**Software Requirements**

**Specification**

**for**

**RAMS Corner:**

**ITRO Ticketing Service System**

**Version 1.0 approved**

**Prepared by:**

**Nacor Industries**

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# Table of Contents

[Table of Contents 2](#_Toc130375067)

[Revision History 2](#_Toc130375068)

[1. Introduction 1](#_Toc130375069)

[1.1 Purpose 1](#_Toc130375070)

[1.2 Document Conventions 1](#_Toc130375071)

[1.3 Intended Audience and Reading Suggestions 1](#_Toc130375072)

[1.4 Product Scope 1](#_Toc130375073)

[2. Overall Description 2](#_Toc130375074)

[2.1 Product Perspective 2](#_Toc130375075)

[2.2 Product Functions 2](#_Toc130375076)

[2.3 User Classes and Characteristics 3](#_Toc130375077)

[2.4 Operating Environment 3](#_Toc130375078)

[2.5 Design and Implementation Constraints 3](#_Toc130375079)

[2.6 User Documentation 3](#_Toc130375080)

[2.7 Assumptions and Dependencies 4](#_Toc130375081)

[3. External Interface Requirements 4](#_Toc130375082)

[3.1 User Interfaces 4](#_Toc130375083)

[3.2 Hardware Interfaces 4](#_Toc130375084)

[3.3 Software Interfaces 4](#_Toc130375085)

[3.4 Communications Interfaces 4](#_Toc130375086)

[4. System Features 5](#_Toc130375087)

[4.1 System Feature 1 5](#_Toc130375088)

[4.2 System Feature 2 (and so on) 5](#_Toc130375089)

[5. Other Nonfunctional Requirements 5](#_Toc130375090)

[5.1 Performance Requirements 5](#_Toc130375091)

[5.2 Safety Requirements 6](#_Toc130375092)

[5.3 Security Requirements 6](#_Toc130375093)

[5.4 Software Quality Attributes 6](#_Toc130375094)

[5.5 Business Rules 6](#_Toc130375095)

[6. Other Requirements 6](#_Toc130375096)

[Appendix A: Glossary 6](#_Toc130375097)

[Appendix B: Analysis Models 6](#_Toc130375098)

# Revision History

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Date** | **Reason For Changes** | **Version** |
| Alpha | 03/22/2023 |  | 1 |
|  |  |  |  |

# Introduction

## Purpose

This Software Requirements Specification document is intended to give detailed overview of the RAMS Corner Ticketing Service web application, along with its features, user interface, user stories, hardware and software requirements, and limitations. This document also aims to provide ample information regarding the direction and functions that the web application currently has as per the request of the client—the Information Technology Resource Office (ITRO) prior to its possible deployment.

## Document Conventions

Technical jargons and naming conventions used within this document would be properly defined through the glossary. This document is printed on A4 paper in Arial Italic font. Normal text is size 11 white, while section headings are size 18 bolded white with Times New Roman font. The subheadings are bolded size 14 with Times New Roman font.

## Intended Audience and Reading Suggestions

For utmost comprehension of the system and its functions, it is highly encouraged for the reader to read the entirety of this document from start to bottom. However, to fully grasp the technicalities and operational terminologies used within the system, readers could opt to proceed to see the glossary first and foremost. For the overview of the document and project itself, see Overall Description (Section 2). For a detailed description of the web application, see System Feature (Section 4). For readers that are interested in the hardware and software interfaces and the user interface, they should see the External Interface Requirements (Section 3). The other characteristics that software must-have for the web application can be found in Other nonfunctional Requirements (Section 5). These characteristics include performance, security, software quality, and many more.

## Product Scope

The project's scope will be focused only on creating a web-based application and implementing the limited features requested by the client. The web-based application’s wireframe and initial design assets would be made using Canva, while Hypertext Markup Language (HTML), and Cascading Style Sheets (CSS) would be utilized for the UI / UX designs. Users (ITRO Staff, ITRO Head, ITRO Clients) can access the web app using the internet through their smartphones, computers, and/or tablets to access their needs.

# Overall Description

## Product Perspective

RAMS Corner is web-based ticketing service application that receives and automatically sorts out and manage tickets of clients’ requests and queries received by the ITRO in lieu of their current email-based reporting system to promote efficiency and avoid the need for taxing manual sortation of emails by the ITRO.

## Product Functions

The main functions of the web-application are listed below:

* Dashboard
  + The dashboard is meant to provide information and updates at a glance, customized to each user and user type.
    - ITRO Client:
      * A simpler version which aims to give ample information about the possible concerns of the client at a glance which includes, ticket status, number of tickets sent, and KB shortcuts.
    - ITRO Admin/ITRO Staff:
      * The admin and staff dashboard has a more technical and professional look but has the same functions related to their concerns that involves—but are not limited to—the following: received tickets, assigned tickets, statuses of tickets concerning them, ticket summary, active clients, and agents, etc.
* Notifications
  + The notifications pane would be available to every user type and would provide them with the latest updates regarding their tickets and other issues that may be of their concern.
* Ticket Table
  + The ticket table enlists all of the tickets received by the ITRO, along with their current status and details which entails the date and time it is created, along with its prioritization, assignment, etc.
* Knowledge Base
  + The Knowledge Base is a collection of common IT problems and their resolutions that would aims to empower the users and give them the ability to troubleshoot their problems by themselves.
    - ITRO Admin:
      * Could view, add, modify, hide, and approve KB entries to be viewed by the ITRO Clients.
    - ITRO Staff:
      * Could view, add, modify, or hide KB entries from the ITRO Clients.
    - ITRO Client:
      * Could view the knowledge base for self-troubleshooting.
* Generate Reports
  + This feature was made exclusively for the ITRO Admin/Staff interface so that they may be able to view the data regarding the tickets sent depending on their choice of date frame that could be downloaded in PDF format.
* Tags
  + This feature allows the users tagged through the CC section of the tickets to be notified about any updates and progress made to the tickets.
* My Personal Tickets
  + This pane allows the users to see the tickets that they’ve sent personally.

## User Classes and Characteristics

|  |  |
| --- | --- |
| *Roles* | *Description* |
| *ITRO Client* | * *This user is the primary visitor of the web-app* * *He/she would be the one to report about a problem to the ITRO and send a ticket about it.* |
| *ITRO Staff* | * *This user handles and processes the requests and concerns through the tickets assigned to them.* * *Their goal is to report-back to the client to send them updates about the tickets’ progress.* * *They could also add or modify KB contents.* |
| *ITRO Admin* | * *This user has the highest power over the web-app.* * *He/she can assign tickets to the staff, add, approve, or disapprove KB contents, or override ticket processes.* * *He/she manages the web-app.* |

## Operating Environment

Through an agile workflow based off of the water-scrum-fall methodology, the team worked together with the client (ITRO) in order to achieve the desired output and objectives. This setup involving the client themselves have been at place ever since the planning, until the development phase.

The ITRO Head, Mr. Jojo Castillo, wholeheartedly supports the project knowing that the development of the application would lead to ease up the processes done within the APC concerning the ITRO that would lead to faster responses and resolutions.

Even though they will use the new system, they will still be practicing their current system which the client still has an option for face-to-face transactions through the ITRO Office, and they could also add in the transaction details within the database.

In terms of workforce, the team developed the system knowing the initial number of people involved within the ITRO Department, so they could all fulfill the needed roles to work with the new system. The client are also willing to undergo the necessary training for the new system and would be the ones in charge of maintaining the web-app upon the takeover.

## Design and Implementation Constraints

Listed below are the following design and implementation constraints that the RAMS Corner web application will encounter:

* Data Privacy
  + Upon takeover, the ITRO would be the ones fully responsible of the web-application, and any other authorization regarding the APC faculty and the user’s credentials.
* Deployment Budget
  + The development team would not ask for any form of payment, and the ITRO would be the ones in charge of the system’s deployment within their budget, along with any other preceding financial needs that the app might incur.
* Manpower / Workforce
  + The web-application has been made with the limited manpower that the ITRO currently has, however, their lack of workforce should be dealt with in order to have more hands-on deck to ensure that there would always be an eye out to see the updates within the system.
* Training / System Migration
  + The ITRO staff are bound to learn and familiarize themselves with the new system to utilize it to its fullest extent along with its features and functionalities.

## User Documentation

1. Project Documentation: [Nacor Industries - MCSPROJ Finals Paper.docx](https://asiapacificcollege.sharepoint.com/:w:/s/MCSPROJMI201202/ETYwL4CbbcNCousUwHJFPyQBbitXIgJDVIqHIfKRxgihgA?e=vy5fG1)
2. Project Charter: [Nacor Industries - Project Charter.docx](https://asiapacificcollege.sharepoint.com/:w:/s/MCSPROJMI201202/ETX4aLL7_vxGr9ESSR1pnCcBKkFDDMAZWHbGNg9kz4niuA?e=IFmCgZ)
3. Activity List: [Nacor Industries - Activity List.docx](https://asiapacificcollege.sharepoint.com/:w:/s/MCSPROJMI201202/EYrie0ONL0xNmyezKxBmmaMBC2q_crqkgCzKT3Rh9tIAiQ?e=fWQfj1)
4. Statement of Work: [Nacor Industries - Statement-of-Work.docx](https://asiapacificcollege.sharepoint.com/:w:/s/MCSPROJMI201202/EepaaK_tmvdKvQyJCvxDnwEBJbbhkdK-tdOA238B7qpq8g?e=WrvZLY)
5. Quality Management Plan: [Nacor Industries - Quality Management Plan.docx](https://asiapacificcollege.sharepoint.com/:w:/s/MCSPROJMI201202/EQa6jsPKoQ9ApSPhVIM2UTIBXnx3rhQN36ln34e4uq4SKQ?e=9ZQwfO)
6. Test Cases: [Nacor Industries -Test Case .xlsx](https://asiapacificcollege.sharepoint.com/:x:/s/MCSPROJMI201202/EVQhEJRmawZBpK-wcdCQJF4BUTA2IXx8qcJuVfNuz5mjtw?e=SuD4NW)
7. Contingency Plan: [Nacor Industries - Contingency Plan.xlsx](https://asiapacificcollege.sharepoint.com/:x:/s/MCSPROJMI201202/EQxWunIJhGtHnBc0_uNMx0UB6rgyURGslNJ6rpszu3ICFw?e=C3DXXS)
8. User Review: [Nacor Industries User Project Review.docx](https://asiapacificcollege.sharepoint.com/:w:/s/MCSPROJMI201202/ETOuqlUY_HtCmt75SfUJpnEBWv381qN6v1nNEJ5mg5BJVA?e=2AFsCz)
9. Project Sway: [RAMS Corner Ticketing Service System.url](https://asiapacificcollege.sharepoint.com/:u:/s/MCSPROJMI201202/Edn8aO3_r79CoPOrh4UgRdoBa7hZR-Hmpqn5mBC5lIJMTg?e=JBrnmG)
10. Project Teaser Video: [Nacor Industries - Final Video Pitch.mp4](https://asiapacificcollege.sharepoint.com/:v:/s/MCSPROJMI201202/EXe0lvAGq7FClIAcwc2sPwkBIctcRsUT3AHH08ID_Vl40A?e=JSxlc7)

## Assumptions and Dependencies

***Assumptions:***

1. The ITRO, as well as their clients have access to the internet through APC Rams Wi-Fi (or personal data/ISP) along with the necessary devices to use the web application.
2. The ITRO Staff would be trained in using the new web application.
3. The web application will be developed without any major technical issues or roadblocks.
4. *The web-app will be deployed by the client using their resources with sufficient processing power, memory, and storage.*
5. The web application will be developed within the given timeline (the entirety of PBL1).
6. The APC faculty and students would utilize the new system instead of the email-based reporting system.
7. The ITRO would properly launch and promote the new system.
8. The email notification system will work without any issues.

***Dependencies:***

1. The team will use Laravel, an open-source PHP web framework for developing web applications.
2. The team will use MySQL as their database for the web application.
3. The ITRO would provide the developers with accurate information about their office and services.
4. The users need to access to the internet and the necessary devices to use the web application.
5. The web application need to be hosted on a reliable and secure server provided by the ITRO.
6. The web application should have access to a reliable and fast internet connection.
7. The email notification system should have access to a reliable and fast internet connection.
8. Microsoft Outlook should function accordingly in order to send the email-based notifications.
9. The web browser/s upon which the application would be opened should be free of viruses or malware and is reliable.

# External Interface Requirements

## User Interfaces

The user interface for the web-app will be designed to meet the primary functions of the RAMS Corner Ticketing System: User Dashboard, Notifications, Ticket Creation, View Tickets, Notifications, Generate Reports, Knowledge Base, etc. The interface will follow a streamlined look based off of the original design scheme made with brand-specific color palette and font styles to ensure a consistent look and feel through the RAMS Corner Brand Kit as referenced below along with the assets and logos utilized within the system:

Graphical user interface, application

Description automatically generated

Throughout the entirety of the UI, there will be no specific screen layout constraints or keyboard shortcuts required—though the team encourages the users to scale their browsers to 90% to utilize the entirety of the UI elements and assets. There are no specific messaging requirements as well. Error message display pop-ups will ensure clear messaging for incorrect login credentials and a mandatory data form for registration. The developers will utilize CSS and Bootstrap for the UI to achieve a modern, professional, and responsive design that is optimized for various screen sizes and devices—though the developers encourages the users to opt for a desktop layout to utilize the screen real-estate. Furthermore, Sweet Alerts will be used to show message alerts to promote an intuitive and chic web design.

## Hardware Interfaces

* Utilized hardware components include web and database servers along with end-user devices such as desktops, laptops, or smartphones.
* Physical characteristics may include connector or cable size, shape, and port configuration.
* Any device with a modern web browser will be supported by the system—and therefore offers wide compatibility with a plethora of devices
* Data and control interactions include—but are not limited to—data transfer, display of information, and processing of user input.
* MySQL and HTTPS are the communication protocols used for the development.

## Software Interfaces

* The web-app is built using Laravel framework.
* The web-app utilize MySQL for the database to store and retrieve data from user profiles and ticket contents.
* The userbase would be pulled from the pre-existing pool of credentials of the Asia Pacific College through their Microsoft APC email accounts.
* Microsoft Outlook would be the primary email service used by the system’s emailing notification feature.
* The web-app is built upon a Microsoft Windows-based system but could be run accessed on any desktop or mobile device with any operating system.
* The data processed within the system include—but are not limited to—user credentials, ticket contents, KB contents and messages sent within each ticket per update.
* The web-app serves as an extension of the ITRO to promote digitalizing their processes.
* There are no specific implementation constraints identified.
* The data will be held privately by the ITRO and could only be shared within the premises and authorization of their office.

## Communications Interfaces

* The communication functions required by the product include email, document electronic form (in the form of “generate reports” function) and web browser.
* The communication standard that will be used is HTTP.
* A document electronic form is an example of pertinent message formatting.
* There are no specific protocols required for network server communications.
* HTTP is the communication standard that will be used.
* Communication security is addressed by encrypting passwords on the database, and high password requirements.
* The required data transfer rates and synchronization mechanisms are not specified and is dependent of the internet speed—along with other factors—but the system ensures that any updated information is quickly and accurately updated in the database and any other places where that information is stored or displayed.

# System Features

This section lists the features and utilities that define the application and entails the major services provided by the ITRO, which are designed and tailor-made to provide the best possible experience for the ITRO along with their users to make it as intuitive as possible.

## Ticket Process (Sending, Viewing, Assigning, Updating, and Closure)

### **Description and Priority**

### *RAMS Corner, as a ticketing system would be defined by this very feature alone, since it is the main purpose of the web-application and would be put as the primary function of the system, in general—hence being the utmost priority upon development. With the premise of having the basic process as listed below:*

* + - ITRO Client reports a ticket,
    - ITRO Staff would be assigned to accommodate,
    - ITRO Staff would report back to the ITRO Client regarding the resolution,
    - ITRO Client would then confirm whether they are satisfied with the resolution, and if so,
    - ITRO Staff would then proceed to close the ticket and mark it as resolved.

### **Stimulus/Response Sequences**

1. *View ticket*

|  |  |
| --- | --- |
| *Stimulus* | *Response* |
| *1. Users logs in to the web app* | *1. The system will display all sections that are listed in the web app* |
| 1. *Users chooses to press the “view ticket” section of the web app* | *2. The system would prompt the user of all the relative information regarding a ticket received/sent along with its status.* |
| *3. Users can click a specific ticket to view further details* | *3. The system will display all the information and data regarding about the chosen ticket.* |

*b. Assign Ticket*

|  |  |
| --- | --- |
| *Stimulus* | *Response* |
| 1. *User logs in to the web app* | *1. The system will display all sections that are listed in the web app* |
| 1. *User with an admin level can click the “assign ticket” button* | *2. The system would display all tickets that are not being handled at the moment* |
| *3. User can freely choose any ticket that are displayed within the dashboard* | *3. The system would then display all the staff that are notccupied at the moment.* |
| *4. The user with an admin level can assign the said ticket* | *4. The system would now notify the ITRO he/she got a new assigned ticket* |

*c. Create ticket*

|  |  |
| --- | --- |
| *Stimulus* | *Raesponse* |
| 1. *User logs in to the web app* | *1. The system will display all the sections that are listed in the app* |
| 1. *User will press the “create ticket” button”* | *2. The system would then display a pop-up window that would require user to fill up all data fields* |
| *3. After user fill out the form and provide necessary information and click send* | *3. the system would then notify the ITRO staff that a new ticket has been made* |

* 1. *Receive ticket*

|  |  |
| --- | --- |
| *Stimulus* | *Response* |
| *1. User logs in to the web app* | 1. *The system will display all the sections that are listed in the app* |
| *2. User would then click the “notification” button* | *2. the system would then display the newly received ticket* |

* 1. *Update ticket*

|  |  |
| --- | --- |
| *Stimulus* | *Response* |
| *1. User logs in to the web app* | *1. The system will display all the sections that are in the app* |
| *2. User would then click “view tickets” button* | *2. The system will display all the tickets that are new, and is still being worked on* |
| *3. the user would update the ticket via changing its status* | *3. the system would then notify the sender about the progression of his/her ticket.* |

### **Functional Requirements**

### ***REQ-1: Ticket Creation***

* *The system must provide a ticket form for the users to fill out with the required information for the requested document.*
* *The system must generate a unique ticket ID for each request submitted.*
* *The system must send a notification to the user and ITRO via email with the assigned ticket ID*
* *The system must validate the information submitted and provide an error message if any required information is missing or invalid.*
* *The system must store the request information and track its progress until completion.*

### ***REQ-2: Status Tracking***

### *The system must provide a field for users to track each ticket they have sent*

### *The system must retrieve the request information and display the current status to the user. The system must display a list of all previous transactions associated with the user’s account.*

### *The system must provide a filter or search function to allow the user to find specific transactions.*

### *The system must provide an in-app notification upon every update made with the user’s ticket*

### *The system must store the concerned information and track its progress until resolution.*

# Other Nonfunctional Requirements

## Performance Requirements

*The web application's response time roughly ranges between 300 to 900 milliseconds—though this number varies depending on the request or action that the user does within the web-app which is otherwise highly-available. Longer response time should also be expected whenever the user aims to upload any file attachments, such as an image within the system.*

## Safety Requirements

To promote safety and proper utilization, the team provides appropriate user manual, documentations, and various process-based diagrams to ensure that the future developers and users would be aware of the possibility of safety-related features, limitations, and risks.

## Security Requirements

RAMS Corner Ticketing System used authorization features and implemented them thoroughly using the client’s pre-existing APC Outlook emails as userbase to promote the integrity of the web application. In terms of database, the passwords are hashed to protect any sensitive information about the issues and concerns, along with the tech products being reported within the APC premises to avoid any chance of information leakage within the ITRO or the APC from outsiders or cyber attackers.

## Software Quality Attributes

The web application is promoting intuitive elements within the interface with descriptions and properly appropriated terms for each user-type, to ensure that even the non-IT personnel would be able to get a grasp of the common terminologies used within the system. Since the application would be web-based, it could run on any device that has a proper web browser, however, for the most optimal experience, the team recommends the following as the minimum requirement:

* Device: Desktop / Laptop
* OS: Windows
* RAM: ≥ 2GB
* ROM: ≥ 32GB
* Browser: Chrome, Opera, Edge, & Vivaldi (as tested)
* Internet Speed: ≥ 5Mbps

## Business Rules

The web application has access control, ensuring that only authorized users can access certain features or data. The three user-types, ITRO Client, ITRO Staff, and ITRO Admin—which would all be treated as “reporters”—has different privileges and level of authorization listed from least to greatest. Another one of the business rules present in the web application is compliance requirements present, which are the Privacy Data Notice, and Terms and Conditions to which the users have to comply with. The web application and the ITRO would also abide by the industry standard SLA which includes the “First In, First Out” protocol wherein the tickets within the same prioritization level would be managed according to which was sent earlier before taking up the preceding issues.

* + Basic Process:
    - ITRO Client reports a ticket,
    - ITRO Staff would be assigned to accommodate,
    - ITRO Staff would report back to the ITRO Client regarding the resolution,
    - ITRO Client would then confirm whether they are satisfied with the resolution, and if so,
    - ITRO Staff would then proceed to close the ticket and mark it as resolved.

# Other Requirements

1. **Database Requirements:**
   * The web app shall have a database to store user information, such as personal details and login credentials.
   * The database shall store information about the ITRO staff and their stakeholders such as their names, positions, and contact information.
   * The web app shall store information about community events and announcements.
   * The database shall support efficient retrieval and management of information.
2. **Internationalization Requirements:**
   * The web app shall support multiple languages, including English and the local language, to cater to users with different language preferences.
   * The web app shall adhere to internationalization best practices to ensure that the app can be used by users from different cultural backgrounds.
3. **Legal Requirements:**
   * The web app shall comply with applicable laws and regulations, such as data protection and privacy laws, to ensure that user data is handled responsibly and in compliance with legal requirements.
   * The web app shall display legal disclaimers and terms of use to inform users of their rights and responsibilities when using the app.
4. **Reuse Objectives:**
   * The web app shall be designed with modularity in mind to facilitate future expansion and modification of the app.
   * The web app shall utilize existing software libraries and frameworks where appropriate to reduce development time.
5. **Security Requirements:**
   * The web app shall utilize appropriate security measures, such as secure authentication and authorization mechanisms, to prevent unauthorized access to user data.
6. **Performance Requirements:**
   * The web app shall be designed to be responsive and efficient, with fast loading times and minimal downtime.
   * The web app shall be able to handle high levels of traffic and user requests without slowing down or crashing.
7. **Accessibility Requirements:**
   * The web app shall adhere to accessibility best practices, such as providing alternative text for images and using proper HTML markup.

# Appendix A: Glossary

* Browser – refers to any software program installed within a device used for displaying and navigating between web pages, (e.g., Google Chrome).
* End-User Devices/Device/s – any of these terms refer to the physical hardware that the user would use in order to access the web-application
* Email-Based Reporting System - a reporting system based solely upon emailing services such as Outlook or Gmail, whereby a client would send an email to the ITRO staff, and the query would be answered therein.
* Knowledge Base - a library containing all the information gathered based on previous incidents and resolutions saved within the database that could be accessed from the Knowledge-Based (KB) Section of the application.
* KB Section - a proposed in-app feature dedicated to providing useful tips and step-by-step procedures for solving common tasks while utilizing Knowledge Base. By doing so, this could lessen the number of tickets that the ITRO would receive, avoiding redundancy and unnecessary interactions with common problems, making the ITRO clients do self-troubleshooting.
* OS – Operating System the device use (e.g., Windows)
* RAM – Random Access Memory, fastest type of memory within a device that is being utilized when handling short-term data or cache.
* ROM – Read-Only Memory, refers to a device’s internal memory capacity
* Service-Level Agreement (SLA) - the service expectations between the ITRO and their clientele, which includes the scope of their services and the terms upon how a complaint would be processed within a specific timeframe.
* Taxing Manual Sortation - the act of skimming through every email received before deciding whether the problem is hardware- or software-related, whether it is already an answered request or not, making it time-consuming for the ITRO staff.
* Team Inbox - a feature of the Spiceworks software wherein the user organization would be able to see the messages or queries sent to them simultaneously.
* Ticketing Service Application - a software program that aims to digitize the sending and receiving of complaints or queries using tickets.
* Troubleshooting - the systematic act of solving a digital, software, or hardware problem by gathering the necessary information, diagnosing the issue, and performing the required steps to fix it.
* Users – within the system, and this document, the ITRO Admin, ITRO Staff, and ITRO Client would all be classified as the “users,” or “reporters” in some accounts or diagrams along with the database, depending on the context.

# Appendix B: Analysis Models

* **Use case diagram:** A visual representation of the actors (users) and use cases (actions or processes) in a system or application.
* **Activity diagram:** A visual representation of the flow of activities or tasks in a system or process.
* **Sequence diagram:** A visual representation of the interactions between objects or components in a system or process.
* **Class diagram:** A visual representation of the classes (or objects) in a system and their relationships to each other.
* **Entity-relationship diagram:** A visual representation of the relationships between entities (or objects) in a system or database.
* **Context flow diagram:** A high-level visual representation of the system and its external entities.
* **Object diagram:** A visual representation of objects and their relationships to each other in a system or process.
* **State-machine diagram:** A visual representation of the states and transitions of a system or process.
* **Use case package diagram:** A visual representation of the use case packages and their relationships to each other in a system or process.
* **Component diagram:** A visual representation of the components in a system and their relationships to each other.
* **Deployment diagram:** A visual representation of the physical deployment of components in a system.