Requirements Analysis Document (RAD) Template

1. Introduction
2. Current system
3. Proposed system
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   - 3.2 Functional requirements
   - 3.3 Nonfunctional requirements
   - 3.4 Constraints (“Pseudo requirements”)
   - 3.5 System models
     - 3.5.1 Use case model
     - 3.5.2 Textual description of each use case
     - 3.5.3 Sequence diagrams
     - 3.5.3 Class diagrams
     - 3.5.4 State chart diagrams
     - 3.5.5Activitydiagrams
   - 3. 6 User interface

4. Glossary

Requirements Analysis Document (RAD)…

- RAD documents the results of requirements elicitation and analysis activities
- Audiences of RAD
  - **Client, users, project management, system analysts, system designers**
- Introduction
  - **Provide a brief overview of the functions of the system and the reasons for its development, its scope, and references to the development context (e.g., reference to the problem statement, written by the client, references to existing systems, feasibility study). It can have subsections:**
    - **Purpose, scope, objectives and success criteria of the project, definitions & acronyms, references**

Requirements Analysis Document (RAD)…

- Current system
  - **Describe the current state of affairs**
  - **If the new system will replace an existing system, this section describes the functionality and the problems of the current system.**
  - **Otherwise, this section describes how the tasks supported by the new system are accomplished now**
- Proposed system
  - **Documents the requirements elicitation and the analysis model of the new system**
  - **Overview – presents a functional overview of the system**
  - **FR – describes high-level functionality of the system**
  - **NFR – user-level requirements that are not directly related to functionality**

System Model

Use case model

- **Actors and use cases**

Dynamic model

- **Sequence diagrams for collaborating objects**
- **State diagrams for classes with significant dynamic behavior**
- **Activity diagrams**

- Object model

  - **Class diagrams (classes, associations, attributes and operations)**

User Interface

- **Screen mockups – illustrating the user interface of the system**
- **Navigational Paths – represent the sequence of screens**

Nonfunctional Requirements

- **User interface and human factors**
- **Documentation**
- **Hardware considerations**
- **Performance characteristics**
- **Error handling and extreme conditions**
- **System interfacing**
- **Quality issues**
- **System modifications**
- **Physical environment**
- **Security issues**
- **Resources and management issues**

Nonfunctional Requirements: Trigger Questions

User interface and human factors

- **What type of user will be using the system?**
- **Will more than one type of user be using the system?**
- **What sort of training will be required for each type of user?**
- **Is it particularly important that the system be easy to learn?**
- **Is it particularly important that users be protected from making errors?**
- **What sort of input/output devices for the human interface are available, and what are their characteristics?**

Documentation

- **What kind of documentation is required?**
- **What audience is to be addressed by each document?**

Hardware considerations

- **What hardware is the proposed system to be used on?**
- **What are the characteristics of the target hardware, including memory size and auxiliary storage space?**

Nonfunctional Requirements …

Performance characteristics

- **Are there any speed, throughput, or response time constraints on the system?**
- **Are there size or capacity constraints on the data to be processed by the system?**

Error handling and extreme conditions

- **How should the system respond to input errors?**
- **How should the system respond to extreme conditions?**

System interfacing

- **Is input coming from systems outside the proposed system?**
- **Is output going to systems outside the proposed system?**
- **Are there restrictions on the format or medium that must be used for input or output?**

Nonfunctional Requirements…

- Quality issues
  - **What are the requirements for reliability?**
  - **Must the system trap faults?**
  - **Is there a maximum acceptable time for restarting the system after a failure?**
  - **What is the acceptable system downtime per 24-hour period?**
  - **Is it important that the system be portable (able to move to different hardware or operating system environments)?**
- System Modifications
  - **What parts of the system are likely candidates for later modification?**
  - **What sorts of modifications are expected?**
- Physical Environment
  - **Where will the target equipment operate?**
  - **Will the target equipment be in one or several locations?**
  - **Will the environmental conditions in any way be out of the ordinary (for example, unusual temperatures, vibrations, magnetic fields, ...)?**

Nonfunctional Requirements…

- Security Issues
    - **Must access to any data or the system itself be controlled?**
    - **Is physical security an issue?**
- Resources and Management Issues
    - **How often will the system be backed up?**
    - **Who will be responsible for the back up?**
    - **Who is responsible for system installation?**
    - **Who will be responsible for system maintenance?**

Pseudo Requirements (Constraints)

- Pseudo requirement:
  - **Any client restriction on the solution domain**
- Examples:
  - **The target platform must be an IBM/360**
  - **The implementation language must be Java**
  - **The documentation standard X must be used**
  - **ActiveX must be used**
  - **The system must interface to a barcode reader**