

**Jewelry Production Order System**

**Software Requirement Specification**

Project Code: JPOS001

Document Code: JPOSSRS01

**FPTU HCM Campus, 08-05-2024**

**Record of change**

\*A - Added M - Modified D - Deleted

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| **Effective Date** | **Changed Items** | **A\* M, D** | **Change Description** | **New Version** |
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**SIGNATURE PAGE**

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# Introduction

*[The introduction of the* ***Software Requirements Specification (SRS)*** *provides an overview of the entire* ***SRS****. It includes the purpose, scope, definitions, acronyms, abbreviations, references, and overview of the* ***SRS****.]*

*[Note: The* ***SRS*** *document captures the complete software requirements for the system, or a portion of the system. Following is a typical* ***SRS*** *outline for a project using only traditional, natural-language style requirements—with* ***no use-case modeling.*** *It captures all requirements in a single document, with applicable sections inserted from the Supplementary Specifications (which would no longer be needed). For a template of an* ***SRS*** *using use-case modeling, which consists of a package containing Use Cases of the use-case model and applicable Supplementary Specifications and other supporting information, see rup\_srsuc.dot.]*

*[Many different arrangements of an* ***SRS*** *are possible. Refer to [IEEE830-1998] for further elaboration of these explanations, as well as other options for* ***SRS*** *organization.]*

## Purpose

*[Specify the purpose of this SRS. The SRS fully describes the external behavior of the application or subsystem identified. It also describes nonfunctional requirements, design constraints, and other factors necessary to provide a complete and comprehensive description of the requirements for the software.]*

The purpose of this Software Requirement Specification (SRS) document is to present a detailed description of the Jewelry Production Order System. It will describe the external behavior and non-functional requirements, identify potential design constraints, and incorporate other necessary factors vital for successful software development and implementation. This document is intended for both the stakeholders and the developers of the system and will be proposed for its approval.

The SRS also serves as a foundational document for subsequent project planning, design, coding, system testing, and user documentation phases, thoroughly aligning all stakeholders including developers, managers, sales staff, design team, manufacturing staff, and customers on what to expect from the final product.

## Scope

This software system will be an Online Jewelry Production Order Management System for a local jewelry designer who collaborates with different artisans and craftsmen across the area. This system is engineered to elevate the designer's productivity by providing advanced tools aimed to automate the order management and production process, tasks which would otherwise require strenuous manual effort. By notably enhancing the designer's efficiency and production capacity, the system meets the designer's needs, while keeping its design intuitively simple and easy to use.

This system is specifically architected to enable a designer to manage and coordinate with a diverse group of artisans, suppliers, and customers to process orders with ease. The software will facilitate communication between designers, artisans, and customers through integrated messaging channels. Preformatted templates are present at each stage in the order's lifecycle to foster a standardized production process; the mapping of these templates is adaptable via the application's settings. The system houses a robust relational database containing information on Designers, Artisans, Suppliers, Customers, and Orders.

## Definitions, Acronyms, and Abbreviations

|  |  |
| --- | --- |
| ***Term*** | ***Definition*** |
| *Software Requirements Specification* | *A document that completely describes all of the functions of a proposed system and the constraints under which it must operate. For example, this document.* |
| *Originator* | *Person submitting an article to be reviewed. In case of multiple originators, this term refers to the principal author, with whom all communication is made.* |
| *Reviewer* | *A person that examines an article and has the ability to recommend approval of the article for publication or to request that changes be made in the article.* |
| *Approval* | *A person responsible for providing final approval on the document or project phase.* |
| *Stakeholders* | *People or organizations who are actively involved in the project, or whose interests may be positively or negatively affected by the execution of the project.* |
| *Database* | *Collection of all the information monitored by this system.* |
| *Mapping* | *The process of linking two things together. In this context, it refers to establishing connections between the aspects of the production process and the corresponding templates.* |
| *Customer* | *The person who uses this web application to request for jewelry production.* |
| *Sale Staff* | *The staff who are in charge of discussing with customers, managing users’ requests, users’ payment and sending quotes to customers.* |
| *Design Staff* | *The staff who are in charge of designing 3D models for customers for the purpose of previews, as the user requests.* |
| *Production Staff* | *The staff who are in charge of recording the production process and manage production order when the product is completed.* |
| *Manager* | *The person who is in charge of staffs’ assignment, approves quotes sent by sale staff and manages production orders.* |
| *Administrator* | *The person who is in charge of user account management and system management.* |

## References

*IEEE. IEEE Std 830-1998 IEEE Recommended Practice for Software Requirements Specifications. IEEE Computer Society, 1998.*

## Overview

*[This subsection describes what the rest of the SRS contains and explains how the document is organized.]*

*The next chapter, the Overall Description section, of this document gives an overview of the functionality of the product. It describes the informal requirements and is used to establish a context for the technical requirements specification in the next chapter.*

*The third and fourth chapter, Requirements Specification section, of this document is written primarily for the developers and describes in technical terms the details of the functionality of the product.*

*All three sections of the document describe the same software product in its entirety, but are intended for different audiences and thus use different language.*

# Overall Description

*[This section of the SRS describes the general factors that affect the product and its requirements. This section does not state specific requirements. Instead, it provides a background for those requirements, which are defined in detail in Section 3, and makes them easier to understand. Include such items as:*

*• product perspective*

*• product functions*

*• user characteristics*

*• constraints*

*• assumptions and dependencies*

*• requirements subsets]*

**Phần mềm quản lý việc đặt gia công trang sức của khách hàng cho công ty gia công trang sức** - Trang chủ giới thiệu công ty, bộ sưu tập trang sức, mẫu thiết kế, blog chia sẻ, … - Khách hàng có thể đặt yêu cầu gia công đồ trang sức theo mẫu thiết kế công ty hoặc theo yêu cầu thiết kế của khách. - Quản lý quá trình đặt gia công trang sức của khách hàng.

*<< Khách hàng gửi yêu cầu --> NV kinh doanh tiếp nhận và trao đổi với khách --> NV kinh doanh gửi yêu cầu phê duyệt báo giá --> Người quản lý phê duyệt --> NV kinh doanh gửi báo giá đã phê duyệt--> khách hàng chấp nhận báo giá và tạo đơn hàng gia công --> NV thiết kế gửi bản thiết kế 3D cho khách --> khách hàng phê duyệt bản thiết kế 3D --> NV gia công thực hiện gia công trang sức --> NV kinh doanh bàn giao trang sức đã gia công và giấy bảo hành cho khách hàng >>*

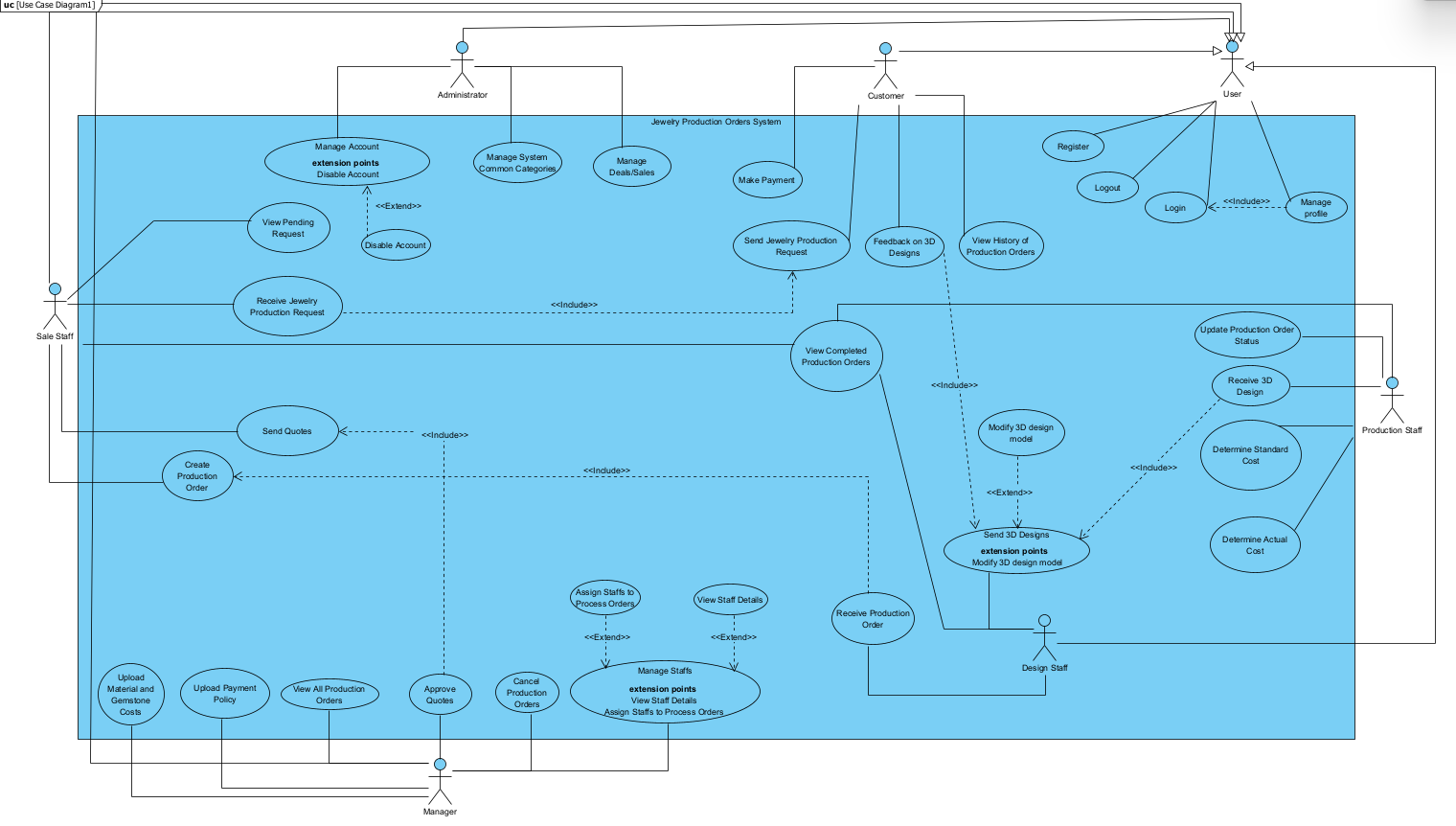
- Cập nhật chi phí của đơn hàng gia công theo định mức để báo giá và thực tế gia công để tính giá vốn báo giá và thực hiện

*<< Giá vốn sản phẩm = [giá vàng thời điểm \* trọng lượng sản phẩm] + tiền công + tiền đá >>*

- Khai báo chính sách thanh toán, hủy đơn hàng gia công trang sức. - khai báo giá vàng và giá đá áp dụng của công ty. - Khai báo mẫu thiết kế của công ty và định mức chi phí thực hiện kèm theo. - Dashboard thống kê.

# FUNCTIONAL Requirements

## <Use Cases Diagram>

*[The main Use Case Diagrams of the system]*

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| **#** | **Use Case** | **Actors** | **Description** |
| UC-01 | Send Jewelry Production Request | Customer | Customers are allowed to send request to produce jewelry for them through the website. |
| UC-02 | Make Payment | Customer | Customers initiate this use case by sending payment via an online payment gateway, which the system will then automatically accept the order. |
| UC-03 | View History of Production Orders | Customer | Customers are allowed to view previous production orders made by them on the web application. |
| UC-04 | Feedback on 3D Designs | Customer | During the design process, customers are allowed to feedback on 3D designs sent by Design Staff in order for them to refine and improve. |
| UC-05 | Receive Jewelry Production Request | Sale Staff | Sales Staff are able to receive requests sent by customers and view their details. |
| UC-06 | Send Quotes | Sale Staff | Sales Staff can send quotes based on designs finalized with the customer. |
| UC-07 | Create Production Order | Sale Staff | After discussion with customer and the customer agreed on the quote of the product, Sale Staff will proceed to create a production order |
| UC-08 | Receive Production Order | Design Staff | Design Staff can receive production order created by the Sale Staff in order to design a 3D model of the product |
| UC-09 | Send 3D Designs | Design Staff | During the design process, Design Staffs are allowed to send 3D designs of the jewelry to the customer. |
| UC-10 | Modify 3D Designs | Design Staff | After customers feedback on the 3D Designs, Design Staffs can edit and adjust the designs according to the customers’ desire. |
| UC-11 | Receive 3D Designs | Production Staff | During the production process, Production Staff record and update images and videos of the production process on the web app for the customer to view. |
| UC-12 | Update Production Order Status | Production Staff | After the jewelry is finished, Production Staff can update the production order. |
| UC-13 | Determine Standard Cost | Production Staff | Production Staff is responsible for determining expected cost of material, labor, manufacturing, etc. |
| UC-14 | Determine Actual Cost | Production Staff | Production Staff is responsible for determining actual cost of material, labor, manufacturing, etc. |
| UC-15 | Approve Quotes | Manager | Manager can approve quotes sent by the sales staff to ensure correctness. |
| UC-16 | Manage Staff | Manager | Manager is able to manage their staff including staff assignment, manage their work schedule, view staff details, etc. |
| UC-17 | Assign Staffs to Process Orders | Manager | Manager is able to assign staff to process orders made by the customer. |
| UC-18 | View Staff Details | Manager | Manager is able to view staff information including projects that they have involved, experience, skills, etc. |
| UC-19 | View All Production Orders | Manager | Manager is able to view all completed or ongoing production orders in the system. |
| UC-20 | Cancel Production Orders | Manager | Manager is able to cancel production orders made by the customer. |
| UC-21 | Upload Payment Policy | Manager | Manager is in charge of uploading and updating payment policy onto the platform. |
| UC-22 | Upload Material and Gemstone Costs | Manager | Manager is in charge of uploading cost of material and gemstone onto the platform |
| UC-23 | Manage Account | Administrator | Administrators can perform various account management functions on the platform. |
| UC-24 | Manager Deal/Sales | Administrator | Administrator manage deals and sale promotions for enhanced user experience |
| UC-25 | Manage System Common Categories | Administrator | Administrator oversees and organizes various categories within the system |
| UC-26 | Register | User | Customers are allowed to register an account on the platform. |
| UC-27 | Login | User | Users of the system can log into their account |
| UC-28 | Logout | User | Users of the system can log out of their account |
| UC-29 | Manage profile | User | Users of the system can manage their profile such as view or edit their profile |

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| **USE CASE-n SPECIFICATION** | | | |
| **Use-case No.** | UC001 | **Use-case Version** | 1.0 |
| **Use-case Name** | Send Jewelry Production Request | | |
| **Author** | Dinh Khac Ba Thuan | | |
| **Date** | 10/05/2024 | **Priority** | High |
| **Actor:**  Customer  **Summary:**  The use case allows customers to send requests to produce jewelry through the website.  **Goal:**  The goal is to allow customers to conveniently request the production of custom jewelry through the website platform.  **Triggers**             A customer wants to order custom made jewelry.  **Preconditions:**            The customer is registered and logged in on the website. The customer has a clear idea of the jewelry design they want to produce.  **Post Conditions:**            The jewelry production request is sent successfully to the company. The customer receives a confirmation for the same.  **Main Success Scenario:**  1. The customer logs in to the account.  2. The customer navigates to the jewelry production request form.  3. The customer fills the form with the necessary details like jewelry design, material, etc.  4. The customer reviews the details and submits the request.  5. The system validates the input and sends a request to the company.  6. The customer receives a confirmation message.  **Alternative Scenario:**            The customer enters incorrect or insufficient details. In such a case, an informative error message is shown, and the customer is prompted to correct the inputs.  **Exceptions:**            Invalid customer account, Bad network causing failure in sending request, Service downtime  **Relationships:**  This use case is initiated by the ‘Log in’ use case. | | | |

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| **USE CASE-n SPECIFICATION** | | | |
| **Use-case No.** | UC002 | **Use-case Version** | 1.0 |
| **Use-case Name** | Make Payment | | |
| **Author** | Dinh Khac Ba Thuan | | |
| **Date** | 10/05/2024 | **Priority** | High |
| **Actor:**  Customer  **Summary:**  The use case facilitates the customers to make payments for their orders using the online gateway system.  **Goal:**  The objective is to provide a smooth, secure, and efficient payment process for the customers through an online payment gateway.  **Triggers**             The customer is ready to make a payment for a purchase.  **Preconditions:**            The customer is authenticated in the system, has completed the order, and the online payment gateway is live and functioning.  **Post Conditions:**            The payment made by the customer via the online gateway is successfully received and the order is accepted by the system.  **Main Success Scenario:**  1. The customer logs into their account and initiates the purchase process.  2. The customer selects the 'Make Payment' option.  3. The customer executes the payment using the online payment gateway.  4. The system confirms the receipt of the payment and accordingly accepts the order.  **Alternative Scenario:**            In case of payment failure or error, customer may have to retry payment or choose a different mode of payment.  **Exceptions:**            Transaction failure, Invalid customer account, Networks errors, Technical errors affecting online gateway.  **Relationships:**  This use case is initiated by the 'Place Order' use case. | | | |

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| **USE CASE-n SPECIFICATION** | | | |
| **Use-case No.** | UC003 | **Use-case Version** | 1.0 |
| **Use-case Name** | View History of Production Orders | | |
| **Author** | Dinh Khac Ba Thuan | | |
| **Date** | 11/05/2024 | **Priority** | Medium |
| **Actor:**  Customer  **Summary:**  This use case allows customers to view the history of their production orders on the web application.  **Goal:**  To provide customers with the ability to retrieve and analyze their past production orders.  **Triggers**             A customer initiates the request to view their previous production orders.  **Preconditions:**            The customer has a history of production orders and is authenticated on the platform.  **Post Conditions:**            The customer is able to successfully view their past production orders.  **Main Success Scenario:**  1. The customer logs into the web application.  2. The customer clicks on the 'Order History' option.  3. The system retrieves and displays all the past production orders made by the customer.  **Alternative Scenario:**            In case no past orders exist, a related message is displayed to the customer.  **Exceptions:**  Invalid customer account, Network errors that hinder the successful retrieval of past order information.  **Relationships:**  This use case is initiated by the 'Log in' use case. | | | |

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| **USE CASE-n SPECIFICATION** | | | |
| **Use-case No.** | UC004 | **Use-case Version** | 1.0 |
| **Use-case Name** | Feedback on 3D Designs | | |
| **Author** | Dinh Khac Ba Thuan | | |
| **Date** | 11/05/2024 | **Priority** | Low |
| **Actor:**  Customer  **Summary:**  This use case allows the customers to provide feedback on 3D designs during the design process for refinement and improvement.  **Goal:**  To ensure customer involvement in the development process by enabling them to provide their inputs on 3D designs for improved quality.  **Triggers**             The customer receives 3D designs from the Design Staff.  **Preconditions:**            The customer has received the 3D design and is authenticated on the platform.  **Post Conditions:**            The customer has successfully provided feedback on the 3D design.  **Main Success Scenario:**  1. The customer logs into his or her account.  2. The customer views the 3D design sent by the Design Staff.  3. The customer provides feedback on the design for further refining and improvement.  **Alternative Scenario:**            In case the customer doesn’t want to provide feedback, they can skip this step.  **Exceptions:**  Invalid customer account, Network errors that hinder the successful submission of feedback.  **Relationships:**  This use case is initiated by the 'View 3D Design' use case. | | | |

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| **USE CASE-n SPECIFICATION** | | | |
| **Use-case No.** | UC005 | **Use-case Version** | 1.0 |
| **Use-case Name** | Receive Jewelry Production Request | | |
| **Author** | Dinh Khac Ba Thuan | | |
| **Date** | 11/05/2024 | **Priority** | High |
| **Actor:**  Sale Staff  **Summary:**  This use case allows the Sale Staff to receive and view the details of the Jewelry Production Requests sent by customers.  **Goal:**  To ensure requests from customers about jewelry production are received, viewed, and handled efficiently by the Sale Staff.  **Triggers**             A customer sends a request for jewelry production.  **Preconditions:**            The Sale Staff is authenticated on the system and customer has initiated a jewelry production request.  **Post Conditions:**            The Sale Staff has received the customer's request and viewed their details.  **Main Success Scenario:**  1. The Sale Staff logs into the system.  2. The system notifies the Sale Staff about the new jewelry production request.  3. The Sale Staff views the details of the customer's request.  **Alternative Scenario:**            In case no new requests exist, no notifications are sent.  **Exceptions:**  Invalid Sale Staff account, Network errors that hinder the successful receipt or viewing of customer requests.  **Relationships:**  This use case is initiated by the 'Log in' use case. | | | |

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| **USE CASE-n SPECIFICATION** | | | |
| **Use-case No.** | UC007 | **Use-case Version** | 1.0 |
| **Use-case Name** | Send Quotes | | |
| **Author** | Dinh Khac Ba Thuan | | |
| **Date** | 11/05/2024 | **Priority** | High |
| **Actor:**  Sale Staff  **Summary:**  This use case details the process by which the Sales Staff can create a production order post-quote agreement with the customer.  **Goal:**  To streamline the process of producing orders as per a mutually agreed-upon quote between the Sale Staff and the customer.  **Triggers**             Customer agrees to the provided quote.  **Preconditions:**            The Sales Staff is authenticated on the system, and the customer has agreed to the provided quote.  **Post Conditions:**            The Sales Staff has successfully created a new production order.  **Main Success Scenario:**  1. The Sale Staff logs into the system.  2. Sale Staff confirms the quote agreement with the customer.  3. The Sales Staff proceeds to create a production order based on the agreement.  **Alternative Scenario:**            In case the customer rejects the quote, the production order creation step isn't proceeded with.  **Exceptions:**  Invalid Sale Staff account, network errors that prevent the successful creation of production orders.  **Relationships:**  This use case is initiated by the 'Send Quotes' use case. | | | |

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| **USE CASE-n SPECIFICATION** | | | |
| **Use-case No.** | UC008 | **Use-case Version** | 1.0 |
| **Use-case Name** | Receive Production Order | | |
| **Author** | Dinh Khac Ba Thuan | | |
| **Date** | 11/05/2024 | **Priority** | High |
| **Actor:**  Design Staff  **Summary:**  This use case allows the Design Staff to receive the production order created by the Sales Staff to design a 3D model of the product.  **Goal:**  To enable smooth transition from order creation to design  **Triggers**             The creation of a production order by the Sales Staff.  **Preconditions:**            Design Staff is authenticated on the system and a production order has been issued.  **Post Conditions:**            The Design Staff has received the order and can commence work on the 3D model design.  **Main Success Scenario:**  1. The Design Staff logs into the system.  2. Receives the production order created by Sales Staff.  3. Starts designing the 3D model of the product.  **Alternative Scenario:**            If there's no production order, the Design Staff doesn't start the design process.  **Exceptions:**  Invalid Design Staff account, network errors that hamper receipt of production orders.  **Relationships:**  This use case is initiated by the 'Create Production Order' use case. | | | |

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| **USE CASE-n SPECIFICATION** | | | |
| **Use-case No.** | UC009 | **Use-case Version** | 1.0 |
| **Use-case Name** | Send 3D Designs | | |
| **Author** | Dinh Khac Ba Thuan | | |
| **Date** | 11/05/2024 | **Priority** | Medium |
| **Actor:**  Design Staff  **Summary:**  This use case enables the Design Staff to send 3D designs of the jewelry to the customer during the design process.  **Goal:**  To involve the customers in the design process and provide transparency.  **Triggers**             Design Staff completes the first cut of 3D model design.  **Preconditions:**            Design Staff is authenticated on the system and the 3D design of the product is ready for review.  **Post Conditions:**            The Design Staff has successfully sent the design to the customer for review.  **Main Success Scenario:**  1. The Design Staff logs into the system.  2. Prepares the 3D design for sending to the customer.  3. Sends the 3D design to the customer.  **Alternative Scenario:**            If the design isn't ready or approved internally, the Design Staff doesn't send the 3D design.  **Exceptions:**  Invalid Design Staff account, network errors that hamper sending 3D designs.  **Relationships:**  This use case is initiated by the 'Receive Production Order' use case. | | | |

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| **USE CASE-n SPECIFICATION** | | | |
| **Use-case No.** | UC010 | **Use-case Version** | 1.0 |
| **Use-case Name** | Modify 3D Designs | | |
| **Author** | Dinh Khac Ba Thuan | | |
| **Date** | 11/05/2024 | **Priority** | Medium |
| **Actor:**  Design Staff  **Summary:**  This use case outlines how the Design Staff can edit and adjust the 3D designs of the product after customers provide feedback.  **Goal:**  To ensure that the desired specifications and expectations of the customer are met accurately.  **Triggers**             Reception of customer feedback regarding the 3D design.  **Preconditions:**            Design Staff is authenticated on the system and has received feedback from the customer about the 3D design.  **Post Conditions:**            The Design Staff has successfully modified the design as per the customer's feedback.  **Main Success Scenario:**  1. The Design Staff logs into the system.  2. Reviews the feedback received about the 3D design from the customer.  3. Modifies and adjusts the design as per the customer's feedback.  **Alternative Scenario:**            If the feedback is not actionable or there are constraints in implementing it, a discussion is initiated with the customer.  **Exceptions:**  Invalid Design Staff account, network errors that hamper modification of designs.  **Relationships:**  This use case is an extension to the 'Send 3D Designs' use case. | | | |

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| **USE CASE-n SPECIFICATION** | | | |
| **Use-case No.** | UC011 | **Use-case Version** | 1.0 |
| **Use-case Name** | Record and Update Production Progress | | |
| **Author** | Dinh Khac Ba Thuan | | |
| **Date** | 11/05/2024 | **Priority** | Medium |
| **Actor:**  Production Staff  **Summary:**  This use case documents how the Production Staff records and updates images and videos of the production process on the web app for customer view.  **Goal:**  To provide real-time images and videos update of the production process to the customer.  **Triggers**             Initiation of the actual product manufacturing process.  **Preconditions:**            Production Staff is authenticated on the system and the production process has started.  **Post Conditions:**            The Production Staff has uploaded images and videos of the production process in the web app.  **Main Success Scenario:**  1. The Production Staff logs into the system.  2. Records images and videos of the production process.  3. Uploads these images and videos on the web app for customer view.  **Alternative Scenario:**            If no production is happening at the moment, no images or videos are captured or uploaded.  **Exceptions:**  Invalid Production Staff account, network errors that hamper upload of images/videos, issues related to capturing images/videos.  **Relationships:**  This use case is an extension to the 'Modify 3D Designs' use case. | | | |

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| **USE CASE-n SPECIFICATION** | | | |
| **Use-case No.** | UC012 | **Use-case Version** | 1.0 |
| **Use-case Name** | Update Production Order Status | | |
| **Author** | Dinh Khac Ba Thuan | | |
| **Date** | 10/05/2024 | **Priority** | High |
| **Actor:**  Production Staff  **Summary:**  This use case describes how the Production Staff updates the status of the production order once the jewelry is finished.  **Goal:**  To ensure that the status of the production order is kept up-to-date, reflecting the progress of the production process.  **Triggers**             Completion of the jewelry production.  **Preconditions:**            Production Staff is authenticated on the system and the jewelry production has finished.  **Post Conditions:**            The Production Staff has successfully updated the status of the production order.  **Main Success Scenario:**  1. The Production Staff logs into the system.  2. Checks the finalized product against the production order.  3. Updates the status of the production order in the system.  **Alternative Scenario:**            If the produced jewelry does not match the production order or is not up to standards, the status is not updated and production is revisited.  **Exceptions:**            Invalid Production Staff account, network errors that hamper updating the production order status.  **Relationships:**  This use case is an extension to the 'Record and Update Production Progress' use case. | | | |

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| **USE CASE-n SPECIFICATION** | | | |
| **Use-case No.** | UC013 | **Use-case Version** | 1.0 |
| **Use-case Name** | Determine Standard Cost | | |
| **Author** | Dinh Khac Ba Thuan | | |
| **Date** | 10/05/2024 | **Priority** | High |
| **Actor:**  Production Staff  **Summary:**  This use case describes how the Production Staff determines the standard cost of production including factors such as material, labor, and manufacturing costs.  **Goal:**  To calculate an accurate cost estimate for the production process.  **Triggers**             Initiation of the production process or changes in material, labor or manufacturing costs.  **Preconditions:**            Production Staff is authenticated on the system and has access to all necessary cost-related information.  **Post Conditions:**            The Production Staff has successfully determined the standard cost for the production.  **Main Success Scenario:**  1. The Production Staff logs into the system.  2. Reviews the expected costs of materials, labor, and manufacturing.  3. Calculates and records the standard cost in the system.  **Alternative Scenario:**            If there is a discrepancy or lack of clarity in cost-related data, further investigation is initiated.  **Exceptions:**            Invalid Production Staff account, network errors that hamper the cost calculation and recording process.  **Relationships:**  This use case is an extension to the 'Update Production Order Status' use case. | | | |

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| **USE CASE-n SPECIFICATION** | | | |
| **Use-case No.** | UC014 | **Use-case Version** | 1.0 |
| **Use-case Name** | Determine Actual Cost | | |
| **Author** | Dinh Khac Ba Thuan | | |
| **Date** | 10/05/2024 | **Priority** | High |
| **Actor:**  Production Staff  **Summary:**  This use case documents how the Production Staff determines the actual cost of production incorporating components such as material cost, labor cost, and manufacturing cost.  **Goal:**  To calculate an accurate actual cost for the production process.  **Triggers**             Initiation of the production process or changes in material, labor or manufacturing costs.  **Preconditions:**            Production Staff is authenticated on the system and has access to all the incurred cost-related information.  **Post Conditions:**            The Production Staff has successfully determined and recorded the actual cost for the production.  **Main Success Scenario:**  1. The Production Staff logs into the system.  2. Reviews the incurred costs of materials, labor, and manufacturing.  3. Calculates and records the actual cost in the system.  **Alternative Scenario:**            If there is a discrepancy or lack of clarity in cost-related data, a further audit is initiated.  **Exceptions:**            Invalid Production Staff account, network errors that hamper the cost calculation and recording process.  **Relationships:**  This use case is an extension to the 'Determine Standard Cost' use case. | | | |

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| **USE CASE-n SPECIFICATION** | | | |
| **Use-case No.** | UC015 | **Use-case Version** | 1.0 |
| **Use-case Name** | Approve Quotes | | |
| **Author** | Dinh Khac Ba Thuan | | |
| **Date** | 10/05/2024 | **Priority** | High |
| **Actor:**  Manager  **Summary:**  This use case outlines how the Manager can approve quotes that have been submitted by the sales staff, ensuring their correctness and appropriateness.  **Goal:**  To confirm the accuracy and integrity of quotes created by the sales staff.  **Triggers**             Receipt of a new quote for approval or a request to review an existing quote.  **Preconditions:**            The Manager is authenticated on the system and has received a quote submitted by the sales staff.  **Post Conditions:**            The Manager has successfully reviewed and approved the quote.  **Main Success Scenario:**  1. The Manager logs into the system.  2. Reviews the details of the quote submitted by sales staff.  3. Approves the quote if it matches with the company's policies and price structure.  **Alternative Scenario:**            If the quote does not match the company's policies or price structure, the Manager rejects the quote and notifies the sales staff for re-consideration.  **Exceptions:**            Invalid Manager account, network errors that hamper the quote review and approval process.  **Relationships:**  This use case is an extension to the 'Send Quote' use case handled by the sales staff. | | | |

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| **USE CASE-16 SPECIFICATION** | | | | |
| **Use-case No.** | <UC-16> | **Use-case Version** | | <1.0> |
| **Use-case Name** | Manage Staff | | | |
| **Author** | Phi Le Minh Tam | | | |
| **Date** | 18/05/2024 | **Priority** | Medium | |
| **Actor:**  Manager  **Summary:**  The Manager has the authority to manage staff, including task assignments, schedule adjustments, and staff information viewing.  **Goal:**  To ensure efficient management of staff resources within the organization.  **Triggers**  The use case is triggered when the Manager needs to assign a task, adjust work schedules or view staff details.  **Preconditions:**  Manager is logged into the system.  The system has data on staff details and workload schedule.  **Post Conditions:**  The relevant staff member's details, assignments, or schedules have been updated to reflect the manager's actions.  **Main Success Scenario:**   1. Manager logs into the system. 2. Manager navigates to the Staff Management system. 3. Manager selects appropriate options to either assign tasks, change schedule, or view staff details. 4. Manager updates necessary changes. System updates the database.   **Alternative Scenario:**  If there is a system failure or other errors, the manager can choose to retry or contact system support.  **Exceptions:**  Could occur if the system fails, the Manager attempts to access unauthorized data, inconsistent schedule management, etc.  **Relationships:**  This use case is related to all other use cases involving task assignments and schedule management.  **Business Rules:**  All business policies related to staff management, information security, and HR policies should be maintained. | | | | |
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| **USE CASE-17 SPECIFICATION** | | | | |
| **Use-case No.** | <UC-17> | **Use-case Version** | | <1.0> |
| **Use-case Name** | Assign Staffs to Process Orders | | | |
| **Author** | Phi Le Minh Tam | | | |
| **Date** | 18/05/2024 | **Priority** | High | |
| **Actor:**  Manager  **Summary:**  The manager assigns staff to process customer's production orders.  **Goal:**  To ensure that every order is handled efficiently by assigning them to suitable staff.  **Triggers**  Receipt of a new production order from a customer.  **Preconditions:**  Manager is logged into the system.  New customer order is available in the system.  Staff members are available for task assignments.  **Post Conditions:**  An order is assigned to a staff member and they are notified.  **Main Success Scenario:**   1. The manager is notified of a new order. 2. The manager reviews the details of the order. 3. The manager decides on the best staff members to handle the order. 4. The manager assigns the order to the selected staff member through the system. 5. The system confirms the assignment and initiates a notification for the staff member.   **Alternative Scenario:**  In the event that no staff members are available, the manager will have to wait or hire new staff.  **Exceptions:**  If there are no available staff, the order cannot be assigned.  If there is a system error preventing order assignment.  **Relationships:**  This use case directly relates to UC-16 (Manage Staff) and is indirectly related to all use cases where staff interacts with orders.  **Business Rules:**  Orders must be assigned in a fair and load-balanced manner. | | | | |

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| **USE CASE-18 SPECIFICATION** | | | | |
| **Use-case No.** | <UC-18> | **Use-case Version** | | <1.0> |
| **Use-case Name** | View Staff Details | | | |
| **Author** | Phi Le Minh Tam | | | |
| **Date** | 18/05/2024 | **Priority** | High | |
| **Actor:**  Manager  **Summary:**  The manager is able to view staff details, including personal information, projects involved in, experiences, skills, and other relevant data.  **Goal:**  Maintain an efficient and updated staff management system by accessing up-to-date information on staff.  **Triggers**  When the manager needs to view staff details for decision making such as task assignments, promotions, or project placements.  **Preconditions:**  Manager is logged into the system.  System has up-to-date and comprehensive staff information.  **Post Conditions:**  Manager is updated with the required staff details.  **Main Success Scenario:**   1. Manager logs into the system. 2. Manager navigates to the "View Staff Details" option in the system. 3. Manager selects a staff member or a group of staff members whose details are to be viewed. 4. System displays the requested details.   **Alternative Scenario:**  In case the system cannot retrieve the required details, the manager may need to request them from the HR department.  **Exceptions:**  System failure or inaccessible staff data.  **Relationships:**  This use case directly relates to UC-16 (Manage Staff) and is indirectly related to all use cases where staff data is required.  **Business Rules:**  The manager must only have access to professional data and not unnecessary personal data.  By law, sensitive personal data must be hidden or protected. | | | | |

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| **USE CASE-19 SPECIFICATION** | | | | |
| **Use-case No.** | <UC-19> | **Use-case Version** | | <1.0> |
| **Use-case Name** | View All Production Orders | | | |
| **Author** | Phi Le Minh Tam | | | |
| **Date** | 18/05/2024 | **Priority** | High | |
| **Actor:**  Manager  **Summary:**  The Manager is able to view all completed or ongoing production orders in the system.  **Goal:**  To oversee the production process effectively by monitoring all production orders.  **Triggers**  The need to monitor production progress, quality check, or resource planning.  **Preconditions:**  Manager is logged into the system.  The system has updated and accurate information on all production orders.  **Post Conditions:**  The Manager has the latest insights into the production orders.  **Main Success Scenario:**   1. Manager logs into the system. 2. Manager navigates to the "View All Production Orders" section in the system. 3. System presents a comprehensive view of all production orders, distinguished by their statuses, i.e., completed or ongoing.   **Alternative Scenario:**  If the system can't retrieve the required information, the Manager may need to request it from the production department.  **Exceptions:**  System failure, incorrect, or inaccessible data.  **Relationships:**  This use case is related to all other use cases that require insights from the production process, such as UC-17 (Assign Staffs to Process Orders) and UC-20 (Manage Inventory).  **Business Rules:**  Manager must only have access to relevant data, and sensitive information must be protected. | | | | |

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| **USE CASE-20 SPECIFICATION** | | | | |
| **Use-case No.** | <UC-20> | **Use-case Version** | | <1.0> |
| **Use-case Name** | Cancel Production Orders | | | |
| **Author** | Phi Le Minh Tam | | | |
| **Date** | 18/05/2024 | **Priority** | High | |
| **Actor:**  Manager  **Summary:**  The Manager has the authority to cancel any production orders made by the customer.  **Goal:**  To control production flow by canceling orders when necessary.  **Triggers**  The need to cancel a production order due to changes in production capacity, raw materials shortage, or request from client.  **Preconditions:**  Manager is logged into the system.  The production order exists in the system.  **Post Conditions:**  Selected production order is canceled in the system.  **Main Success Scenario:**   1. Manager logs into the system. 2. Manager navigates to the "Cancel Production Orders" section. 3. Manager selects the production order to be canceled. 4. System validates and cancels the selected order.   **Alternative Scenario:**  If the system can't retrieve or cancel the selected order, manual intervention might be required.  **Exceptions:**  System failure, invalid, or inaccessible data.  **Relationships:**  This use case is related to all other use cases involving production orders, such as UC-19 (View All Production Orders) and UC-21 (Reschedule Production Orders).  **Business Rules:**  Manager must have valid reasons supported by necessary documentation to cancel a production order. | | | | |

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| **USE CASE-21 SPECIFICATION** | | | | |
| **Use-case No.** | <UC-21> | **Use-case Version** | | <1.0> |
| **Use-case Name** | Upload Payment Policy | | | |
| **Author** | Phi Le Minh Tam | | | |
| **Date** | 18/05/2024 | **Priority** | High | |
| **Actor:**  Manager  **Summary:**  The Manager is responsible for uploading and updating the payment policy onto the platform.  **Goal:**  To keep the platform's payment policy up to date and readily accessible to customers.  **Triggers**  The need to introduce a new payment method, changes in fees, or changes in terms of service.  **Preconditions:**  Manager is logged into the system.  The updated payment policy is ready for upload.  **Post Conditions:**  Updated payment policy is available on the platform.  **Main Success Scenario:**   1. Manager logs into the system. 2. Manager navigates to the "Upload Payment Policy" section. 3. Manager uploads the updated payment policy document. 4. System validates the document and makes it available on the platform.   **Alternative Scenario:**  If the system can't upload the document, manual upload might be required.  **Exceptions:**  System failure or invalid document.  **Relationships:**  This use case is related to all payment-related use cases, such as UC-25 (Process Payments) and UC-26 (Handle Payment Disputes).  **Business Rules:**  Payment policies must adhere to applicable laws and regulations. | | | | |

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| **USE CASE-22 SPECIFICATION** | | | | |
| **Use-case No.** | <UC-22> | **Use-case Version** | | <1.0> |
| **Use-case Name** | Upload Material and Gemstone Costs | | | |
| **Author** | Phi Le Minh Tam | | | |
| **Date** | 18/05/2024 | **Priority** | High | |
| **Actor:**  Manager  **Summary:**  The Manager is responsible for uploading and updating the costs of materials and gemstones onto the platform.  **Goal:**  To maintain up-to-date cost information on platform for smooth business operations and accurate pricing.  **Triggers**  Market changes affecting the costs of materials and gemstones.  **Preconditions:**  Manager is logged into the system.  Cost details of the materials and gemstones are available for upload.  **Post Conditions:**  Accurate and updated costs of materials and gemstones are available on the platform.  **Main Success Scenario:**   1. Manager logs into the system. 2. Manager navigates to the "Upload Material and Gemstone Costs" section. 3. Manager uploads the updated cost details. 4. System validates the details and makes the updated costs available on the platform.   **Alternative Scenario:**  If the system can't upload the details, manual entry might be required.  **Exceptions:**  System failure or invalid cost details.  **Relationships:**  This use case is related to all pricing and costing related use cases, such as UC-23 (Update Product Pricing) and UC-24 (Generate Quotations).  **Business Rules:**  Cost information must be derived from reliable sources and should be verified before upload. | | | | |

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| **USE CASE-23 SPECIFICATION** | | | | |
| **Use-case No.** | <UC-23> | **Use-case Version** | | <1.0> |
| **Use-case Name** | Manage Account | | | |
| **Author** | Phi Le Minh Tam | | | |
| **Date** | 18/05/2024 | **Priority** | High | |
| **Actor:**  Administrator  **Summary:**  Administrators have permissions to perform various account management functions on the platform.  **Goal:**  To effectively handle account management including account creation, deletion and modifications.  **Triggers**  Administrator's decision to make changes in a user's account based on specific reasons.  **Preconditions:**  Administrator is logged into the system.  **Post Conditions:**  Changes to the accounts are implemented successfully.  **Main Success Scenario:**   1. Administrator logs into the system. 2. Administrator navigates to the "Manage Account" section. 3. Administrator performs the necessary account management operations. 4. System validates and implements the changes.   **Alternative Scenario:**  If the system can't implement the changes, manual intervention might be required.  **Exceptions:**  System failure, invalid account details.  **Relationships:**  This use case is related to all account-related operations and use cases, such as UC-24 (Reset Password) and UC-25 (Change Role Permissions).  **Business Rules:**  Account changes must comply with user preferences and privacy policies. | | | | |

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| **USE CASE-24 SPECIFICATION** | | | | |
| **Use-case No.** | <UC-24> | **Use-case Version** | | <1.0> |
| **Use-case Name** | Manager Deal/Sales | | | |
| **Author** | Phi Le Minh Tam | | | |
| **Date** | 18/05/2024 | **Priority** | High | |
| **Actor:**  Administrator  **Summary:**  Administrator is responsible for managing deals and sales promotions to enhance the user experience.  **Goal:**  To draw customer attention, increase sales, and offer a better user experience with promotional deals.  **Triggers**  Need for introducing or updating sales promotions or deals based on market trend, special occasions, or marketing strategy.  **Preconditions:**  Administrator is logged into the system.  The details of the deals and sales promotions are ready for upload.  **Post Conditions:**  Latest deals and sales promotions are available on the platform.  **Main Success Scenario:**   1. Administrator logs into the system. 2. Administrator navigates to the "Manager Deal/Sales" section. 3. Administrator creates or updates the sales promotion details. 4. System validates the details and implements the promotions on the platform.   **Alternative Scenario:**  If the system can't update the promotions, manual entry might be required.  **Exceptions:**  System failure or invalid promotion details.  **Relationships:**  This use case is related to all marketing and sale related use cases, such as UC-25 (Plan Marketing Strategy) and UC-26 (Analyze Sales Performance).  **Business Rules:**  All deals and promotions must comply with the company's policy and regulations. | | | | |

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| **USE CASE-25 SPECIFICATION** | | | | |
| **Use-case No.** | <UC-25> | **Use-case Version** | | <1.0> |
| **Use-case Name** | Manage System Common Categories | | | |
| **Author** | Phi Le Minh Tam | | | |
| **Date** | 18/05/2024 | **Priority** | High | |
| **Actor:**  Administrator  **Summary:**  The Administrator has the responsibility to oversee, organize, and manage various categories within the system.  **Goal:**  To oversee and streamline the categorization within the system for easy navigation and efficient functioning.  **Triggers**  Initialization of system revamping or revisions, addition of a new category, or reclassification of existing ones.  **Preconditions:**  Administrator is logged into the system.  **Post Conditions:**  The system categories are efficiently updated and managed.  **Main Success Scenario:**   1. Administrator logs into the system. 2. Administrator navigates to the "Manage System Common Categories" section. 3. Administrator performs the necessary category management operations. 4. System validates and implements the changes.   **Alternative Scenario:**  If the system can't implement the changes, manual intervention might be required.  **Exceptions:**  System failure, invalid category details.  **Relationships:**  This use case may be linked to any functionality that relies on or affects the system's categorization, such as UC-26 (Product Categorization) and UC-27 (Service Classification).  **Business Rules:**  Any modifications to system categories should comply with system architecture rules and should not disrupt the current system functioning. | | | | |

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| **USE CASE-26 SPECIFICATION** | | | | |
| **Use-case No.** | <UC-26> | **Use-case Version** | | <1.0> |
| **Use-case Name** | Register | | | |
| **Author** | Phi Le Minh Tam | | | |
| **Date** | 18/05/2024 | **Priority** | High | |
| **Actor:**  User  **Summary:**  Customers can register themselves in the platform to access the extended services.  **Goal:**  To facilitate easy and efficient user registration, paving the way for value-adding platform user interactions.  **Triggers**  A new customer's desire to avail the services offered on the platform.  **Preconditions:**  The details required to complete the registration are available with the customer.  **Post Conditions:**  Customer's account is created and ready to be used.  **Main Success Scenario:**   1. User navigates to the "Register" section. 2. User provides the necessary details needed for registration. 3. System captures, validates the details and creates the user account.   **Alternative Scenario:**  If the system can't capture the details, manual registration might be required.  **Exceptions:**  System failure, invalid user details.  **Relationships:**  This use case is related to other user-onboarding use cases, such as UC-27 (User Login) and UC-28 (Password Reset).  **Business Rules:**  All registeration must comply with the privacy policies and terms and conditions of the platform. | | | | |

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| **USE CASE-27 SPECIFICATION** | | | | |
| **Use-case No.** | <UC-27> | **Use-case Version** | | <1.0> |
| **Use-case Name** | Login | | | |
| **Author** | Phi Le Minh Tam | | | |
| **Date** | 18/05/2024 | **Priority** | High | |
| **Actor:**  User  **Summary:**  Users can log into their account using their registered credentials for accessing services.  **Goal:**  To ensure secure and seamless entry of registered users into their accounts.  **Triggers**  User's need to access their account to use the services provided by the platform.  **Preconditions:**  User must be already registered.  User should remember their login credentials.  **Post Conditions:**  User successfully accesses their account.  **Main Success Scenario:**   1. User navigates to the "Login" section. 2. User enters their credentials. 3. System validates the credentials and allows the user to access their account.   **Alternative Scenario:**  If the user enters incorrect credentials, a password recovery option is provided.  **Exceptions:**  System failure, invalid user details.  **Relationships:**  This use case is related to UC-26 "Register" and UC-28 "Password Reset".  **Business Rules:**  User login details must comply with the privacy policies of the platform. | | | | |

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| **USE CASE-28 SPECIFICATION** | | | | |
| **Use-case No.** | <UC-28> | **Use-case Version** | | <1.0> |
| **Use-case Name** | Logout | | | |
| **Author** | Phi Le Minh Tam | | | |
| **Date** | 18/05/2024 | **Priority** | High | |
| **Actor:**  User  **Summary:**  Users can logout their account safely staying ensured that their session ends securely.  **Goal:**  To maintain the security and privacy of the user account by ending the current session securely.  **Triggers**  User's desire to end their session.  **Preconditions:**  User is logged in.  **Post Conditions:**  User's session ends securely.  **Main Success Scenario:**   1. User navigates to the "Logout" section. 2. User selects to log out. 3. System completes the logout process and ends the user session.   **Alternative Scenario:**  If the system fails to perform the logout operation, a retry option must be provided.  **Exceptions:**  System failure.  **Relationships:**  This use case is related to UC-27 "Login".  **Business Rules:**  User logout must comply with the privacy policies of the platform. | | | | |

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| **USE CASE-29 SPECIFICATION** | | | | |
| **Use-case No.** | <UC-2> | **Use-case Version** | | <1.0> |
| **Use-case Name** | Manage Profile | | | |
| **Author** | Phi Le Minh Tam | | | |
| **Date** | 18/05/2024 | **Priority** | High | |
| **Actor:**  User  **Summary:**  Users can view and modify their account profile information.  **Goal:**  To provide users with the ability to manage their profiles, allowing them to keep their information up-to-date.  **Triggers**  User's intention to view or alter their profile details.  **Preconditions:**  User should be logged into the system.  **Post Conditions:**  Updated user profile information is saved and displayed in the system.  **Main Success Scenario:**   1. User navigates to the "Profile" section. 2. User views the existing profile details. 3. User makes desired changes and saves them. 4. System validates and updates the user profile details.   **Alternative Scenario:**  If the user enters invalid details, appropriate error messages guide the user.  **Exceptions:**  System failure, invalid user details.  **Relationships:**  This use case is directly related to UC-27 "Login".  **Business Rules:**  All user profile updates must comply with the privacy policies of the platform. | | | | |

## Business Rule

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| **ID** | **Rule Definition** |
| BR-01 | Customers must be registered and logged into their account to submit production requests. |
| BR-02 | Production requests must include all necessary details such as design specifications, materials, and gemstones. |
| BR-03 | Customers should be able to track the status of their orders through their account dashboard. |
| BR-04 | Quotes provided to customers must be approved by a manager before being sent. |
| BR-05 | Products must undergo thorough quality checks before delivery to ensure they meet company standards and customer expectations. |
| BR-06 | Production order status must be updated at key milestones: initiation, in-progress, completed, and shipped. Customers should receive automated notifications for each status update. |
| BR-07 | Production costs, both standard and actual, must be tracked and analyzed to maintain profitability and identify areas for cost reduction. |
| BR-08 | Data backup and recovery procedures must be in place to prevent data loss and ensure business continuity. |
| BR-09 | All processes and transactions should be documented accurately and reported regularly to ensure transparency and accountability. |
| BR-10 | All communication with customers must be clear, professional, and timely. Response times should be within 24 hours. |
| BR-11 | Regular performance reviews and feedback sessions should be conducted to maintain high productivity and morale. |

# NON-FUNCTIONAL Requirements

*[This section describes the non-functional requirements of the system. Some examples are listed as below]*

## Usability

*[This section includes all those requirements that affect usability. For example,*

*specify the required training time for a normal users and a power user to become productive at particular operations*

*specify measurable task times for typical tasks or base the new system’s usability requirements on other systems that the users know and like*

*specify requirement to conform to common usability standards, such as IBM’s CUA standards Microsoft’s GUI standards]*

### <Usability Requirement One>

*[The requirement description goes here.]*

* Training Time:
* Normal Users: The system should be intuitive enough for a normal user to become productive within 1 hour of training.
* Power Users: Power users should be able to efficiently navigate and utilize advanced features within 2 hours of training.
* Accessibility:
* The system should be accessible to users with disabilities, following WCAG (Web Content Accessibility Guidelines) standards.
* Text should have sufficient color contrast for readability, and interactive elements should be easily distinguishable.
* Task Efficiency:
* The system should allow users to complete common tasks, such as placing an order or approving a design, within 3 minutes on average.
* Complex tasks, like managing production orders or generating reports, should not take longer than 10 minutes for experienced users.
* User Interface Design Standards:
* The system's user interface should adhere to common usability standards, such as Microsoft's GUI standards or web accessibility guidelines like WCAG (Web Content Accessibility Guidelines).
* Navigation should be intuitive, with clear labeling and consistent layout across all pages.
* Feedback and Error Handling:
* The system should provide clear feedback to users for successful actions, errors, and system responses.
* Error messages should be informative and suggest corrective actions to users.
* Customization and Personalization:
* Users should be able to customize their dashboard layout and preferences to suit their individual workflow.
* Personalized recommendations or shortcuts based on user behavior should enhance user experience.
* Mobile Responsiveness:
* The system's interface should be responsive and optimized for mobile devices, ensuring usability across various screen sizes and resolutions.
* Mobile-specific features, such as touch gestures, should be utilized to enhance usability on smartphones and tablets.
* Performance:
* Web Pages should fully download in an average of 5 seconds or less with a 35 megabits/second internet connection to ensure swift access and responsiveness.
* Response time for common actions, such as loading a page or submitting a form, should be under 2 seconds to maintain user engagement.

## Reliability

*[Requirements for reliability of the system should be specified here. Some suggestions follow:*

*Availability—specify the percentage of time available ( xx.xx%), hours of use, maintenance access, degraded mode operations, and so on.*

*Mean Time Between Failures (MTBF) — this is usually specified in hours, but it could also be specified in terms of days, months or years.*

*Mean Time To Repair (MTTR)—how long is the system allowed to be out of operation after it has failed?*

*Accuracy—specifies precision (resolution) and accuracy (by some known standard) that is required in the system’s output.*

*Maximum Bugs or Defect Rate—usually expressed in terms of bugs per thousand lines of code (bugs/KLOC) or bugs per function-point( bugs/function-point).*

*Bugs or Defect Rate—categorized in terms of minor, significant, and critical bugs: the requirement(s) must define what is meant by a “critical” bug; for example, complete loss of data or a complete inability to use certain parts of the system’s functionality.]*

### <Reliability Requirement One>

* Availability:
* The system should be available for use 99.9% of the time, excluding scheduled maintenance windows.
* Maintenance windows should be scheduled during off-peak hours, preferably during weekends or non-business hours, with advanced notice provided to users.
* In the event of system maintenance or unexpected downtime, a degraded mode of operation should be available, allowing users to access essential functions such as viewing orders and communicating with customers.
* Mean Time Between Failures (MTBF):
* The system should have a Mean Time Between Failures (MTBF) of at least 1000 hours of continuous operation.
* Mean Time To Repair (MTTR):
* The Mean Time To Repair (MTTR) for any system failure should not exceed 2 hours during business hours and 4 hours during non-business hours.
* Accuracy:
* The system output should have a precision (resolution) of at least 0.01 units for all numerical values.
* Accuracy should be maintained within 95% confidence intervals of known standards for all calculations involving pricing, material quantities, and production costs.
* Maximum Bugs or Defect Rate:
* The maximum acceptable bugs or defects rate should not exceed 0.1 critical bugs per thousand lines of code (bugs/KLOC).
* Bugs or defects are categorized as minor if they do not significantly impact system functionality, significant if they affect usability or performance, and critical if they result in complete loss of data or inability to use essential system functions.

## Performance

*[The system’s performance characteristics are outlined in this section. Include specific response times. Where applicable, reference related Use Cases by name.*

*Response time for a transaction (average, maximum)*

*Throughput, for example, transactions per second*

*Capacity, for example, the number of customers or transactions the system can accommodate*

*Degradation modes (what is the acceptable mode of operation when the system has been degraded in some manner)*

*Resource utilization, such as memory, disk, communications, and so forth.*

### <Performance Requirement One>

* Response Time:
* The average response time for processing a transaction, such as creating a quote or updating a production status, should not exceed 2 seconds.
* The maximum response time for any transaction should not exceed 5 seconds to ensure timely user interaction and feedback.
* Throughput:
* The system should support a minimum throughput of 10 transactions per minute during peak usage hours.
* During off-peak hours, the system should be capable of handling up to 20 transactions per minute to accommodate increased user activity.
* Capacity:
* The system should be able to accommodate at least 100 concurrent users without experiencing performance degradation.
* It should have the capacity to manage a minimum of 500 production orders simultaneously without affecting system responsiveness.
* Degradation Modes:
* In the event of high traffic or system overload, the system should prioritize essential functions such as order processing and communication with customers.
* Non-essential features, such as generating reports or accessing historical data, may experience slower response times or temporary unavailability during peak usage periods.
* Resource Utilization:
* Memory utilization should not exceed 70% of available system memory under normal operating conditions.
* Disk space usage should be monitored regularly, and alerts should be generated when disk space reaches 80% capacity to prevent performance degradation.
* Network communications should be optimized to minimize latency and ensure smooth data transfer between system components.
* Interfaces:
* The system should provide intuitive user interfaces for both customers and internal staff, supporting multiple devices such as desktops, tablets, and smartphones.
* User interfaces should be responsive, with fast loading times and efficient navigation to enhance user experience.
* Integration with third-party payment gateways and communication channels (e.g., email, chat) should be seamless and reliable to facilitate customer interactions and transactions.

## Supportability

*[This section indicates any requirements that will enhance the supportability or maintainability of the system being built, including coding standards, naming conventions, class libraries, maintenance access, and maintenance utilities.]*

### <Supportability Requirement One>

* All code written for the system shall adhere to a standardized set of coding standards and naming conventions.
* Coding standards should be based on industry best practices and established guidelines for the selected programming languages and frameworks (e.g., Python, Django, React.js).
* Naming conventions for variables, functions, classes, and other code entities should be descriptive, consistent, and follow a logical naming scheme to enhance readability and maintainability.
* The use of meaningful comments and documentation within the codebase should be encouraged to provide clarity and context for future developers and maintainers.
* Code reviews shall be conducted regularly to ensure compliance with coding standards and to identify opportunities for improvement in code quality and maintainability.
* The development team shall maintain a documented coding style guide that outlines the specific coding standards and naming conventions to be followed throughout the project's lifecycle.

## Design Constraints

*[This section indicates any design constraints on the system being built. Design constraints represent design decisions that have been mandated and must be adhered to. Examples include software languages, software process requirements, prescribed use of developmental tools, architectural and design constraints, purchased components, class libraries, and so on.]*

### <Design Constraint One>

* Integration with Existing Systems:
* The system must seamlessly integrate with the company's existing Customer Relationship Management (CRM) system, Salesforce, to ensure real-time data exchange and consistency in customer information.
* Technology Stack:
* The system must be developed using specific technologies: Python for programming language, Django for web framework, React.js for frontend, PostgreSQL for database management, Git for version control, and Docker containers managed with Kubernetes for deployment.
* Coding Standards and Naming Conventions:
* All code written for the system must adhere to industry-standard coding practices, follow a consistent coding style guide (such as PEP 8 for Python code), and use meaningful and descriptive naming conventions to enhance readability and maintainability.

*[The requirement description goes here.]*

## On-line User Documentation and Help System Requirements

*[Describes the requirements, if any, for o-line user documentation, help systems, help about notices, and so forth.]*

* User Manual:
* A comprehensive user manual shall be provided, covering all aspects of system functionality, including but not limited to:
* User registration and account management.
* Creating and managing production orders.
* Communicating with customers.
* Approving quotes and designs.
* Updating production statuses.
* Accessing historical data and reports.
* Context-Sensitive Help:
* Context-sensitive help shall be available throughout the system, providing relevant guidance and instructions based on the user's current location or task.
* Help icons or buttons shall be strategically placed within the user interface to allow users to access relevant help content easily.
* Searchable Knowledge Base:
* A searchable knowledge base shall be implemented, containing articles, FAQs, troubleshooting guides, and best practices related to system usage and maintenance.
* Users shall be able to search for specific topics or keywords to quickly locate relevant help articles.
* Interactive Tutorials:
* Interactive tutorials or walkthroughs shall be provided for key system functionalities, guiding users through common tasks and workflows step by step.
* Tutorials shall include interactive elements such as tooltips, annotations, and simulated interactions to enhance user engagement and learning.
* Responsive Design:
* The online user documentation and help system shall feature a responsive design, ensuring optimal viewing and usability across different devices and screen sizes.
* Users shall be able to access help content seamlessly from desktop computers, tablets, and smartphones.
* Versioning and Updates:
* The documentation shall be versioned to align with system releases and updates, ensuring that help content remains accurate and up to date with the latest system features and changes.
* Users shall be notified of documentation updates and changes, with release notes highlighting new additions or revisions.
* Accessibility:
* The online user documentation and help system shall adhere to accessibility standards (e.g., WCAG) to ensure accessibility for users with disabilities.
* Text alternatives for images, keyboard navigation support, and other accessibility features shall be implemented to enhance usability for all users.

## Purchased Components

*[This section describes any purchased components to be used with the system, any applicable licensing or usage restrictions, and any associated compatibility and interoperability or interface standards.]*

* Salesforce CRM Integration:
* The system will integrate with Salesforce CRM as a purchased component to manage customer relationship data.
* Licensing and usage restrictions: The company holds a valid license for Salesforce CRM usage.
* Compatibility and interoperability: The integration will adhere to Salesforce API standards to ensure seamless data exchange between systems.
* Payment Gateway:
* A third-party payment gateway will be utilized to facilitate online payments for production orders.
* Licensing and usage restrictions: The company has entered into a service agreement with the payment gateway provider.
* Compatibility and interoperability: The system will integrate with the payment gateway's API to securely process online transactions and handle payment information.
* Cloud Hosting Services:
* The system will be hosted on a cloud platform, such as Amazon Web Services (AWS) or Microsoft Azure.
* Licensing and usage restrictions: The company holds subscriptions or usage agreements with the cloud hosting provider.
* Compatibility and interoperability: The system architecture will be designed to leverage cloud services effectively, ensuring scalability, reliability, and security.
* Development Tools and Libraries:
* Various development tools and libraries may be purchased or licensed for use during system development, such as IDEs (Integrated Development Environments), code libraries, and testing frameworks.
* Licensing and usage restrictions: Usage rights and licensing agreements for these tools and libraries will be ensured in compliance with vendor terms.
* Compatibility and interoperability: Development tools and libraries will be selected based on compatibility with the chosen technology stack and adherence to industry standards.

## Interfaces

*[This section defines the interfaces that must be supported by the application. It should contain adequate specificity, protocols, ports and logical addresses, and the like, so that the software can be developed and verified against the interface requirements.]*

### User Interfaces

*[Describe the user interfaces that are to be implemented by the software.]*

### Hardware Interfaces

*[This section defines any hardware interfaces that are to be supported by the software, including logical structure, physical addresses, expected behavior, and so on.]*

### Software Interfaces

*[This section describes software interfaces to other components of the software system. These may be purchased components, components reused from another application or components being developed for subsystems outside of the scope of this SRS but with which this software application must interact.]*

### Communications Interfaces

[Describe any communications interfaces to other systems or devices such as local area networks, remote serial devices, and so forth.]

* User Interfaces:

1. Customer Interface:

* Description: Web-based interface for customers to interact with the system.
* Protocols: HTTP/HTTPS.
* Port: Standard web ports 80 (HTTP) and 443 (HTTPS).
* Logical Address: URL of the web application (e.g., https://jewelrymanagement.com).
* Expected Behavior: Customers can access the system via a web browser, create accounts, place orders, view order history, and provide feedback.

1. Staff Interface:

* Description: Web-based interface for sales, design, and production staff.
* Protocols: HTTP/HTTPS.
* Port: Standard web ports 80 (HTTP) and 443 (HTTPS).
* Logical Address: URL of the web application (e.g., https://jewelrymanagement.com).
* Expected Behavior: Staff members can access the system via a web browser, log in with their credentials, manage customer requests, create quotes, update production statuses, and communicate with customers.
* Hardware Interfaces:
* Server Hardware:
* Description: Hardware components hosting the software application.
* Logical Structure: Servers hosting the application code, databases, and other necessary components.
* Physical Addresses: IP addresses or domain names of the servers.
* Expected Behavior: The servers run the application, handle user requests, and store data.
* Software Interfaces:

1. Salesforce CRM Integration:

* Description: Interface for integrating with Salesforce CRM.
* Protocols: RESTful API.
* Logical Address: API endpoint provided by Salesforce (e.g., https://api.salesforce.com).
* Expected Behavior: The system communicates with Salesforce CRM to synchronize customer data, orders, and communications.

1. Payment Gateway Integration:

* Description: Interface for integrating with a third-party payment gateway.
* Protocols: HTTPS.
* Logical Address: API endpoint provided by the payment gateway provider.
* Expected Behavior: The system communicates securely with the payment gateway to process online payments for production orders.
* Communications Interfaces:

1. Internal Communication:

* Description: Communication between different modules and components of the software system.
* Protocols: HTTP/HTTPS.
* Logical Address: Internal API endpoints.
* Expected Behavior: Modules communicate via RESTful APIs to exchange data and trigger actions within the system.

1. External Communication:

* Description: Communication with external systems such as email servers or SMS gateways.
* Protocols: SMTP, SMS API.
* Logical Address: SMTP server address for email communication, SMS gateway API endpoint for SMS communication.
* Expected Behavior: The system sends notifications and alerts via email and SMS using the respective protocols and interfaces.

## Licensing Requirements

*[Defines any licensing enforcement requirements or other usage restriction requirements that are to be exhibited by the software.]*

* Third-Party Components:
* Any third-party components or libraries used in the software must be compliant with their respective licenses.
* Developers must ensure that the usage of third-party components adheres to the terms and conditions specified in their licenses.
* Proprietary Code:
* Any proprietary code developed specifically for the Jewelry Production Order Management System remains the property of the company.
* Usage of proprietary code is restricted to authorized personnel for system development, deployment, and maintenance purposes.
* Software Distribution:
* The software may not be distributed or sublicensed without explicit permission from the company.
* Users may only access the software through authorized channels provided by the company.
* Usage Restrictions:
* The software is intended for internal use by the company and its authorized users only.
* Unauthorized reproduction, modification, or reverse engineering of the software is strictly prohibited.
* Compliance with Regulations:
* The software must comply with all applicable laws, regulations, and industry standards governing software licensing and usage.
* License Agreement:
* Users must agree to the terms and conditions outlined in the software's End-User License Agreement (EULA) before accessing or using the system.
* The EULA shall outline the rights and responsibilities of users regarding software usage, intellectual property rights, and liability.

## Legal, Copyright, and Other Notices

*[This section describes any necessary legal disclaimers, warranties, copyright notices, patent notices, wordmark, trademark, or logo compliance issues for the software.]*

* Copyright Notice:
* The software is protected by copyright laws, and all rights are reserved by the company.
* © [Year of Copyright] [Company Name]. All rights reserved.
* Trademark Notice:
* Any trademarks, service marks, logos, or trade names used in the software are the property of the company.
* All trademarks, service marks, logos, and trade names are registered or unregistered trademarks of [Company Name].
* End-User License Agreement (EULA):
* Users must agree to the terms and conditions outlined in the EULA before using the software.
* The EULA shall govern the rights and responsibilities of users regarding software usage, intellectual property rights, and liability.
* Legal Disclaimers:
* The software is provided "as is" without any warranties, express or implied.
* The company shall not be liable for any damages arising from the use or inability to use the software, including but not limited to indirect, incidental, or consequential damages.
* Compliance Notices:
* Users must comply with all applicable laws, regulations, and industry standards when using the software.
* The company reserves the right to terminate or suspend access to the software for users who violate the terms of service or engage in illegal activities.
* Patent Notices:
* Any patented features or technologies incorporated into the software shall be identified with appropriate patent notices.
* Wordmark Compliance:
* The company's wordmark or logo shall be displayed in accordance with branding guidelines and compliance standards.

## Applicable Standards

*[This section describes by reference any applicable standard and the specific sections of any such standards which apply to the system being described. For example, this could include legal, quality and regulatory standards, industry standards for usability, interoperability, internationalization, operating system compliance, and so forth.]*

* ISO 9001:2015 (Quality Management Systems):
* Section 7: Support - This section covers requirements related to documentation, resources, competence, awareness, and communication, which are relevant for ensuring the quality of the software development process.
* ISO/IEC 27001:2013 (Information Security Management Systems):
* Section 6: Planning - This section outlines requirements for risk assessment, treatment, and control, which are crucial for ensuring the security of customer data and sensitive information within the system.
* GDPR (General Data Protection Regulation):
* Articles 5, 6, 7, 9, 17, 20 - These articles specify requirements related to data protection, lawful processing, consent, data subject rights, data minimization, and accountability, which must be adhered to for handling customer data in compliance with EU data protection regulations.
* PCI DSS (Payment Card Industry Data Security Standard):
* Requirements 3, 6, 7, 9, 10 - These requirements address security controls for protecting payment card data, including network security, access control, encryption, vulnerability management, and monitoring, which are relevant for ensuring the security of online payment transactions.
* WCAG (Web Content Accessibility Guidelines):
* Level AA - These guidelines provide recommendations for making web content more accessible to people with disabilities, including visual, auditory, physical, speech, cognitive, language, learning, and neurological disabilities, which are important for ensuring accessibility compliance of the user interfaces.
* HTTP/HTTPS Protocol Standards:
* RFC 7230, RFC 7231, RFC 7232, RFC 7233 - These RFCs define the HTTP/1.1 protocol standards for message syntax and routing, request and response semantics, conditional requests, and range requests, which are relevant for implementing secure and efficient communication between clients and servers.

# Supporting Information

*[The supporting information makes the SRS easier to use. It includes:*

*Table of contents*

*Index*

*Appendices*

*These may include use-case storyboards or user-interface prototypes. When appendices are included, the SRS should explicitly state whether or not the appendices are to be considered part of the requirements.]*