نمودار جریان داده | Data flow diagram | A diagrammatic representation of a ↑data flow model.<br>**Abbreviation:** DFD |

| Term (Persian) | Term (English) | Definition |
|---|---|---|
| نمودار زمینه | **Context diagram** | ▪ A diagrammatic representation of a ↑context model.<br>▪ In ↑Structured Analysis, the context diagram is the root of the ↑dataflow diagram hierarchy. |
| نمودار شیء | Object diagram | A diagrammatic representation of an ↑object model. |
| نمودار فعالیت | **Activity diagram** | A diagram type in ↑UML which models the flow of actions in some part of a ↑system, including ↑data flows and areas of responsibility where necessary. |
| نمودار کلاس | **Class diagram** | A diagrammatic representation of a ↑class model. |
| نمودار ماشین حالت | **State machine diagram** | A diagrammatic representation of a ↑state machine. |
| نمودار موجودیت–رابطه | Entity–relationship diagram | A diagrammatic representation of an ↑entity–relationship model.<br>**Abbreviation:** ERD |
| نمودار مورد کاربرد | **Use case diagram** | A diagram type in ↑UML that models the ↑actors and the ↑use cases of a ↑system.<br>**Note:**<br>The boundary between the actors and the use cases constitutes the ↑system boundary. |
| نمودار ویژگی | Feature diagram | A diagrammatic representation of a ↑feature model. |

| Term (Persian) | Term (English) | Definition |
|---|---|---|
| نمونه اولیه | **Prototype** | - In manufacturing:<br>  - A piece which is built prior to the start of mass production.<br>- In software and systems engineering:<br>  - A preliminary, partial realization of certain characteristics of a ⬆system.<br>- In design:<br>  - A preliminary, partial instance of a design solution.<br><br>**Note:**<br>- In RE, prototypes are used as a means for requirements ⬆elicitation (see ⬆specification by example) and ⬆validation.<br>- Prototypes in RE can be classified<br>  - with respect to their degree of fidelity into ⬆native prototypes, ⬆mock-ups and ⬆wireframes;<br>  - with respect to their purpose into ⬆exploratory prototypes and ⬆evolutionary prototypes. |
| نمونه اولیه اکتشافی | **Exploratory prototype** | A throwaway ⬆prototype used to create shared understanding, clarify ⬆requirements or validate requirements. |
| نمونه اولیه تکاملی | **Evolutionary prototype** | A pilot system forming the core of a ⬆system to be developed. |
| نمونه اولیه نِیتیو | **Native prototype** | A high-fidelity ⬆prototype that implements critical parts of a ⬆system to an extent that ⬆stakeholders can use the prototype to see whether the prototyped part of the system will work and behave as expected. |
| نمونه ساختگی (یک سیستم دیجیتالی) | **Mock-up** (of a digital system) | A medium-fidelity ⬆prototype that demonstrates characteristics of a user interface without implementing any real ⬆functionality.<br>**Note:**<br>In RE, a mock-up primarily serves for specifying and validating user interfaces. |
| نمونه سازی اولیه | Prototyping | A ⬆process that involves the creation and evaluation of ⬆prototypes. |

| Term (Persian) | Term (English) | Definition |
|---|---|---|
| نوع نیازمندی | **Kind of requirement** | A classification of requirements according to their kind into ⬆*system* requirements (consisting of ⬆*functional* requirements, ⬆*quality* requirements and ⬆*constraints*), *project* requirements, and *process* requirements.<br>**Note:**<br>▪ RE is primarily concerned with system requirements.<br>▪ Quality requirements and constraints are also called ⬆*non–functional* requirements. |
| نیازمندی | **Requirement** | ▪ A need perceived by a ⬆stakeholder.<br>▪ A capability or property that a ⬆system shall have.<br>▪ A documented representation of a need, capability or property. |
| نیازمندی دامنه | **Domain requirement** | A ⬆domain property in the ⬆context of a ⬆system that is required to hold. |
| نیازمندی ذینفع | **Stakeholder requirement** | A ⬆requirement expressing a ⬆stakeholder desire or need.<br>**Note:**<br>Stakeholder requirements are typically written by stakeholders and express their desires and needs from their perspective. |
| نیازمندی راندمان | **Performance requirement** | A ⬆requirement describing a performance characteristic (timing, speed, volume, capacity, throughput, …).<br>**Note:**<br>In this glossary, performance requirements are regarded as a sub–category of ⬆quality requirements. However, they can also be considered as a ⬆kind of requirements of its own. |
| نیازمندی سیستم | **System requirement** | A ⬆requirement pertaining to a ⬆system. |
| نیازمندی عملکردی | **Functional requirement** | A ⬆requirement concerning a result or ⬆behavior that shall be provided by a function of a ⬆system. |

| Term (Persian) | Term (English) | Definition |
|---|---|---|
| نیازمندی غیر عملکردی | **Non-functional requirement** | A ⬆quality requirement or a ⬆constraint.<br>**Note:**<br>⬆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. |
| نیازمندی کاربر | **User requirement** | A ⬆requirement expressing a ⬆user need.<br>**Note:**<br>User requirements are typically about what a system should do for certain users and how they can interact with the system. User requirements are a subset of ⬆stakeholder requirements. |
| نیازمندی کسب و کار | **Business requirement** | A ⬆requirement stating a business ⬆goal, objective or need of an organization.<br>**Note:**<br>Business requirements typically state those business goals, objectives and needs that shall be achieved by employing a ⬆system or a collection of systems. |
| نیازمندی کیفی | **Quality requirement** | A ⬆requirement that pertains to a quality concern that is not covered by ⬆functional requirements. |
| نیمه-رسمی | Semi-formal | Something which is formal to some extent, but not completely.<br>**Note:**<br>A ⬆work product is called semi-formal if it contains formal parts, but isn't formalized totally. Typically, a semi-formal work product has a defined ⬆syntax, while the ⬆semantics is partially defined only. |
| واژه نامه | **Glossary** | A collection of definitions of terms that are relevant in some ⬆domain.<br>**Note:**<br>Frequently, a glossary also contains cross-references, ⬆synonyms, ⬆homonyms, acronyms, and abbreviations. |

| Term (Persian) | Term (English) | Definition |
|---|---|---|
| وایر فِریم | **Wireframe** | A low–fidelity ⬆prototype built with simple materials that primarily serves for discussing and validating requirements, design ideas or user interface concepts.<br>**Note:**<br>When prototyping digital systems, wireframes are typically built with paper. Such prototypes are also called *paper prototypes*. |
| ویژگی | **Feature** | A distinguishing characteristic of a ⬆system that provides value for ⬆stakeholders.<br>**Note:**<br>A feature typically comprises several ⬆requirements and is used for communicating with ⬆stakeholders on a higher level of abstraction and for expressing variable or optional characteristics. |
| هدف | **Goal** | A desired state of affairs (that a ⬆stakeholder wants to achieve).<br>**Note:**<br>Goals describe intentions of stakeholders. They may conflict with one another. |
| همخوانی (نیازمندی ها) | **Consistency** (of requirements) | The degree to which a set of ⬆requirements is free of contradicting statements. |
| هیئت کنترل تغییر | **Change control board** | A committee of ⬆customer and ⬆supplier representatives that decides on ⬆change requests.<br>**Abbreviation:** CCB<br>**Note:**<br>The Change control board should not be confused with a *change advisory board*, which is a committee that evaluates change requests for a ⬆system in operation and typically has no decision power. |
| یو اِم اِل | **UML** | Abbreviation for Unified Modeling Language, a standardized language for modeling problems or solutions. |

# 2 Englisch – Persian Dictionary

| Term (English) | Term (Persian) |
|---|---|
| Acceptance | پذیرش |
| **Acceptance criteria** | **معیار پذیرش** |
| Acceptance test | آزمون پذیرش |
| Activity | فعالیت |
| **Activity diagram** | **نمودار فعالیت** |
| **Activity model** | **مدل فعالیت** |
| **Actor** | **بازیگر** |
| **Adequacy** (of a requirement) | **کفایت** (یک نیازمندی) |
| **Agile** | **چابک** |
| Ambiguity | ابهام |
| **Application domain** | **دامنه کاربرد** |
| Artifact | فرآورده |
| Association | ارتباط |
| **Attribute** | **صفت** |

| Term (English) | Term (Persian) |
|---|---|
| Backlog | بک لاگ |
| **Baseline** | **خط مبنا** |
| **Behavior** | **رفتار** |
| **Behavior model** | **مدل رفتاری** |
| Branch | انشعاب |
| Bug | باگ |
| Burndown chart | نمودار برن داون |
| **Business requirement** | **نیازمندی کسب و کار** |
| Cardinality | کاردینالیتی |
| **Change control board** | **هیئت کنترل تغییر** |
| **Change management** | **مدیریت تغییر** |
| **Change request** | **درخواست تغییر** |
| Changeability | تغییر پذیری |
| **Class** | **کلاس** |
| **Class diagram** | **نمودار کلاس** |

| Term (English) | Term (Persian) |
|---|---|
| **Class model** | مدل کلاس |
| Commonality | مشترکات |
| **Completeness** (of requirements) | **کامل بودن** (نیازمندی ها) |
| **Compliance** | تطابق |
| **Component** | مولفه |
| Composition (in a technical context) | ترکیب (در زمینه فنی) |
| **Configuration** | پیکربندی |
| Conflict (about requirements) | تضاد (درباره نیازمندی ها) |
| **Conformity** | انطباق |
| **Consistency** (of requirements) | **همخوانی** (نیازمندی ها) |
| **Constraint** (in RE) | **قید** (در مهندسی نیازمندی ها) |
| **Context** | زمینه |
| **Context boundary** | مرز زمینه |
| **Context diagram** | نمودار زمینه |
| **Context model** | مدل زمینه |

| Term (English) | Term (Persian) |
|---|---|
| Control flow | جریان کنترلی |
| Correctness | صحت |
| **Customer** | **مشتری** |
| **Customer requirements specification** | **مشخصات نیازمندی های مشتری** |
| Data flow | جریان داده |
| Data flow diagram | نمودار جریان داده |
| Data flow model | مدل جریان داده |
| Decision table | جدول تصمیم |
| **Defect** | **نقص** |
| **Design** | **طراحی** |
| Document template | قالب مستند |
| **Domain** | **دامنه** |
| **Domain model** | **مدل دامنه** |
| **Domain requirement** | **نیازمندی دامنه** |
| **Effectiveness** | **اثربخشی** |

| Term (English) | Term (Persian) |
|---|---|
| **Efficiency** | **کارایی** |
| **Elaboration** (of requirements) | **تفصیل** (نیازمندی ها) |
| **Elicitation** (of requirements) | **استخراج** (نیازمندی ها) |
| End user | کاربر نهایی |
| Entity | موجودیت |
| Entity–relationship diagram | نمودار موجودیت-رابطه |
| Entity–relationship model | مدل موجودیت-رابطه |
| Epic | اپیک |
| **Error** | **خطا** |
| **Evolutionary prototype** | **نمونه اولیه تکاملی** |
| **Exploratory prototype** | **نمونه اولیه اکتشافی** |
| **Fault** | **خطا** |
| **Fault tolerance** | **تحمل پذیری خطا** |
| Feasibility (of a requirement) | امکان پذیری (یک نیازمندی) |
| **Feature** | **ویژگی** |

| Term (English) | Term (Persian) |
|---|---|
| Feature diagram | نمودار ویژگی |
| Feature model | مدل ویژگی |
| Form template | قالب فرم |
| **Functional requirement** | **نیازمندی عملکردی** |
| **Functionality** | **عملکرد** |
| **Glossary** | **واژه‌نامه** |
| **Goal** | **هدف** |
| **Goal model** | **مدل هدف** |
| Homonym | اشتراک لفظی |
| **Increment** (in software development) | **اینکریمنت** (در توسعه نرم‌افزار) |
| **Inspection** | **بازرسی** |
| Item | مورد |
| **Iteration** | **تکرار** |
| **Kind of requirement** | **نوع نیازمندی** |
| Language | زبان |

| Term (English) | Term (Persian) |
|---|---|
| Maintainability | قابلیت نگهداری |
| Method | روش |
| Methodology | متدولوژی |
| **Mock-up** (of a digital system) | **نمونه ساختگی** (یک سیستم دیجیتالی) |
| **Model** | **مدل** |
| **Modeling language** | **زبان مدلسازی** |
| **Modifiability** | **قابلیت اصلاح** |
| Multiplicity | چندینگی |
| **Native prototype** | **نمونه اولیه نِیتیو** |
| **Natural language** | **زبان طبیعی** |
| **Necessity** (of a requirement) | **ضرورت** (یک نیازمندی) |
| Negotiation | مذاکره |
| **Non-functional requirement** | **نیازمندی غیر عملکردی** |
| **Object** | **شیء** |
| Object diagram | نمودار شیء |

| Term (English) | Term (Persian) |
|---|---|
| **Object model** | **مدل شیء** |
| **Performance requirement** | **نیازمندی راندمان** |
| **Persona** | **پِرسونا** |
| Phrase template | قالب عبارت |
| Portability | قابلیت حمل |
| Practice | عمل |
| Prioritization | اولویت بندی |
| **Priority** | **اولویت** |
| Problem | مشکل |
| **Process** | **فرآیند** |
| **Process model** | **مدل فرآیند** |
| Process pattern | الگوی فرآیند |
| **Product** (in the context of software) | **محصول** (در زمینه نرم افزار) |
| **Product backlog** | **بک لاگ محصول** |
| Product line | خط تولید محصول |

| Term (English) | Term (Persian) |
| --- | --- |
| Product owner | مالک محصول |
| **Prototype** | **نمونه اولیه** |
| Prototyping | نمونه سازی اولیه |
| **Quality** | **کیفیت** |
| **Quality requirement** | **نیازمندی کیفی** |
| **Redundancy** | **افزونگی** |
| Refactoring | بازسازی |
| **Release** | **انتشار** |
| **Reliability** | **قابلیت اعتماد** |
| **Requirement** | **نیازمندی** |
| Requirements analysis | تحلیل نیازمندی ها |
| Requirements baseline | خط مبنای نیازمندی ها |
| Requirements branching | انشعاب نیازمندی ها |
| Requirements configuration | پیکربندی نیازمندی ها |
| **Requirements conflict** | **تضاد نیازمندی ها** |

| Term (English) | Term (Persian) |
|---|---|
| Requirements discovery | اکتشاف نیازمندی ها |
| **Requirements document** | **مستند نیازمندی ها** |
| **Requirements elicitation** | **استخراج نیازمندی ها** |
| **Requirements Engineer** | **مهندس نیازمندی ها** |
| **Requirements Engineering** | **مهندسی نیازمندی ها** |
| **Requirements management** | **مدیریت نیازمندی ها** |
| Requirements model | مدل نیازمندی ها |
| **Requirements negotiation** | **مذاکره نیازمندی ها** |
| **Requirements source** | **منبع نیازمندی ها** |
| **Requirements specification** | **مشخصات نیازمندی ها** |
| **Requirements template** | **قالب نیازمندی ها** |
| **Review** | **مرور** |
| **Risk** | **ریسک** |
| **Role** | **نقش** |
| **Safety** | **ایمنی** |

| Term (English) | Term (Persian) |
|---|---|
| Scenario | سناریو |
| **Scope** (of a system development) | **محدوه** (توسعه سیستم) |
| Scrum | اسکرام |
| **Security** | **امنیت** |
| **Semantics** | **معنا** |
| Semi-formal | نیمه-رسمی |
| **Sequence diagram** | **نمودار توالی** |
| **Service** | **خدمت** |
| **Software requirements specification** | **مشخصات نیازمندی های نرم افزار** |
| Source (of a requirement) | منبع (نیازمندی) |
| **Specification** | **مشخصات** |
| Specification by example | بیان مشخصات به همراه مثال |
| Specification language | زبان مشخصات |
| Spike | اِسپایک |
| **Sprint** | **اسپرینت** |

| Term (English) | Term (Persian) |
|---|---|
| Sprint backlog | بک لاگ اسپرینت |
| **Stakeholder** | **ذینفع** |
| **Stakeholder requirement** | **نیازمندی ذینفع** |
| **Standard** | **استاندارد** |
| **State machine** | **ماشین حالت** |
| **State machine diagram** | **نمودار ماشین حالت** |
| **Statechart** | **چارت حالت** |
| State–transition diagram | نمودار انتقال حالت |
| Steering committee | کمیته راهبری |
| Story (in an RE context) | داستان (در زمینه مهندسی نیازمندی ها) |
| Story map | نقشه داستان |
| Storyboard | بورد داستان |
| Structured Analysis | تحلیل ساختیافته |
| Supplier | تامین کننده |
| **Synonym** | **مترادف** |

| Term (English) | Term (Persian) |
| --- | --- |
| **Syntax** | سینتَکس |
| **System** | سیستم |
| **System boundary** | مرز سیستم |
| System context | زمینه سیستم |
| **System requirement** | نیازمندی سیستم |
| **System requirements specification** | مشخصات نیازمندی های سیستم |
| Task | تسک |
| Technique | تکنیک |
| Theme | تِم |
| Timebox | دوره زمان ثابت |
| **Tool** (in software engineering) | ابزار (در مهندسی نرم افزار) |
| **Traceability** | قابلیت ردیابی |
| **UML** | یو اِم اِل |
| **Unambiguity** (of requirements) | عدم ابهام (نیازمندی ها) |
| **Understandability** | قابلیت درک |

| Term (English) | Term (Persian) |
| --- | --- |
| **Usability** | **کاربردپذیری** |
| **Use case** | **مورد کاربرد** |
| **Use case diagram** | **نمودار مورد کاربرد** |
| Use case model | مدل مورد کاربرد |
| **User** | **کاربر** |
| **User requirement** | **نیازمندی کاربر** |
| **User story** | **داستان کاربر** |
| **Validation** | **اعتبارسنجی** |
| Variability | گوناگونی |
| Variant | گونه |
| Variation point | نقطه تنوع |
| **Verifiability** (of requirements) | **تصدیق پذیری** (یک نیازمندی) |
| Verification | تصدیق |
| **Version** | **نسخه** |
| **View** | **نما** |

| Term (English) | Term (Persian) |
|---|---|
| Viewpoint | دیدگاه |
| **Vision** (for a system or product) | **چشم انداز** (یک سیستم یا محصول) |
| **Walkthrough** | **رویداد مرور فرآورده ها** |
| **Wireframe** | **وایر فِریم** |
| **Work product** | **محصول کاری** |

# 3 Sources

I don't cite sources for individual definitions because I deliberately decided not to compile definitions from various existing sources just by copy-paste, but to carefully re-formulate all definitions consistently and according to today's use.

Several definitions are based on my own work [Gl07], [GlWi07], [Gl19]. Most definitions from the agile domain have been taken from or adapted from the IREB RE@Agile Glossary, which was joint work of the RE@Agile working group and me. The revision of the IREB CPRE Foundation Level syllabus [IREB20] also informed several new or changed definitions.

I consulted numerous international standards when writing the definitions [IEEE610], [IEEE730], [IEEE830], [IEEE1012], [IEEE1028], [ISO9000], [ISO12207], [ISO19770], [ISO20246], [ISO24765], [ISO25000], [ISO25010], [ISO26550], [ISO29148], [ISO42010]. However, as the terminology defined or used in these standards is frequently inconsistent or inadequate for a Requirements Engineering glossary, I did not copy any definitions verbatim from these standards.

Other sources that influenced some definitions are [GaWe89], [My06], [Po10], [St73], and [ZoCo05].

For cross-checking, I also consulted the Merriam-Webster online dictionary (https://www.merriam-webster.com) and Wikipedia (https://en.wikipedia.org).

Below I want to give credit for some definitions that I have taken more or less verbatim from a source or that are joint work with others. The copyright for cited definitions lies with the authors of the cited work. The copyright for joint work lies jointly with the author of this glossary and the persons mentioned.

Tabelle 3.1: Credits

| Term | Reference |
| --- | --- |
| Context boundary | Joint work with Klaus Pohl, Chris Rupp, and Thorsten Weyer, based on [Po10], [PoRu11] and [We10] |
| Functional requirement | Joint work with Klaus Pohl, Chris Rupp, and Thorsten Weyer |
| Model | Joint work with Klaus Pohl and Chris Rupp, based on [PoRu11] |
| Quality requirement | Joint work with Klaus Pohl, Chris Rupp, and Thorsten Weyer, based on definitions in my course notes on Requirements Engineering I |
| Requirements Engineering | Definition is a simplification of a definition that was joint work with Klaus Pohl, Chris Rupp, and Thorsten Weyer |
| Requirements specification | Adapted from Pohl and Rupp [PoRu11] |
| System boundary | Joint work with Klaus Pohl, Chris Rupp, and Thorsten Weyer based on [Po10], [PoRu11] |
| System context | Joint work with Klaus Pohl, Chris Rupp, and Thorsten Weyer based on [Po10], [PoRu11], [We10] |

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