

# Software Specification Requirement

**PROJECT NAME:** Automated Loan Approval System

**PROJECT IDEA:** Develop a system to automate and streamline the loan approval process for salaried professionals, reducing manual effort, errors, and delays, and improving customer experience and bank efficiency.

## PROJECT DRIVERS:

### *The goal of the project:*

To create an efficient, secure, and user-friendly loan approval system that automates key steps, enhances data security, optimizes staff use, and improves customer satisfaction.

### *Client, Customer, Stakeholders:*

- **Client:** The bank implementing the system.
- **Customer:** People applying for loans.
- **Stakeholders:** Credit brokers, post-processing clerks, supervisors, branch managers, senior management, Central Bank of Egypt, Egyptian financial regulators, external auditors.

### *Users of the project:*

- Customers (loan applicants)
- Credit brokers
- Post-processing clerks
- Supervisors
- Branch managers
- Senior management

## PROJECT CONSTRAINTS:

### **Mandated Constraints:**

- **Technology:** The system must integrate with the existing Customer Information File (CIF) and Credit Bureau services. It should utilize Secure Signature Creation Devices (SSCD) for digital contract signing.
- **Reason:** Ensuring compatibility with existing systems and compliance with security and regulatory standards.
- **Security:** The system must comply with data protection regulations to ensure the confidentiality and integrity of customer information.

### **Naming Conventions and Definitions:**

1. **Loan Application:** The form submitted by customers to apply for a loan.
2. **Credit Broker:** Bank staff responsible for handling customer data and initial loan processing.
3. **Post-Processing Clerk:** Staff member responsible for assessing the creditworthiness of loan applicants.
4. **Supervisor:** Staff member overseeing high-value loan applications.
5. **Internal Rating Application:** System used to assess the risk level of loans.
6. **Bundled Product:** A loan package tailored to the customer's needs.
7. **Pricing Engine:** Service that calculates the pricing of loan products.
8. **SSCD:** Secure Signature Creation Device used for digital signing of contracts.
9. **Bank Information System:** System that records final loan details post-signing.

### **Relevant Facts and Assumptions:**

#### **Relevant Facts:**

- The current loan approval process is manual, leading to delays and errors.
- Automation can significantly improve efficiency and customer satisfaction.

#### **Business Rules:**

- Loans exceeding 1 million euros require supervisor intervention.
- All customer data must be handled securely and comply with data protection regulations.

#### **Assumptions:**

- The bank's staff will be trained to use the new system.
- The system will be scalable to handle varying volumes of loan applications.
- The system will provide real-time updates and notifications to both customers and bank staff.

## Functional Requirements:

### The Scope of the Work:

**The Current Situation:** The current loan approval process for salaried professionals is slow and complicated, involving multiple manual checks by different bank staff. This leads to delays, errors, and a frustrating customer experience, reducing the bank's efficiency and competitiveness.

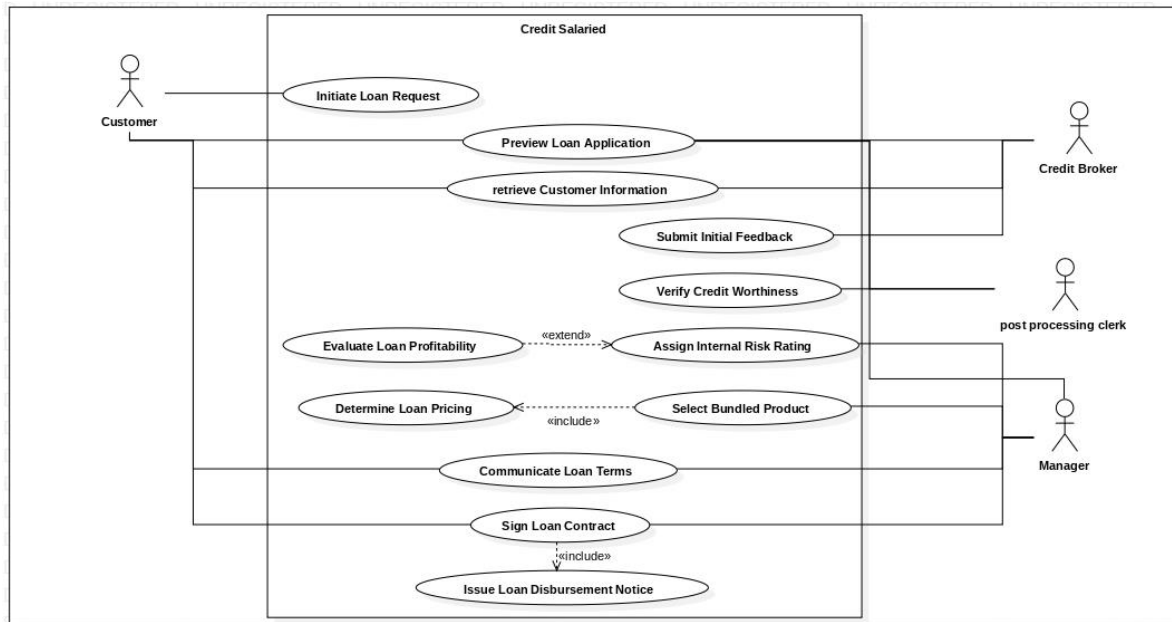
**The Context of the Work:** The new system aims to automate and streamline the loan approval process, reducing manual effort and errors, and improving overall efficiency and customer satisfaction. This involves integrating with existing systems like the Customer Information File (CIF) and Credit Bureau services, and ensuring secure digital signing of contracts.

**Work Partitioning:** The work is divided into several key areas:

1. **Customer Interaction:** Submission of loan applications, receiving notifications, and checking loan status.
2. **Credit Broker Tasks:** Retrieving customer information, providing initial feedback, and handling customer data securely.
3. **Creditworthiness Evaluation:** Conducted by post-processing clerks and supervisors, involving credit checks and risk assessments.
4. **Managerial Tasks:** Assessing loan risk, evaluating profitability, selecting bundled products, determining loan pricing, and finalizing loan terms.
5. **Contract Signing and Disbursement:** Secure digital signing of contracts and issuing loan disbursement notices.

### The Scope of the Product

## Use Case Diagram:



- A use case diagram helps identify the boundaries between the users (actors) and the system. Here's a detailed breakdown:

### Actors:

1. **Customer:** Submits loan applications, receives notifications, and checks loan status.
2. **Credit Broker:** Retrieves customer information, provides initial feedback, and handles customer data.
3. **Post-Processing Clerk:** Evaluates creditworthiness and processes loan applications.
4. **Supervisor:** Oversees high-value loan applications and intervenes when necessary.
5. **Manager:** Assesses loan risk, evaluates profitability, selects bundled products, determines loan pricing, and finalizes loan terms.

### System Boundaries:

The system will automate the following parts of the business use cases:

1. **Loan Application Submission:** Automate the collection and initial processing of loan applications.

2. **Customer Information Retrieval:** Securely retrieve and handle customer data from the CIF.
3. **Creditworthiness Checks:** Automate credit checks through the Credit Bureau service.
4. **Risk Assessment:** Use the internal rating application to assess loan risk levels.
5. **Profitability Evaluation:** Automate the evaluation of loan profitability and bundling of products.
6. **Loan Pricing:** Use the Pricing Engine to calculate loan terms.
7. **Digital Contract Signing:** Enable secure digital signing of contracts using SSCDs.
8. **Notifications and Updates:** Provide real-time updates and notifications to customers and bank staff.

#### **User Tasks:**

- **Customers:** Submit applications, receive notifications, and check status.
- **Credit Brokers:** Retrieve information, provide feedback, and handle data.
- **Clerks and Supervisors:** Evaluate creditworthiness and process applications.
- **Managers:** Assess risk, evaluate profitability, select products, determine pricing, and finalize terms.

#### **Considerations:**

- **Abilities of the Actors:** Ensure the system is user-friendly and provides necessary training for bank staff.
- **Constraints:** Integrate with existing systems, comply with data protection regulations, and use secure digital signing.
- **Goals of the Project:** Improve efficiency, enhance data security, optimize staff use, and improve customer satisfaction.
- **Knowledge of Work and Technology:** Leverage existing technology to automate processes and ensure seamless integration with current systems.

Requirement #: 1

Requirement Type: Functional

Use Case #: Initiate Loan Request

**Description:** The system must allow customers to submit loan applications online. The application form should collect personal, financial, and employment details.

**Rationale:** To streamline the loan approval process and reduce manual data entry, improving efficiency and customer satisfaction.

**Source:** Project Stakeholders (Bank, Customers)

**Fit Criteria:**

- The loan application form must be accessible via the bank's online portal.
- The form must include fields for personal identification, financial status, and employment details.
- Confirmation notifications must be sent to the customer upon submission.

Customer Satisfaction: 5

Customer Dissatisfaction: 5

**Dependencies:**

- Integration with the Customer Information File (CIF).
- Secure handling of customer data

**Conflict:** Not Identified

**Supporting Materials:**

- Mockups of the online loan application form.
- Data flow diagrams showing the submission process

Requirement #: 2

Requirement Type: Functional

Use Case #: Retrieve Customer Information

**Description:** The system must allow credit brokers to securely retrieve customer information from the Customer Information File (CIF).

**Rationale:** To ensure that credit brokers have access to accurate and up-to-date customer information for processing loan applications.

**Source:** Project Stakeholders (Bank, Credit Brokers)

**Fit Criteria:**

- The system must provide secure access to the CIF.
- The retrieved information must include personal identification, employment status, and financial history.

Customer Satisfaction: 5

Customer Dissatisfaction: 3

**Dependencies:**

- Integration with the Customer Information File (CIF)
- Secure data handling protocols

**Conflict:** Not Identified

**Supporting Materials:**

- System architecture diagrams
- Security protocol documentation

Requirement #: 3

Requirement Type: Functional

Use Case #: Submit Initial Feedback

**Description:** The system must allow credit brokers to submit initial feedback on customer credentials.

**Rationale:** To provide an initial assessment of the customer's eligibility for a loan.

**Source:** Project Stakeholders (Bank, Credit Brokers)

- Fit Criteria:**
- The system must provide an interface for credit brokers to enter and submit feedback.
  - The feedback must be securely stored and accessible for further processing.

Customer Satisfaction: 5

Customer Dissatisfaction: 3

- Dependencies:**
- Secure data storage.
  - User-friendly interface for feedback submission

**Conflict:** Not Identified

- Supporting Materials:**
- Interface design mockups
  - Data storage diagrams



Requirement #: 4

Requirement Type: Functional

Use Case #: Verify Credit Worthiness

**Description:** The system must allow clerks and supervisors to verify the creditworthiness of loan applicants using the Credit Bureau service.

**Rationale:** To ensure that loan applicants meet the creditworthiness criteria set by the bank.

**Source:** Project Stakeholders (Bank, Clerks, Supervisors)

- Fit Criteria:**
- The system must provide access to the Credit Bureau service.
  - The creditworthiness data must be retrievable and displayable.
  - Alerts must notify supervisors if a loan amount exceeds 1 million euros.

Customer Satisfaction: 5

Customer Dissatisfaction: 5

- Dependencies:**
- Integration with the Credit Bureau service
  - Alert notification system

**Conflict:** Not Identified

- Supporting Materials:**
- Integration documentation
  - Alert system design

**Requirement #:** 5

**Requirement Type:** Functional

**Use Case #:** Assign Internal Risk Rating

**Description:** The system must allow managers to assign an internal risk rating to loan applications using the internal rating application.

**Rationale:** To categorize loan applications based on their risk level, aiding in decision-making.

**Source:** Project Stakeholders (Bank, Managers)

**Fit Criteria:**

- The system must provide access to the internal rating application.
- The risk rating must be based on credit score and financial details.

**Customer Satisfaction:** 5

**Customer Dissatisfaction:** 3

**Dependencies:**

- Integration with the internal rating application
- Accurate data input

**Conflict:** None Identified

**Supporting Materials:**

- Risk rating criteria documentation
- Integration diagrams

Requirement #: 6

Requirement Type: Functional

Use Case #: Evaluate Loan Profitability

**Description:** The system must allow managers to evaluate the profitability of loan applications.

**Rationale:** To ensure that the bank only approves loans that are profitable.

**Source:** Project Stakeholders (Bank, Managers)

- Fit Criteria:**
- The system must provide tools to evaluate loan profitability.
  - The evaluation must consider bundling additional products to improve profitability.

Customer Satisfaction: 5

Customer Dissatisfaction: 3

- Dependencies:**

  - Profitability evaluation tools.
  - Data on additional products.
- Conflict:** None Identified

- Supporting Materials:**
- Profitability evaluation criteria
  - Product bundling documentation

**Requirement #:** 7

**Requirement Type:** Functional

**Use Case #:** Select Bundled Product

**Description:** The system must allow managers to select bundled products that match the customer's profile.

**Rationale:** To optimize the bank's profitability and meet customer needs.

**Source:** Project Stakeholders (Bank, Managers)

**Fit Criteria:**

- The system must provide access to a database of bundled products.
- The selection must be based on the customer's profile and needs.

**Customer Satisfaction:** 5

**Customer Dissatisfaction:** 3

**Dependencies:**

- Database of bundled products
- Customer profile data

**Conflict:** None Identified

**Supporting Materials:**

- Product database schema
- Customer profile criteria

Requirement #: 8

Requirement Type: Functional

Use Case #: Determine Loan Pricing

**Description:** The system must allow managers to determine the pricing of loan products using the Pricing Engine.

**Rationale:** To ensure that loan terms are competitive and align with the bank's policies.

**Source:** Project Stakeholders (Bank, Managers)

**Fit Criteria:**

- The system must provide access to the Pricing Engine.
- The pricing must include interest rates, fees, and payment schedules.

Customer Satisfaction: 5

Customer Dissatisfaction: 3

**Dependencies:**

- Integration with the Pricing Engine
- Accurate data input

**Conflict:** None Identified

**Supporting Materials:**

- Pricing criteria documentation
- Integration diagrams

**Description:** The system must allow customers to submit loan applications online. The application form should collect personal, financial, and employment details.

**Rationale:** To streamline the loan approval process and reduce manual data entry, improving efficiency and customer satisfaction.

**Source:** Project Stakeholders (Bank, Customers)

**Fit Criteria:**

- The system must provide an interface for presenting loan terms.
- The interface must allow for customer questions and manager responses.

Customer Satisfaction: 5

Customer Disatisfaction: 3

**Dependencies:**

- User-friendly interface
- Communication tools

**Conflict:**

**Supporting Materials:**

- Interface design mock

**Description:** The system must allow customers and managers to sign loan contracts using Secure Signature Creation Devices (SSCDs).

**Rationale:** To ensure that loan contracts are signed securely and legally, reducing the risk of fraud and ensuring compliance regulations.

**Source:** Project Stakeholders (Bank, Customers, Managers)

**Fit Criteria:**

- The system must support the use of SSCDs for digital signing.
- The signed contracts must be securely stored and retrievable.

**Customer Satisfaction:** 5

**Customer Dissatisfaction:** 3

**Dependencies:**

- Integration with SSCD technology
- Secure storage for signed contracts

**Conflict:**

**Supporting Materials:**

- SSCD integration documentation
- Security protocol documentation

**Requirement #:** 11

**Requirement Type:** Functional

**Use Case #:** Issue Loan Disbursement Notice

**Description:** The system must allow managers to generate and provide formal loan disbursement notices to customers.

**Rationale:** To inform customers of the approved loan amount and the expected transfer date to their bank account.

**Source:** Project Stakeholders (Bank, Managers, Customers)

**Fit Criteria:**

- The system must provide an interface for presenting loan terms.
- The interface must allow for customer questions and manager responses.

**Customer Satisfaction:** 5

**Customer Disatisfaction:** 3

**Dependencies:**

- Accurate loan approval data
- Notification system

**Conflict:**

**Supporting Materials:**

- Disbursement notice templates
- Notification system design



**Description:** The system must allow managers, customers, clerks, supervisors, and credit brokers to preview loan application details before final approval

**Rationale:** To ensure that all stakeholders can review and verify the accuracy and completeness of the loan application details

**Source:** PProject Stakeholders (Bank, Managers, Customers, Clerks, Supervisors, Credit Brokers)

**Fit Criteria:**

- The system must provide an interface for previewing loan application details.
- The preview must be accessible to all relevant stakeholders.

**Customer Satisfaction:** 5

**Customer Disatisfaction:** 3

**Dependencies:**

- User-friendly interface
- Secure access controls

**Conflict:**

**Supporting Materials:**

- Interface design mockups
- Access control documentation