

Software Requirements Specification (SRS) Template

Project: Customer Relationship Management (Reach, Acquire, Convert, Retain and Loyalty)

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Revision history

Version	Date	Author	Change summary	Approval
1.0	18-08-2025	Instructor	SRS with diagrams embedded	

Approvals

Role	Name	Signature / Email	Date
Course Coordinator			

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1. Introduction

1.1 Purpose

This SRS defines the functional and non-functional requirements for a web-based CRM that supports the full customer lifecycle: Reach, Acquire, Convert, Retain, and Loyalty. It serves as the contract between stakeholders (students/instructor), developers, and QA for implementation and validation.

1.2 Scope

The CRM covers: omni-channel campaign management, lead capture and qualification, deal pipelines and quoting/e-signature, order/payment tracking, customer 360° data, support ticketing with SLAs, feedback (CSAT/NPS), loyalty points & tiers, referrals, automation, reporting, and integrations. Out-of-scope: payment gateway internals, SMS/email provider internals, and external ERP/Accounting logic beyond defined APIs.

1.3 Audience

Developers, QA Engineers, Product Owner/Instructor, System Administrators, and Reviewers/Evaluators.

1.4 Definitions

CRM: Customer Relationship Management

CSAT/NPS: Customer Satisfaction / Net Promoter Score

KPI: Key Performance Indicator

MFA: Multi-Factor Authentication

RBAC: Role-Based Access Control

PII: Personally Identifiable Information

API: Application Programming Interface

RPO/RTO: Recovery Point/Time Objective

WCAG 2.1 AA: Web Content Accessibility Guidelines conformance level

2. Overall description

2.1 Product perspective

The system is a responsive single-page web application powered by REST/GraphQL APIs and background workers to ensure scalability and performance. It is designed with optional multi-tenant capability, enabling seamless support for multiple organizations. The platform seamlessly integrates with email, SMS, payment gateways, e-signature, and web analytics to enhance customer engagement and operations. Additionally, it delivers powerful dashboards and export features to provide actionable business insights.

2.2 Major product functions (detailed)

- Campaigns (email/SMS), audience segmentation, and attribution (Reach)
- Lead capture (forms, imports), assignment rules, scoring (Acquire)
- Deals pipeline, tasks, quotes, e-sign, payments (Convert)
- Customer 360, tickets with SLAs, knowledge base, feedback (Retain)
- Loyalty points/tiers, rewards catalog, referrals (Loyalty)
- Automations/workflows, reporting/analytics, and admin/RBAC

2.3 User roles and characteristics (expanded)

- Marketing Manager: designs campaigns, segments audiences, evaluates reach/CTR.
- Sales Rep: owns leads and deals, uses pipeline board, creates quotes.
- Support Agent: resolves tickets under SLA, triggers surveys.
- Loyalty Manager: manages points, tiers, and rewards.
- Customer: interacts via forms, email/SMS, portal (optional).
- System Admin: configures roles, integrations, and data retention.

2.4 Operating environment

Web app (modern browsers), optional mobile view. Backend: Linux containers, relational DB, object storage for attachments, message queue for async jobs

2.5 Constraints

Legal: Compliance with PII protection laws (GDPR/DPDP/CCPA) and consent management.

Technical: Constraints from third-party API rate limits and reliable email/SMS deliverability.

Resource: Limited infrastructure and licensing budget.

3. External interface requirements

3.1 User interfaces

Responsive SPA with left-nav dashboard (dark/light), kanban pipelines, WYSIWYG email editor, form builder, ticket view, loyalty wallet, analytics charts.

Accessibility: keyboard navigation, ARIA labels, high-contrast mode, screen-reader cues.

3.2 Hardware interfaces

-None (standard web client). Optional QR code scanners via device camera API.

3.3 Software interfaces

- Email: SMTP/API (e.g., SendGrid/Mailgun compatible)
- SMS: SMS provider API (Twilio-like)
- Payments: Payment links/UPI/Stripe-like API (create/verify payment)
- E-Sign: DocuSign-like API (create envelope, web-sign URL)
- Web Analytics: UTM parameters ingestion
- Webhooks/REST: outbound events; inbound data push

-SSO/OAuth: Google/Microsoft optional

3.4 Communications

HTTPS for all endpoints, JSON over HTTP/2 where supported.

Webhooks signed with shared secret; retries with exponential backoff.

Real-time updates via WebSockets/SSE.

<< Make sure overall there are at least 15 FRs for overall project, 5 NFRs, 2 security objectives and 5 Security requirements>>

4. System features (detailed)

Each requirement below includes acceptance criteria and a reference test case. IDs follow CRM-F-###.

4.1 Authentication

Description: Authenticate CRM users (employees, managers, admins) with secure login, role-based access, and session management.

Req ID	Requirement	Type	Priority	Source/S takeholder	Acceptance criteria / Test case ref	Comments / Dependencies
CRM-F-001	The system shall allow users to log in via username & password with role-based access control (RBAC).	Functional	High	Security / Business	AC-CRM-F-001: Valid credentials grant access; incorrect credentials denied. Test: TC-Auth-01	Requires user database & RBAC
CRM-F-002	The system shall enforce password policies	Functional	High	Security / Compliance	AC-CRM-F-002: Passwords not meeting policy rejected.	Align with ISO 27001 policies

	(min length, complexity, expiry).				Test: TC-Auth-02	
CRM-F-003	The system shall provide multi-factor authentication (MFA) for admin and manager roles.	Functional	High	Security	AC-CR M-F-003: Login requires OTP + password. Test: TC-Aut h-03	Requires SMS/Email OTP provider
CRM-F-004	The system shall log all login attempts (success/failure) for auditing.	Functional	High	Audit	AC-CRM -F-004: Logs available for review. Test: TC-Auth-04	Stored in secure log DB

4.2 Customer Data Management

Description: Enable creation, update, retrieval, and deletion (CRUD) of customer records with full audit.

Req ID	Requirement (shall...)	Type	Priority	Source/Stakeholder	Acceptance criteria /	Comments / Dependencies

					Test case ref	
CRM-F-05	.The system shall allow adding new customer records with personal, contact, and business details.	Functional	High	Sales	AC-CRM -F-010: Customer saved and retrievable. Test: TC-Cust-01	Requires DB integration
CRM-F-06	The system shall allow editing and updating customer records while retaining audit history.	Functional	High	Operations	AC-CRM -F-011: Changes logged with user/time . Test: TC-Cust-02	Requires audit trail module
CRM-F-07	The system shall prevent duplicate customer records using configurable matching rules.	Functional	Medium	Business	AC-CRM -F-012: Duplicate detected and blocked. Test: TC-Cust-03	Matching rules in config

CRM-F-08	The system shall support secure deletion (soft-delete with recovery option).	Functional	Medium	Legal	AC-CRM-F-013: Deleted records hidden but recoverable. Test: TC-Cust-04	GDPR compliance dependency
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4.3 Sales & Opportunity Management

Description: Track sales pipeline, opportunities, and conversions.

Req ID	Requirement (shall...)	Type	Priority	Source/Stakeholder	Acceptance criteria /	Comments / Dependencies
CRM-F-09	The system shall allow creation of opportunities linked to customer records.	Functional	High	Sales	AC-CRM-F-020: Opportunities visible in pipeline. Test: TC-Sales-01	Requires Customer module
CRM-F-010	The system shall track opportunity stages (lead, qualified, proposal,	Functional	High	Sales Ops	AC-CRM-F-021: Stage updates reflected in reports. Test: TC-Sales	Workflow config required

	closed).				-02	
CRM-F-011	The system shall generate sales forecasts based on weighted pipeline.	Functional	Medium	Management	AC-CRM-F-022: Forecast = sum(weighted deals). Test: TC-Sales-03	Requires analytics module

4.4 Communication & Case Management.

Description: Manage customer interactions and support cases.

Req ID	Requirement	Type	Priority	Source	Acceptance criteria / Test case ref	Comments / Dependence
CRM-F-012	The system shall log customer communications (calls, emails, meetings).	Functional	High	Support	AC-CRM-F-030: Logs linked to customer profile. Test: TC-Com-01	Integrations needed
CRM-F-013	The system shall allow creation and tracking of support	Functional	High	Support	AC-CRM-F-031: SLA breaches flagged. Test: TC-Com-02	SLA engine required

	cases with SLA deadlines.					
CRM-F-014	The system shall provide automated notifications to customers for case updates.	Functional	Medium	Support	AC-CRM-F-032: Email/SMS sent on updates. Test: TC-Com-03	Requires messaging service

4.5 Maintenance & Monitoring

Req ID	Requirement	Type	Priority	Source	Acceptance criteria / Test case ref	Comments / Dependencies
CRM-F-015	The system shall provide an admin panel for monitoring user activity.	Functional	High	Admin	AC-CRM-F-040: Dashboard shows activity logs. Test: TC-Admin-01	Needs analytics engine
CRM-F-016	The system shall	Functional	Medium	IT Ops		Requires API Gateway

	allow remote monitoring via API.				AC-C RM-F-041: API returns health status. Test: TC-Admin-02	y
CRM-F-017	The system shall ship encrypted logs to central storage.	Functional	High	Audit	AC-CR M-F-042 : Logs securely transmitted. Test: TC-Admin-03	Encryption dependency

5. Non-functional requirements (detailed)

NFRs below are measurable and tied to test plans. IDs follow CRM-NF-###.

Req ID	Requirement	Category	Priority	Acceptance criteria / Measurement
CRM-NF-001	System shall handle 500 concurrent users with <3s response time.	Performance	High	Load test results ≤3s for 95th percentile. Test: TC-Perf-01
CRM-NF-002	System shall provide 99.9% uptime monthly.	Reliability	High	Ops uptime reports ≥99.9%. Test: Ops-Report

CRM-NF-003	All customer data must comply with GDPR & PCI-DSS.	Security/Compliance	High	PCI-DSS audit checklist pass. Test: TC-Sec-01
CRM-NF-004	System shall provide logs with timestamped events retained for 7 years for audit purposes.	Audit/Data Retention	High	Audit checklist pass. Test: TC-Sec-01
CRM-NF-005	System shall support accessibility (WCAG 2.1 AA).	Usability/Accessibility	Medium	Accessibility audit pass. Test: TC-UX-01

5.1. Security

5.1.1 Security Objectives

Protect customer personal, financial, and interaction data against unauthorized access, leakage, or misuse.

1. Ensure strict role-based restricted access so that only authorized users (e.g., sales, support, admin) can access relevant CRM functions.
2. Guarantee encrypted communications and secure storage of sensitive data across the CRM system.
3. Maintain strong authentication mechanisms (e.g., MFA, password policies) to prevent account compromise.
4. Enable full auditability and traceability of user actions for accountability and compliance (GDPR, PCI-DSS).

5.1.2 Security Requirements

Req ID	Requirement (shall...)	Type	Priority	Acceptance criteria / Test case ref
PRJ-SR-001	TLS 1.2+ mandatory for all network connections.	Security	High	Verified via penetration test. Test: TC-Sec-02
PRJ-SR-002	All customer data at rest shall be encrypted using AES-256 or equivalent.	Security	High	DB encryption verified. Test: TC-Sec-03
PRJ-SR-003	Role-based access control (RBAC) shall be enforced across all modules.	Security	High	Access violation attempts blocked. Test: TC-Sec-04
PRJ-SR-004	The system shall enforce multi-factor authentication (MFA) for admin and managerial accounts.	Security	High	Login requires MFA. Test: TC-Sec-05
PRJ-SR-005	The system shall log and retain all security-related events (logins, data changes, failed attempts) for minimum 7 years.	Security	High	Logs verified in audit review. Test: TC-Sec-06

6. Quality attributes & Acceptance tests

- Exit criteria for acceptance: All high-priority functional requirements implemented and verified, no critical NFR failures, and RTM shows all test cases passed.
- Acceptance test suites: Authentication, Withdrawal, Deposit, Transfer, Performance, Security, and Accessibility tests.

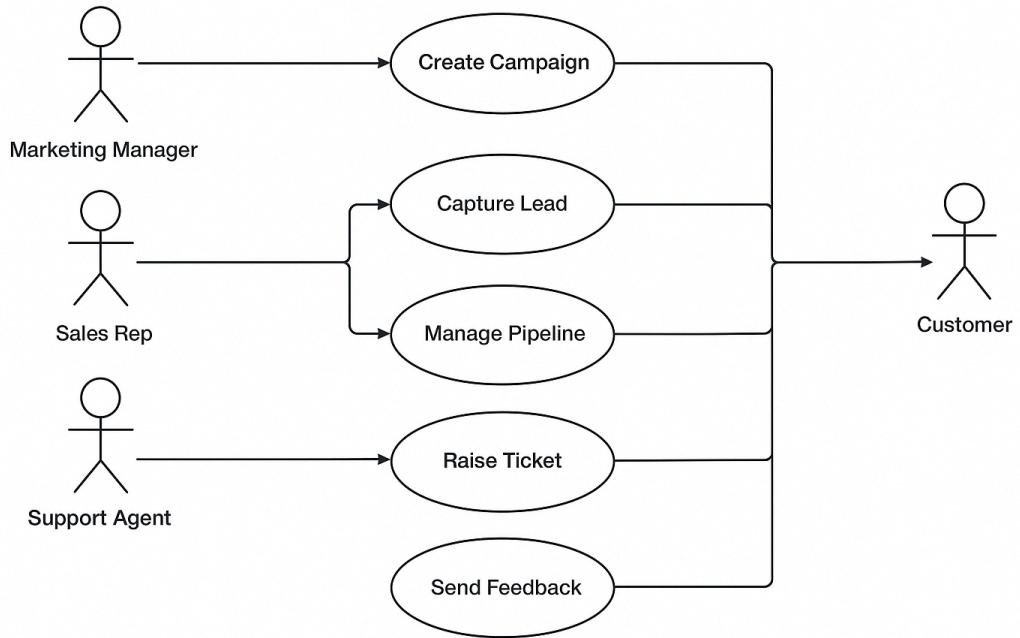
7. System models and diagrams

7.1 UML Use-Case diagram

This Customer Lifecycle Use-Case Diagram illustrates interactions between Marketing Manager, Sales Rep, Support Agent, and Customer across different stages.

Key functions include creating campaigns, capturing leads, managing pipelines, raising tickets, and sending feedback.

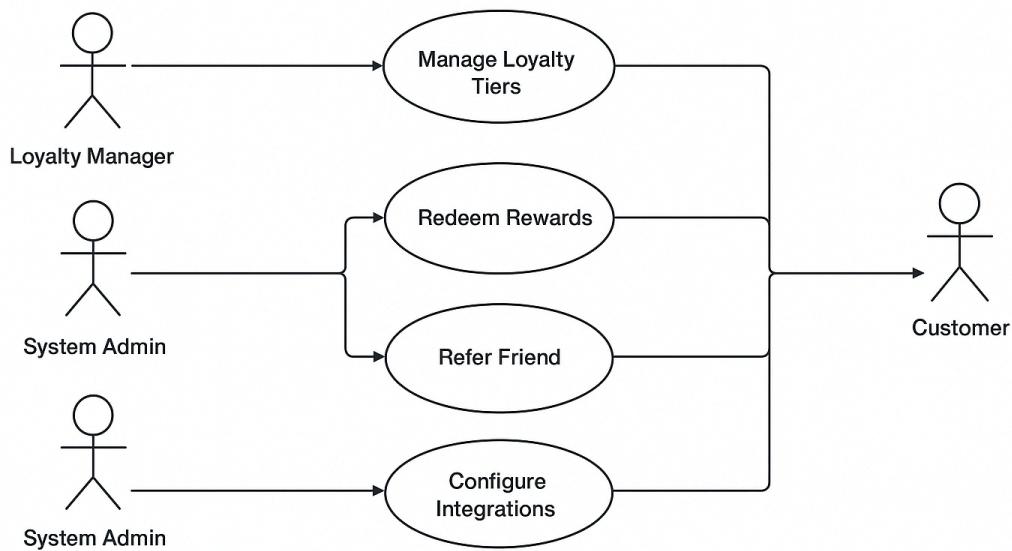
Customer Lifecycle



This UML Use-Case Diagram shows how **Loyalty Manager**, **System Admin**, and **Customer** interact with the system to manage loyalty tiers, configure integrations, and use rewards.

It highlights the balance between **administrative control and customer engagement** in the loyalty program.

Loyalty & Admin



8. Requirements Traceability Matrix (RTM)

Req ID	Requirement short	Section ref / Design Spec	Module	Test case(s)	Status (N/P/A)	Comments
CRM-F-018	User login & RBAC	4.1 / DS-Auth-01	AuthModule	TC-Auth-01	N	RBAC rules required
CRM-F-019	Add customer record	4.2 / DS-Cust-01	CustModule	TC-Cust-01	N	DB schema needed
CRM-F-020	Opportunity tracking	4.3 / DS-Sale-s-01	SalesModule	TC-Sales-01	N	Pipeline config required
CRM-F-021	Communication logs	4.4 / DS-Com-01	CommModule	TC-Com-01	N	API integrations pending

CRM-F-0 022	Performance target	5 / DS-Perf- 01	WebUI / API		N	Load testing required
				TC-Per f-01		