**Design Template**

|  |
| --- |
| [MJ Logistics Gaming Company] |
| Software Project Template |
| [BPN1: Software Solution] |

|  |
| --- |
| [Thomas Boshans]  4-15-2025  [Version 1.0] |

Contents

[A. Introduction 3](#_Toc117147385)

[A1. Introduction and Purpose Statement 3](#_Toc117147386)

[A2. Overview of the Problems 3](#_Toc117147387)

[A3. Goals and Objectives 3](#_Toc117147388)

[A4. Prerequisites 3](#_Toc117147389)

[A5. Scope 3](#_Toc117147390)

[A6. Environment 3](#_Toc117147391)

[B. Requirements 4](#_Toc117147392)

[Business Requirements 4](#_Toc117147393)

[User Requirements 4](#_Toc117147394)

[Functional Requirements 4](#_Toc117147395)

[Non-Functional Requirements 4](#_Toc117147396)

[C. Software Development Methodology 4](#_Toc117147397)

[C1. Advantages and Disadvantages 4](#_Toc117147398)

[Advantages of the Agile Method 4](#_Toc117147399)

[Disadvantages of the Agile Method 4](#_Toc117147400)

[Advantages of {A Different Method} 4](#_Toc117147401)

[Disadvantages of {A Different Method} 4](#_Toc117147402)

[C2. Best suited 5](#_Toc117147403)

[D. Create Two Representations of the Software Solution 5](#_Toc117147404)

[Representation 1 5](#_Toc117147405)

[Representation 2 5](#_Toc117147406)

[E. Testing 6](#_Toc117147407)

[Test Name 1 6](#_Toc117147408)

[Test Name 2 7](#_Toc117147409)

[Test Name 3 8](#_Toc117147410)

[F. Sources 8](#_Toc117147411)

# Introduction

# A1. Introduction and Purpose Statement

The purpose of this proposal is to present a software solution for the MJ Logistics Gaming Company, that addresses current customer relationship management (CRM) challenges. The project, titled BPN1: Software Solution, outlines the design of a centralized, web based CRM system aimed at improving business process efficiency, data integration, and user experience. This system will replace fragmented legacy tools, offering a scalable and secure platform that enhances reporting, customer tracking, and activity management capabilities.

# A2. Overview of the Problems

MJ Logistics currently operates with a fragmented system of spreadsheets and legacy databases spread across departments and office locations. This disjointed approach results in duplicate entries, inconsistent customer records, poor visibility into interactions, and frequent communication breakdowns between teams. As sales volume has grown by 42% in the past two years, these inefficiencies have worsened, making it difficult for employees to keep up with client data, service requests, and reporting needs.

The proposed CRM solution addresses these issues by centralizing all contact and interaction data into a single system. Real-time updates and integrated ticketing will eliminate duplicate records and enable departments to see the latest customer activity. Role-based access ensures that staff only interact with relevant data, reducing clutter and error. Built-in reporting tools will replace manual spreadsheet generation, providing stakeholders with up-to-date dashboards and analytics. Lastly, integration with Microsoft Outlook will streamline communication, automatically logging meetings and emails within each contact profile.

# A3. Goals and Objectives

**Goals:**

1. Improve company-wide visibility into customer interactions and sales activity.
2. Eliminate data silos and unify all customer-related tools into a single platform.
3. Empower leadership with real-time reporting and analytics capabilities.
4. Enhance support for a remote and distributed workforce.

**Objectives:**

1. Deploy a centralized CRM that integrates with Microsoft Outlook and supports 2,000+ users across multiple locations.
2. Replace all legacy databases and spreadsheets with a unified, relational data structure by Q4 2025.
3. Implement automated reporting tools that allow managers to filter by department, contact, or time period within 60 days of rollout.
4. Launch a ticketing system with real-time tracking and escalation capabilities by month 2 of development.
5. Ensure system uptime of at least 99.9% through a managed cloud service provider with SLA-backed hosting.

# A4. Prerequisites

List the prerequisites, their descriptions, and future completion dates. Be sure to be clear and concise for all listed prerequisites. (You may add lines for additional prerequisites if needed.)

|  |  |  |  |
| --- | --- | --- | --- |
| Number | Prerequisite | Description | Completion Date |
| 1 | Stakeholder Approval | Final approval from executive leadership and department heads. | May 2025 |
| 2 | Product Evaluation | Analysis of COTS and custom built options. | May 2025 |
| 3 | Infrastructure Setup | Prepare hosting environment and security protocols. | June 2025 |
| 4 | Training Program | Develop training guides for end users and admins. | June 2025 |

# A5. Scope

The proposed CRM system will support contact management, sales tracking, ticketing, activity logging, order processing, and reporting. It will include features such as role based access, real time updates, and integration with Microsoft Outlook. The solution does not cover marketing automation tools, customer facing mobile app development, or store front functionalities at this stage.

# A6. Environment

The CRM solution will be delivered as a responsive, browser-based application accessible on major platforms including Chrome, Firefox, Safari, and Microsoft Edge. It will support full functionality on mobile devices and tablets, ensuring compatibility for MJ Logistics' remote and on-site staff.

The back-end of the solution will be hosted on a secure, cloud-based infrastructure. This environment will comply with the organization’s need for high availability and resilience, offering a minimum 99.9% uptime backed by a formal Service Level Agreement (SLA). To minimize disruptions, the solution must include detailed procedures for handling connectivity outages and scheduled maintenance windows. Maintenance events and updates will be communicated in advance through a designated support portal, and critical patches will follow a change control protocol.

The system must allow MJ Logistics to defer or reject automatic upgrades if they conflict with business operations. This includes the ability to schedule updates during off-hours and avoid disruptions to high-traffic periods. Custom development must be supported through vendor collaboration or in-house extensions, depending on the solution architecture.

Support will include both automated ticketing and access to live representatives during business hours, along with detailed documentation and a searchable knowledge base. Data will be protected with daily backups and encrypted at rest and in transit.

A staging or sandbox environment will be provided to test all enhancements, feature updates, and security patches prior to deploying them to the live environment. This test environment will mirror the production system and be used for user acceptance testing (UAT), performance benchmarking, and validation of system changes before rollout.

# Requirements

In the subsections below, explain your four distinct requirements, one for each subsection.

*Note: All requirements must be in your own words and must interpret the requirements found in the “CRM Requirements” supporting document. Please do not copy and paste word for word from the requirements in the “CRM Requirements” supporting document.*

## Business Requirements

The CRM solution must support robust reporting features that allow users to generate, filter, and export both predefined and custom reports. These reports should accommodate executive-level summaries as well as detailed views filtered by department, date range, and user-defined parameters. This business requirement addresses MJ Logistics’ need for real-time insight into sales performance, stakeholder engagement, and operational efficiency.

## User Requirements

The system must provide seamless access for users operating across various platforms and devices. This includes support for major browsers such as Chrome, Firefox, Safari, and Edge, as well as mobile operating systems like Android and iOS. Given MJ Logistics' distributed workforce and increasing remote operations, this user requirement ensures consistent access to the CRM across all user environments.

## Functional Requirements

The CRM must include a comprehensive ticketing module that tracks all interactions with clients or partners. Each ticket should log contact information, the nature of the inquiry, timestamps, assigned staff, and a history of follow-ups. The system must automatically associate these records with relevant contacts and generate audit trails to support accountability and service quality.

## Non-Functional Requirements

The system must enforce strong data governance through permissions and audit logging. It should support both soft and hard delete functions, where soft deletes hide records from standard views and hard deletes permanently remove data with appropriate authorization. The system must also maintain version control and allow for rollback of entries where needed, supporting long-term record accuracy and regulatory compliance.

# Software Development Methodology

Examine the Agile methodology and compare it to other software development methodologies.

*Note: All subsections are required. Refer to the requirements section and rubric section of the assessment for additional information.*

# C1. Advantages and Disadvantages

## Advantages of the Agile Method

Agile supports frequent stakeholder feedback through sprints and iteration reviews, helping align CRM development with evolving company needs. Agile reduces the risk of project failure by delivering working features early, allowing issues to be caught before major investment. Agile allows teams to adapt to changing priorities, which is essential for MJ Logistics as its CRM needs may grow or shift during development.

## Disadvantages of the Agile Method

Agile requires active and ongoing participation from stakeholders, which can be difficult for busy departments. Without strict boundaries, Agile can lead to scope creep as new feature requests emerge mid-development. Agile's flexibility may make it harder to forecast budgets and delivery timelines, especially early in the project.

## Advantages of the Waterfall method

Waterfall offers a linear and structured process, making it easier to track project milestones and deadlines. Budgets and timelines are easier to estimate and manage with fixed requirements. Waterfall encourages thorough documentation, which benefits long-term maintenance and onboarding.

## Disadvantages of the waterfall method

Waterfall is inflexible; once requirements are defined, changes are costly and difficult to implement. Testing is delayed until after development, which increases the risk of discovering critical flaws too late. Limited user feedback during development may result in a product that doesn’t meet actual business needs.

# C2. Best suited

Agile is the most suitable development methodology for MJ Logistics’ CRM project. The company's evolving business processes and need for real-time input from stakeholders make Agile’s iterative approach ideal. Agile allows MJ Logistics to prioritize modules such as contact management, ticketing, and reporting, implementing them incrementally and adjusting based on feedback. This also supports future integrations and scalability more effectively than a fixed-scope Waterfall model.

# Create Two Representations of the Software Solution

*Note: You may add subsections here to fit the needs of the solution. At least two different representations of your design need to be present.*

## Representation 1: UML Class DIAGRAM

This UML class diagram depicts core CRM entities such as Business, Contact, Ticket, and Order. It illustrates the relationships between these entities, which are critical to the CRM’s data model. The structure allows for efficient data management and supports one-to-many relationships, making it easier to associate contacts with multiple orders or support tickets.

A diagram of a contact information

AI-generated content may be incorrect.

## Representation 2: TICKET LIFECYCLE FLOWCHART

This process flowchart outlines the full lifecycle of a customer support ticket. It begins with receiving a customer inquiry and ends with resolution and closure. The flow ensures the system supports essential steps such as assignment, response, follow-up, and escalation when needed. This representation provides clarity on business logic and system flow for developers and stakeholders alike.

A diagram of a customer service

AI-generated content may be incorrect.

# Testing

# Test Name 1: create and assign ticket

|  |
| --- |
| Requirement to be tested:  The system must allow users to create a ticket for a customer inquiry and assign it to the appropriate department team with the CRM system. |
| Preconditions: Conditions that must be present before the test case can successfully run.  The user must be logged into the CRM system with appropriate permissions. The customer contact profile must already exist within the database. The user must have access to the ‘Ticketing’ module of the CRM. |
| Steps: The steps the tester must execute to test the feature.   1. Navigate to the ‘Contacts’ section of the CRM 2. Select an existing contact profile. 3. Click on ‘New Ticket’. 4. Fill out the required fields: subject, inquiry description, and select the appropriate department from the dropdown. 5. Click ‘Submit’ to finalize the ticket. 6. Navigate to the ‘Tickets’ dashboard to verify ticket assignment and visibility. |
| Expected results: Expected results and any side effects such as updating a database, writing to a file, etc.  A new ticket should be saved with a unique ticket ID. The ticket should automatically appear in the queue for the selected department. The system should link the ticket to the correct contact and update the contact’s activity history. A confirmation message should be displayed to the user indicating creation. |
| Pass/Fail: Explain why the test case passed or failed. The results can be compiled and used to determine if the application is ready for delivery or release.  Pass Criteria: The ticket is created, saved to the database, assigned to the correct team, appears in the dashboard and is associated with the correct contact.  Fail Criteria: The ticket is not saved, incorrectly assigned has missing fields, or does not appear in the contact’s activity log. |

# Test Name 2: View and export reports

|  |
| --- |
| Requirement to be tested:  The system must support custom report generation with filtering, formatting, and exporting capabilities. |
| Preconditions: Conditions that must be present before the test case can successfully run.  The user must be logged into the system with a ‘Manager’ role. The CRM must contain populated data such as tickets, contacts, and orders across multiple departments. The report module must be enabled and accessible. |
| Steps: The steps the tester must execute to test the feature.   1. Navigate to the ‘Reports’ section in the CRM. 2. Choose the ‘Ticket Activity’ report template. 3. Apply filters for a specific department and a date range of the past 30 days. 4. Click ‘Generate Report’ to view filtered results. 5. Review the data, then click ‘Export’ to download the report in CSV format. 6. Open the CSV file and verify the accuracy of the exported data. |
| Expected results: Expected results and any side effects such as updating a database, writing to a file, etc.  The CRM should generate a report with the criteria applied filtered. The report displayed should include accurate fields such as ticket IS, subject, assigned department, and timestamps. The exported CSV file should exactly match the on screen data with proper formatting. |
| Pass/Fail: Explain why the test case passed or failed. The results can be compiled and used to determine if the application is ready for delivery or release.  Pass Criteria: If the function filters the report correctly, data is complete and correct, and the export matches the on screen report.  Fail Criteria: The export has incorrect data, filters are not applied properly, or if the file is unreadable or missing fields. |

# Test Name 3: contact preferences management

|  |
| --- |
| Requirement to be tested:  The system must allow contacts to update their own communication preferences, including opting in or out of specific marketing channels. |
| Preconditions: Conditions that must be present before the test case can successfully run.  A user must be logged in as a contact with access to account settings. The contact must have existing preferences stored in the system. The contact preference system must be active and integrated with the main contact profile. |
| Steps: The steps the tester must execute to test the feature.   1. Navigate to the ‘Account Settings’ section of the CRM. 2. Select the ‘Marketing Preferences’ tab. 3. Modify selections such as opting out of email or SMS communications. 4. Click ‘Save Preferences’. 5. Refresh the page or log out and log back in. 6. Revisit the preferences to ensure changes were stored. 7. Simulate or verify suppression of outbound marketing to this contact. |
| Expected results: Expected results and any side effects such as updating a database, writing to a file, etc.  The updated preferences should be saved to the database immediately. The UI should reflect the new settings even after logout or refresh. The system must prevent outbound marketing messages to customers who have opted out. A timestamp or audit log should be associated with the change. |
| Pass/Fail: Explain why the test case passed or failed. The results can be compiled and used to determine if the application is ready for delivery or release.  Pass Criteria: If the preferences are accurately updated, persist through user session changes, and reflect in communication filters.  Fail Criteria: If preferences reset, changes are not saved or the system continues to send communications against user preferences. |