Project Delivery Methodology (PDM)

**TECHNICAL ARCHITECTURE**

**[Munia Osman, Mariam Shahzad, Fiza Naveed]**

**[Commerce Bank]**

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Approval of the Technical Architecture indicates an understanding of the purpose and content described in this deliverable. By signing this deliverable, each individual agrees with the content contained in this deliverable.

| **Approver Name** | **Title** | **Signature** | **Date** |
| --- | --- | --- | --- |
| Harold Pinks | Developer | Harold Pinks | 11/07/2021 |
| Fiza Naveed | Project Manager | Fiza Naveed | 11/07/2021 |
| Cole Nelson | Developer | Cole Nelson | 11/07/2021 |
| Munia Osman | Project Manager | Munia Osman | 11/07/2021 |
| DaVon Mansaw | Developer | DaVon Mansaw | 11/07/2021 |
| Mariam Shahzad | Project Manager | Mariam Shahzad | 11/07/2021 |

**Contents**

[**Section 1 DOCUMENT SCOPE 3**](#_heading=h.30j0zll)

[**Section 2 OVERALL TECHNICAL ARCHITECTURE 3**](#_heading=h.1fob9te)

[2.1 System Architecture Context Diagram 3](#_heading=h.3znysh7)

[2.2](#_heading=h.2et92p0) System Architecture Model 3

[2.2.1 Overall Architectural Considerations 3](#_heading=h.tyjcwt)

[2.3 System Architecture Component Definitions 4](#_heading=h.3dy6vkm)

[2.3.1](#_heading=h.1t3h5sf) System Architecture Component A 5

[**Section 3 SYSTEM ARCHITECTURE DESIGN 5**](#_heading=h.2s8eyo1)

[3.1 System Architecture Component A 5](#_heading=h.17dp8vu)

[3.1.1 Component Functions 5](#_heading=h.3rdcrjn)

[3.1.2 Technical Considerations 5](#_heading=h.26in1rg)

[3.1.3 Selected Product(s) 5](#_heading=h.lnxbz9)

[3.1.4 Selection Rationale 5](#_heading=h.35nkun2)

[3.1.5 Architecture Risks 5](#_heading=h.1ksv4uv)

[3.2 System Architecture Component B 5](#_heading=h.44sinio)

[**Section 4 System Construction Environment 5**](#_heading=h.2jxsxqh)

[4.1 Development Environment 5](#_heading=h.z337ya)

[*4.1.1* Developer Workstation Configuration 5](#_heading=h.3j2qqm3)

[*4.2* QA Environment 5](#_heading=h.4i7ojhp)

[*4.2.1* QA Workstation Configuration 5](#_heading=h.2xcytpi)

[*4.2.2* Supporting QA Infrastructure Configuration 5](#_heading=h.1ci93xb)

[*4.3* Acceptance Environment 5](#_heading=h.3whwml4)

[*4.3.1* Acceptance Workstation Configuration 6](#_heading=h.2bn6wsx)

[*4.3.2* Supporting Acceptance Infrastructure Configuration 6](#_heading=h.qsh70q)

# Section 1 DOCUMENT SCOPE

The goal of this paper is to define the architecture and design of the online banking application in such a way that all major stakeholders' interests and concerns are addressed. The following are the primary stakeholders in this application:

* Commerce Bank Account Holder (customer/user) - Bank account holders demand a dependable, secure application that allows them to conveniently access transactional data from their accounts and receive alerts when changes occur.
* Customer (Commerce)-customers want assurances that the architecture will support system functionality while also meeting non-functional quality criteria like usability and dependability.
* Developers are looking for an architecture that reduces complexity and development time.
* The project manager is in charge of allocating tasks and overseeing the development process. He or she is looking for a system architecture that separates the system into components of roughly equal size and complexity that may be developed concurrently with minimum dependencies. The modules must have well-defined interfaces in order for this to happen. Modules should also be structured around specialized expertise because most people specialize in a certain skill or technology. For example, all UI logic may be included in a single module. Another can be entirely based on business rationale.
* Requirements Analyst - they want to know that the system's architecture will adhere to all of the requirements outlined in the Requirements Document.

A software system's architecture and design are complicated, and individual stakeholders frequently have specialized interests. There is no single diagram or model that can accurately represent the architecture and design of a system. As a result, software architecture and design are frequently described in terms of different perspectives or views. The architecture of the Commerce Bank Web Application is discussed in this section from four different angles:

1. Logical View – Major components, their qualities, and operations. This approach also takes into account component linkages and interactions. Class diagrams and sequence diagrams are frequently used to illustrate the logical view in OO design.
2. Process View - The threads of control and processes utilized to execute the operations identified in the logical view
3. The Development View shows how system modules relate to the development process.
4. The use case view is employed to both stimulate and validate design activity. The requirements define the functional objectives for the design at the outset of the process. Validation of suggested designs is also done using use cases. It should be easy to go through a use case scenario and see how high-level components interact. The components should have all of the necessary behaviours to execute a use case theoretically.

# Section 2 OVERALL TECHNICAL ARCHITECTURE

## 2.1 System Architecture Context Diagram

The **System Architecture Context Diagram** provides the “big picture” view of the system’s architecture, and puts it in context with the rest of the Performing Organization’s systems portfolio, illustrating how the system’s hardware and software platforms fit into the existing environment.

**Client ---> Server ---> Database**

Client: provides the product (website) for users

Server: contains all business information

Database: is a central repository disposed of all user information and data

## System Architecture Model

The **System Architecture Model** represents the various architecture components that comprise the system, and shows their interrelationships.

Web application → Login page → Dashboard

Transaction → Add Transaction OR Export Transaction

Setting → Notification Rules OR Change personal information

### 2.2.1 Overall Architectural Considerations

*The* ***Overall Architectural Considerations*** *section defines how additional technical requirements have been addressed by the architecture. Representative items in this section may include:*

* *Security Strategy*
* Making the password fulfill certain requirements
* Logging out user after lack of activity
* *Performance requirements*
* Making sure all pages work appropriately
* *Accessibility*
* Creating an interface that is accessible for all types of users such as making text easy to read and pages easy to access.
* *Database sizing*
* Estimating the database requirements, growth, and planning disk requirements.
* *Transaction volumes*
* Showing a full accurate list of transactions.
* Easy to navigate when making transactions
* *Concurrent user*
* Making the application for one at a time use only to help with security
* *Data encryption and decryption*
* Making data easy to read
* *Disaster recovery*
* Creating a method where there is a way to retrieve deleted or lost information.

## 2.3 System Architecture Component Definitions

### System Architecture Component A

The **Architecture Component Definitions** section provides narrative describing and explaining each architecture component in the System Architecture Model, and identifies specific elements that comprise that component in this system. The following are examples of architecture components and elements:

| **Architecture Component** | **Component Elements** |
| --- | --- |
| Database | Transactions  Notification Data  Notification Settings  Accounts |
| Business Logic / UI | Logged in individual account  Login/registration page |

# Section 3 SYSTEM ARCHITECTURE DESIGN

*The* ***System Architecture Design*** *section provides detailed descriptions of each product implementing architecture components, and explains the rationale for product selection.*

## 3.1 System Architecture Component A

*For each* ***System Architecture Component*** *(identified in Section 2.3 above), the narrative describes specific* ***Component Functions****, requirements and other* ***Technical Considerations*** *that were used in the decision-making process, as well as any specific* ***Products*** *selected to implement this component. The* ***Selection Rationale*** *identifies any other products that may have been considered, and provides rationale for the decision.* ***Architecture Risks*** *identifies any potential risks associated with the architecture element.*

### 3.1.1 Component Functions

* Effective Security
* Clean Design
* User Friendly Navigation
* List of Transactions
* List of Notifications
* Forget password

### 3.1.2 Technical Considerations

Technical Considerations for the system are

* The design should minimize complexity and development effort.
* The design should be modular to minimize confusing code
* The design should allow for future additions because of modularity.
* The design should be clearly laid out so any developer could understand the architecture
* The design should be flexible and adaptable to account for any changing requirements.

### 3.1.3 Selected Product(s)

1. User enters credentials in the database and checks for a match if no match user is told to try again
2. User is taken to a homepage dashboard where they see a summary of

transaction all loaded from the database.

### 3.1.4 Selection Rationale

The selection rationale is listing transactions how the user clicks on download transactions and a .CSV file is

downloaded from the database. It contains all transactional data on the account.

### 3.1.5 Architecture Risks

Risks Associated with the system are:

* Performance risks
* Requirements Shortfall
* The Risk that the design is not flexible and adaptable to change according to the requirements

3.2 System Architecture Component B

# Section 4 System Construction Environment

*The* ***System Construction Environment*** *section details the various environments necessary to enable system construction and testing.*

## 4.1 Development Environment

The development environment for the application is Eclipse

### *4.1.1* Developer Workstation Configuration

## *4.2* QA Environment

### *4.2.1* QA Workstation Configuration

### *4.2.2* Supporting QA Infrastructure Configuration

## *4.3* Acceptance Environment

*For each environment necessary for system construction (****Development, QA*** *and* ***Acceptance****), provide detailed specifications for the* ***Workstation*** *and* ***Supporting Infrastructure*** *that will be used (including hardware and operating system requirements, all necessary installed packages and tools, and needed directory structures**that will be utilized to store all construction components).*

### *4.3.1* Acceptance Workstation Configuration

### *4.3.2* Supporting Acceptance Infrastructure Configuration