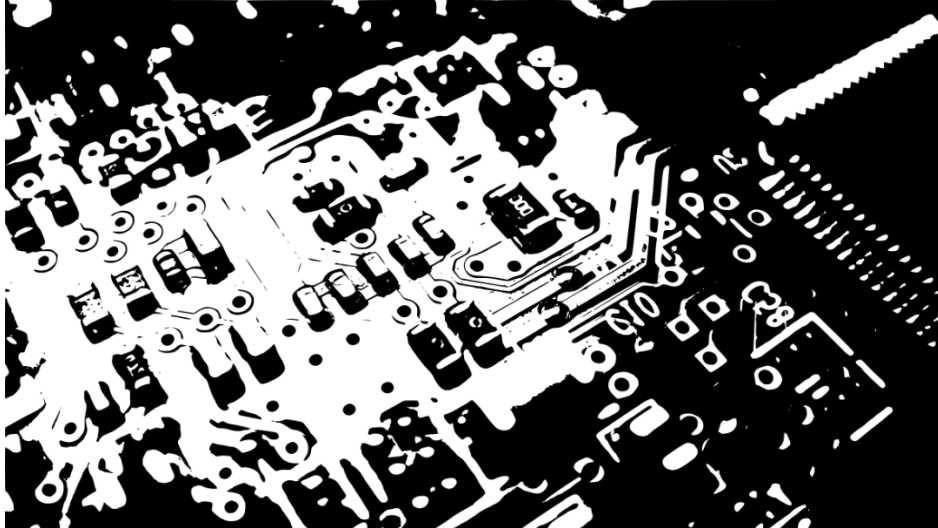


System Design Template

Day / Month / Year | Version x.x



Company Name - www.address.com - Telephone
Address

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1 Executive Summary

1.1 Purpose of this document

Briefly summarize the document and what the proposal is. Condense the key topics here to catch the reader's interest. It's a concise summary. Write this section last once the key topics are identified in the document layout.

1.2 Scope

The scope assembled the boundaries of the design document and should describe the features of the software; what this includes and what this excludes. Provide an overall description of the project and state what it is. What will be produced by the project and what its key features are. What is the justification of the project and the constraints involved that pose a source of risk.

1.3 Relationship to Other Plans

If there are other projects in the works that may be related to this document, provide a short summary of it here. This could be other projects already in progress and/or future projects in the planning phases.

1.4 Methodology, Tools, and Techniques

If the project is using a certain set of tools or techniques to solve a problem, list it here. Write about how it assists in accomplishing tasks and executing responsibilities.

1.5 Policies, Directives and Procedures

The policy is the terms and conditions which directs the company in making a decision. If applicable, write about the policies in place and how the procedures of the project will work with said policies. How will the project influence existing policies and if it changes the mission of the organization.

2 Design Overview

Provide a brief introduction to the proposed system. Outline how the system will fit into the company's business and technology environments, and discuss any strategic issues if appropriate.

2.1 Background Information

Outline any background information that is relevant to the proposed design, for example, business drivers, such as the need for the company to offer customer's new services or compliance issues, such as security controls that must be incorporated into the system design.

2.2 System Evolution Description

[OPTIONAL] - Describe how to migrate the existing system(s) to a more efficient system, or alternatively, moving an existing system to a future implementation.

2.3 Current Process

[OPTIONAL] - Describe the current processes that are in place (if applicable). This may help place the overall design in context.

2.4 Proposed Process

[OPTIONAL] - Describe the proposed process. Reference any supporting documents, if relevant.

2.5 Technology Forecast

[OPTIONAL] - Outline the emerging technologies that are expected to be available in a given timeframe(s), and how they may impact the future development of the system architecture.

2.6 Constraints

Detail any constraints that are placed upon the system design, such as schedules, costs, or technical constraints such as the company's commitment to a specific development platform or programming language.

2.7 Design Trade-offs

Discuss the tradeoffs involved with the design chosen and the reasons for your choices. For example, an increase in security controls will likely entail a decrease in ease-of-use.

2.8 User Characteristics

Describe the intended audience and who may end up being the primary user of the software.

2.8.1 User Problem Statement

[OPTIONAL] - Describe the common issue or complaint that users may have had with a particular software issue or limitation. The problem statement should mention the issue and what could be done to solve the problem.

2.8.2 User Objectives

Based on the user problem statement, describe the objectives set forth in the software design that will allow the user to complete their task. Provide a brief outline of the objectives set out to address current issues.

3 System Architecture

Provide a review about the system architecture that will be used. Note any major breakthroughs or an item that was challenging to design.

3.1 Hardware Architecture

Write about the required hardware to operate the project and what type of hardware architecture is required and if there are limitations. Identify what type of hardware systems the project will operate from of such as data center servers or user personal computers and if there are architecture requirements such as x86 or x64.

3.2 Software Architecture

Write about the coding and methods used for development of the project. Add information about system dependencies, modules, and other characteristics that make up the core of the project.

3.3 Communications Architecture

Write about how the designed system communicates with itself, fetches data, processes data, and any outside communication requirements.

4 Data Design

This section outlines the design of the database management system (DBMS) and non-DBMS files associated with the system. For networks, detail the distribution of data and identify any changes to the logical data model that may occur due to software or hardware requirements.

[OPTIONAL] - If the data includes various element names, types, lengths, sources, outputs and descriptions, add it as an appendix at the end of the document.

4.1 Database Management System Files

Describe how the database will be designed, including the following information as appropriate. This would be a line-item section.

- Logical model - provide normalized table layouts, entity relationship diagrams, and other logical design information.
- DBMS Scheme - Add information about the schemes developed and used, includes sub-schemas, records, sets, tables, storage page sizes and other data.
- Access Methods - List methods used such as if they are indexed, via sets, sequential, random access, sorted pointer arrays, and others.
- Estimate the database file size or volume of data within the file including overhead resulting from access methods and free space.
- If applicable, include a definition of the update frequency of the database table, files, areas, views, records, and sets.
- If applicable, estimate the number of transactions the database may have to process.

4.2 Non-Database Management System Files

Describe all the non-DBMS files where applicable. Depending on file types, identify the files used for input, output, or both. Identify temporary files and which modules read and write to the file. This would be a line-item section.

- Define the record length and blocking factors
- Identify record structures, indexes, record keys, and reference data elements.
- Define the access method such as index sequential, random access, virtual sequential.
- Estimate the size of the data or file

5 Detailed Design

This section of the document will describe the lowest levels and granularity of the system. This section should have enough in-depth information for an engineer to read it and then be able to start coding the requirements.

5.1 Hardware Detailed Design

Depending on the storage system used, provide an in-depth review about the type of hardware the software will operate on. Provide details about physical backup conditions, supported network outlets, what the minimum hardware requirements are and storage requirements.

Provide enough information for developers to procure or build the systems hardware. If the section becomes too large, consider placing it in the Appendix.

Items to include are:

- Processor Requirements
- Power input requirements for each hardware component in use
- Screen monitor resolution
- Memory and storage space requirements
- Requirements of CD-ROM, hard drive, and external storage drives
- Cable requirements (cable type(s) and length(s))
- Connector specifications

5.2 Software Detailed Design

This section will describe the software modules used; the lowest level and granular information in the system. Provide enough detailed information for developers to write the source code and integrate with other software systems, if required.

Perform the following for each module. Depending on the number of modules developed, provide the following information:

- An introduction to each module, it's function and under what conditions is it called on, scheduled, what it processes, and if it interfaces with any other modules internally or externally.
- Provide graphical representations of how the module processes the information it encounters, such as flow of control, logic, and algorithms. Where appropriate, use charts, diagrams, and flowcharts.
- Include data element structures and file structures for each module. Include areas of Input and Output.
- Specify any call routines. Include information if the modules make calls to other packages such as Dynamic Link Libraries.

5.2.1 Module [Y]

[OPTIONAL] Depending on complexity of step 5.2.1, provide a detailed description of each software module here.

5.2.1.1 Processing

Provide in-depth information about how each module interacts with another part of the system including module-to-module communication. Describe the data elements and structures that make up the design of the module and how the data is transformed throughout its use.

5.2.1.2 Local data structures

Describe local data structure that the module is related to.

5.2.2 Module [Z]

Similar to step 5.2.1, provide a detailed description of a software module.

5.3 Communications Detailed Design

Describe in depth how the modules are called and communicate between each other. Provide details about how these communications relate to the physical hardware required. Include details about how the modules should react in case of hardware failure events and fault tolerances.

6 External Interface Design

6.1 Interface Architecture

Describe how the overall software package design should look and operate.

6.2 Interface Detailed Design

7 User Interface

Describe the user interface (human machine) relative to the user.

7.1 Interface Design Rules

List the standards for designing the user interface.

7.2 Inputs

Provide details about how the user provides information to the system such as data entry screens, bar scanners, input media used by the user, etc. Include information if there are access restrictions, security concerns and forms used for data entry.

7.3 Outputs

Describe the system output relative to what the user should expect. This includes data displayed on the screen, queries search results and speed, and reports. Provide details about the purpose of the output relative to the user, and if there are graphical representations available.

7.4 Navigation Hierarchy

Describe how the user navigates through the user interface. Provide a diagram of the navigation hierarchy.

