

Non-functional requirements

Non-Functional Requirements

Non-Functional Requirements: complimentary to Functional Requirements

- Functional Requirements: “what a product should do”
- Non-Functional Requirements: “how well a product should do them”

Or “quality requirements”

- » serve as a description of how well a product must perform
- » address the quality factor of the product.

Examples of non-functional requirements (from last payment example):

- Security standards
- Visual design

Non-functional requirements by example 1/3

Accuracy and safety requirements

- » A driver assistance system

Dependability requirements

- » Database of important documents, recover from disaster to avoid data loss

Security requirements

- » Database stored sensitive documents with personal information of its users

Non-functional requirements by example 2/3

Usability requirements

- » an email sign-up form on a website

Performance requirements

- » underwater research device

Non-functional requirements by example 3/3

Example: Non-functional requirement – Maintainability requirement

» A client wants a piece of software which queries a database of local restaurants and places them onto a map for easy navigation.

- The client mentions that they also envision extending this software for another product.
- They eventually want the product to map out other locations, like monuments and tourist attractions, and that, when a location is entered, it should appear on the map.
- The requirement that the software be **flexible** enough to extend beyond the original purpose is a **maintainability requirement**.

Non-functional requirements

types of non-functional requirements

- Accuracy,
- Dependability,
- Security,
- Usability,
- Efficiency,
- Performance,
- Maintainability.

Quiz

Context:

- Airplanes fly from the Vancouver International Airport, or YVR, in Canada, to the Shanghai Pudong International Airport, or PVG, in China daily.
- These airplanes have schedules to which they must adhere, and their range is limited by the amount of fuel that they can carry.

Which of the following are non-functional requirements of airplanes flying from YVR to PVG?

- A. Must consume jet fuel.
- B. Flight schedule must not be delayed.
- C. Must be able to travel between YVR and PVG on a single tank of fuel.
- D. A full load of passengers can be evacuated in no more than 90 seconds.

Quiz

Which of the following are non-functional requirements of airplanes flying from YVR to PVG?

- A. Must consume jet fuel.
- B. Flight schedule must not be delayed.
- ✓ C. Must be able to travel between YVR and PVG on a single tank of fuel.
- ✓ D. A full load of passengers can be evacuated in no more than 90 seconds.

- C and D are the correct answers. They're **performance** and **usability** non-functional requirements, respectively.
- The other two answers are not non-functional requirements.
 - A concerns the input of an airplane
 - B concerns a schedule of the flight, not anything to do with the airplane itself.