Requirements and You

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And you!

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What are requirements?

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 document.

3. A documented representation of a condition or capability as in 1 or 2.

IEEE Standard Glossary of Software Engineering Terminology (1990)

Source: Karl Wiegers, *Software Requirements*, Second Edition (Microsoft Press, 2006)

Anything that drives design choices.

"Requirements Happens..."
Brian Lawrence, 1997

Source: Karl Wiegers, *Software Requirements*, Second Edition (Microsoft Press, 2006)

Requirements are **not**
the design.

Requirements are **not**
the implementation.

What needs to be done,
not **how** to do it.

Requirements can be informal...

Firefox 3 Requirements

http://spreadsheets.google.com/pub?key=p4kVYBRbEKKiemLr9CI-tZw

CON-002d	Needs Def	Content handling	Media Plugins	Support all media types on all platforms as best we can		P1		NFR	End User
CON-003a		Content handling	User Interface	Simplify content handling UI	Dan Mosedale	P1		NFR	End User
CON-003b		Content handling	User Interface	Create an easy-to-use MIME type handling configuration system	Dan Mosedale	P2	10	NFR	End User
CON-004a	Needs Def	Content handling	Download Manager	Revised downloads manager	Dan Mosedale	P2	40	FR	End User
CON-005b		Content handling	Download Manager	Easier retrieval of files that a user has downloaded in the past	Dan Mosedale	P2	40	NFR	End User
CON-006a		Content handling	Download Manager	Integrate download manager with third-party virus scanners and malware protection	Dan Mosedale	P2	50	FR	End User
CON-007a		Content handling	Download Manager	Support pause/resume for downloads. Improve download handling across multiple sessions	Dan Mosedale	P2	60	FR	End User
DIST-001a		Distribution	Configuation	Smooth upgrade while retaining branding customizations	Dan Mills	P1		FR	Distribut
DIST-001b		Distribution	Configuation	Ability to lock in branding (cannot be uninstalled easily)	Dan Mills	P1		FR	Distribut
GKO-004a		Gecko/Platform	Standards Compliance	Pass ACID 2 test	David Baron	P1		FR	Web Develop
GKO-005a		Gecko/Platform	PDF Save	Save web pages as PDF documents	Stuart Parmenter	P2	45	FR	End User
GKO-006a		Gecko/Platform	Native Controls	Native form controls and HTML content for Mac OS	Josh Aas	P2	40	FR	End User
GKO-007a		Gecko/Platform	Offline Apps	Add UI elements for enabling offline app usage	Chris Double	P1		FR	End User

Or very formal...

CDC PHIN Requirements

http://www.cdc.gov/phin/library/documents/pdf/CLS_RSv1.0.pdf

Example

- Specimen ID: PQ8907
  Unique accession number assigned to a blood specimen collected by a public health worker and accessioned by a LIMS system in the state public health lab in Columbus, Ohio.
- OID: 2.16.840.1.11422.4.3.2.2.1.100.1
  Identifies the specific LIMS system in the state laboratory in Columbus, Ohio that assigned the Specimen ID to the specimen.
- Globally Unique ID: 2.16.840.1.11422.4.3.2.2.1.100.1 PQ8907
  Combined OID + Specimen ID creates a globally unique identifier for the specimen that will not collide with any other specimen identifier assigned by any other system or organization world-wide.

2.1.2.3 Laboratory systems must maintain the specimen identifier assigned by an external requestor of laboratory services.

2.1.2.4 Laboratory results must be reported with the specimen identifier assigned by the requestor of laboratory services.

2.1.2.5 Laboratory systems must store all identifiers that are assigned to a specimen/sample. This includes field assigned as well as lab assigned specimen identifiers.

2.1.2.5.a Specimens/samples collected in the field should be accessioned using centrally assigned numbers to reduce the number of identifiers associated with a given specimen/sample.

2.1.2.6 When additional specimens/samples are created from a parent specimen/sample, such as aliquots and new specimen types created from a source sample, the child specimens/samples must be assigned specimen identifiers that can be linked to the original specimen's identifier.

Qualities of Good Requirements

- One statement each
- One possible interpretation for each
- Traceable to a stakeholder
- Feasible
- Testable/verifiable
- Should actually be required

Source: http://www.processimpact.com/articles/qualreqs.html

Why do we want requirements?

- Because they:
  - Define what the system must do
  - Provide a reliable way for the stakeholders to agree
  - Afford a framework to design, implement, and test

Who writes them?

- Project Role: Requirements Analyst
- Could be a designer, engineer, CSR, manager
- Probably collaborative

Based on what?

- Conversations with stakeholders, including:
  - Designers
  - Engineers
  - Product Managers
  - Clients
  - Customers
  - Users!

Who reads them?

- Designers, to **design** the system to meet the requirements
- Engineers, to **implement** the system to the requirements
- Testers, to **test** the system against the requirements
- Usually not for users

If you have bad requirements...

- The resulting system could:
  - Meet the stated but not desired goal
  - Trigger disagreements about interpretations
  - Miss important functionality

If you have good requirements...

- The resulting system should be:
  - Complete (according to stakeholders)
  - Testable
  - Documentable

Questions?