Your Company Name

Analysis and Design Document

DATE

Revision History

Date	Version	Author	Changed

Table of Contents

Note: Text displayed in blue italics is included to provide guidance to the author and should be deleted before publishing the document. In any table, select and delete any blue line text; then click Home→Styles and select "Table Text" to restore the cells to the default value.

1 OVERVIEW

Briefly state the system, infrastructure, and software to which this document applies.

- *Summarize the history of system development, operations, and maintenance.*
- *Identify the project sponsor, user, developer, and support groups.*
- *Identify current and planned operating sites.*
- *High-level overview and technical summary of implementing the business requirements.*
- *List other relevant documents.*

1.1 Purpose and Scope

Provide information about the purpose and scope of this analysis and design document. Indicate what the design is intended to do and where it fits into the overall system architecture. Indicate the information that will be included and what is out of scope for this project, e.g., it may include information about development and infrastructure but not production support.

1.2 Referenced Documentation

Provide information about all documentation referenced in this document, e.g., number, title, version, and date.

Document Number	Version	Date	Document Name

1.3 Design Assumptions and Support Considerations

Provide information about technology tools, environment conditions, and other support considerations that can affect project design, if applicable.

For example:

- *Behavioral design (how it will behave from a user's point of view in meeting its requirements, ignoring internal implementation).*
- *Constraints include issues such as throughput, response time, CPU utilization, etc. Use a separate sub-section for each constraint if necessary.*
- *Decisions affecting the selection and design of the system, application or software.*
- *Design decisions that respond to requirements designated critical, such as those for safety, security, or privacy.*
- *Design decisions depending on system states or modes.*
- *Design decisions regarding inputs it will accept and outputs it will produce, including interfaces with other systems.*
- *Design decisions on behavior in response to each input or condition, including actions it will perform, response times and other performance characteristics, description of physical systems modeled, selected equations / algorithms / rules, and handling of non-acceptable inputs or conditions.*
- *Design decisions on how databases / data files will appear to the user.*

2 SYSTEM OVERVIEW

Provide a high-level overview and technical summary of implementing the use cases and business requirements.

2.1 Summary of Changes

The following table is a summary of the changes associated with this analysis and design document. For a complete explanation of the use cases and requirements, see the Requirements Document.

Legend:

- Use Case (UC), Business Requirement (BR), or Quality Control # (QC)
- Difficulty Level: High (H), Moderate (M), or Low (L)
- Change Request # (CR)

System	UC / BR, or QC #	Description	Difficulty Level	CR #

3 ANALYSIS

3.1 Business Impact

Provide information about the impact to the business process.

3.2 Application Impact

Provide information about the impact to the application.

3.3 Current Application Behavior

Provide key information about current application behavior.

3.4 Current Software Architecture

3.4.1 Current Process Model

Provide information and a diagram or workflow of the existing process with sub-system decomposition.

3.4.2 Current User Interface

Include a copy of all wire frames and screen shots with before and after changes.

3.4.3 Current Data Model

Provide information about the current data model that will be affected by the requirements.

3.5 New Software Architecture

3.5.1 New Process Model

Provide information and a diagram or workflow of the new process with sub-system decomposition.

3.5.2 New User Interface

Include a copy of all wire frames and screen shots with before and after changes.

3.5.3 New Data Model

Provide information about the new data model. Include table information that were added, changed, or deleted with their hierarchy.

3.5.4 Procedures

Provide new and modified information, e.g.,

- *Procedures*
- *Functions*
- *Packages*
- *Sequences*
- *Database triggers.*

3.5.5 Data Changes

Provide the steps or scripts to make data related changes.

4 SECURITY AND AUDIT

Complete each task with appropriate information.

Task	User / Group / Department Name	Access Rights
Identify users, groups or departments who have access to the development environment.		
Identify users, groups or departments who have access to the test environment.		
Identify users, groups or departments who have access to the production environment.		
Identify the Security Admin users, groups or departments who have access.		
Identify the Application Admin users, groups or departments who have access.		

5 ARCHITECTURE DESIGN

Provide information about the architectural design of the system, application or software, e.g.:

- *Identify the software units that make up the application or system. A software unit is an element in the design; include components of major divisions and subdivisions, e.g., a class, object, module, function, routine, or database.*
- *Show the relationship(s) of the system, application or software.*
- *State the purpose of each system, application or software and identify the requirements and design decisions allocated to it.*
- *Identify each system, application or software development status / type (such as new development, existing design or software to be reused as is, existing design or software to be reengineered, software to be developed for reuse, etc.). For existing design or software, the description shall provide identifying information, such as name, version, documentation references, library, etc.*
- *Describe the application or system's planned utilization of computer hardware resources (e.g., processor capacity, memory capacity, input / output device capacity, auxiliary storage capacity, and communications / network equipment capacity). Include all computer hardware resources, in system-level resource allocations affecting the application or system, and resource utilization measurement planning in the development plan:*
- *Requirements or system-level resource allocations being satisfied.*
- *The assumptions and conditions on which the utilization data are used (e.g., typical usage, worst-case usage, assumption of certain events).*
- *Any special considerations affecting utilization (e.g., use of virtual memory, multiprocessors or the impacts of operating system overhead)*
- *The units of measure used (such as percentage of processor capacity, cycles per second, bytes of memory, kilobytes per second).*
- *Identify program libraries and their location.*

5.1 Interface Design

Describe the interface characteristics of the system, application or software. Include both interfaces among the system, application or software and their interfaces with external entities such as systems, configuration items, and users.

(Use the Appendix Section at the end of the document if landscape paper is necessary).

6 DESIGN, DEVELOPMENT, AND INTEGRATION

Complete each table where applicable with appropriate data (this section is for large complex projects).

Design Assumptions	
Dependencies	
Risks	

Source/Version Control	Source Control	Description of Control
	Software Toolset (.NET, ColdFusion, etc.)	
	Source control tool	
	Location in source control database	
	Current production version (if any)	
	Most recent version of the application	

System Interaction Model

BUSINESS LAYER OBJECTS (add rows as necessary)		
Class Name (Class, executable, etc.)	Purpose/Function	Path

DATABASE (add rows as necessary)						
Database Name	Description/Contents	Path				
Database Profile						
Type	☐ Oracle ☐ SQL Server ☐ Other:	Database Size		GB	Version	
Environment Requirements	☐ Shared ☐ Dedicated ☐ Standby ☐ Other:					

Data Flow Diagram (specify reference/link to diagram)

Entity Relationship Diagram (ERD) (specify reference/link to diagram)

Tables/Views (add rows as necessary)	
Table/View Name	Purpose

STORED PROCEDURES/MACROS (add rows as necessary)		
Procedure/Macro Name	Purpose	Processes/Business Rules

FUNCTIONS (add rows as necessary)		
Function Name	Purpose	Processes/Business Rules

INTEGRATION (add rows as necessary)				
Integration Method Name	Purpose	Source/Destination	Frequency	Path

PRESENTATION LAYER OBJECTS (add rows as necessary)		
User Interface Screens		
Screen Name	Type (.NET, ASP, etc.)	Description
Web Page Design		
Page Name	Type (HTML, ASP, etc.)	Description
REPORTS (Crystal Reports, etc.)		
Report Name	Purpose	Path

6.1 Application Layer Information

Provide other relevant information that may not be included in the previous tables, e.g.,

- ***Application objects, e.g., APIs, classes, reports, forms, XMLs.***
- ***Service layers, e.g., business logic, data access, and navigation logic.***
- ***Enterprise information system layer, e.g., external systems and databases that provide or store data.***
- ***Configuration parameter changes to the configuration files.***
- ***Persistent data management, e.g., persistent data stored by the system and the data management infrastructure required for it. Include the description of data schemes, the selection of a database, and the description of the encapsulation of the database.***
- ***Global variables and international parameters used in the system.***
- ***Boundary conditions***
- ***Start-up, shut-down, error conditions, and printing conditions***
- ***Historical Data Impact.***

6.2 Implementation and Software Execution

Provide information about the execution of the system, application or software. Include diagrams and descriptions showing the dynamic relationship of the system, application or software, e.g.,

- *Flow of execution control*
- *Data flow*
- *Dynamically controlled sequencing*
- *State transition diagrams*
- *Timing diagrams*
- *Priorities among system, application or software*
- *Handling of interrupts*
- *Timing / sequencing relationships*
- *Exception handing*
- *Concurrent execution*
- *Dynamic allocation*
- *Dynamic creation / deletion of objects, processes, tasks, and other dynamic behavior.*
- *Other information, e.g., steps to follow to implement the changes including code check-out, creation of the folders if any, changing configuration, compilation of the code, placing the compiled version in the appropriate folder, verification of the implementation steps such as testing the URL, executing the code etc*

7 INFRASTRUCTURE

Complete each table where applicable with appropriate data (this section is for large complex projects).

Server 1 Profile (repeat block for each server)					
Server Name		☐ Physical ☐ Virtual			
Hardware Profile					
Server Usage	☐ Development ☐ Test ☐ Production ☐ Disaster Recovery				
Server Function	☐ Application ☐ Database ☐ Other		IP Address		
Model		Serial Number			
RAM Memory		ROM Version			
Purchase Date		Number of U's required in cabinet		Rack #	
Location	☐ ☐ ☐ ☐ Other:				
Plant Location	If located at a plant, specify office or offsite location				
Processors	Number of Processors		Processor Type	Processor Speed	
Operating System (OS) Profile					
Operating System	☐ Windows 2003 Enterprise ☐ Windows 2003 Standard ☐ UNIX ☐ Linux ☐ Other:		Version		

DISK CONFIGURATION					
Logical Drive	Category	Volume Name	Size	RAID Level (0,1, 5, etc.)	Location (Internal, external)
C	Operating System				
D	Recovery Partition				
	Administrative Programs (i.e., backup options, etc.)				
	Data / Users / Applications				
	Database				

BACKUP CONFIGURATION (Example: Directory / File Name = C:\Temp)	
Directory / File Name	Frequency
	☐ Daily ☐ Weekly ☐ Monthly ☐ Other:
	☐ Daily ☐ Weekly ☐ Monthly ☐ Other:
	☐ Daily ☐ Weekly ☐ Monthly ☐ Other:
	☐ Daily ☐ Weekly ☐ Monthly ☐ Other:
	☐ Daily ☐ Weekly ☐ Monthly ☐ Other:

BUSINESS CONTINUANCE FILES (names of directories / file names to be replicated)	
Directory / File Name	Frequency

OTHER EQUIPMENT	
Name	Description and Purpose

PROCEDURES	
Reboot Procedures	

8 FUTURE IMPROVEMENTS

Provide information about the following, if applicable

- ***Future improvements and areas likely to change.***
- ***Information about missing useful or desirable features and functions.***
- ***Functional improvements to the package and programs.***

9 APPROVALS

The following table provides the personnel who have reviewed and approved the Analysis and Design document for the (insert Project Name).

Name	Title	Department	Signature	Date
B. Joines	*IT Project Manager*	*IT Applications*		
C. Hyde	*Validation Manager*	*Systems Validation*		

10 APPENDIX

Use this section to include architectural design graphics (e.g., network, server, and system designs), diagrams (e.g., entity relational diagrams–ERD), object models, and data dictionaries.