Universidad de Guadalajara

Centro Universitario de los Valles

BASELINE

Subject: Software Configuration Management

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PROJECT DESCRIPTION

This project involves creating an app to manage access to a gym. Customers will be able to check in using a fingerprint reader, and the app will show them how many days they have left on their membership. Managers will be able to add, modify or delete customers and their memberships, renew them when necessary, and generate access reports, which can be filtered by customer or by day. It's a handy solution to keep everything organized and automated.

Staff required

The following staff is required for the development, implementation and maintenance of the application with the new functionalities:

Backend Developer: Implementation of the data analysis module, integration with databases and optimization of the existing system.

Frontend Developer: Adjustment of the interface to include reports from multiple branches.

Database Specialist: Configuration and migration to a cloud database to store information from multiple branches.

Test Engineer: Validation of the new analysis module and performance testing.

Project Manager: Coordination of tasks, time tracking and communication with the client

2. Estimated Development Time

Analysis and Planning: 4 weeks

System Architecture Design: 3 weeks

Development of Core Functionalities: 10 weeks

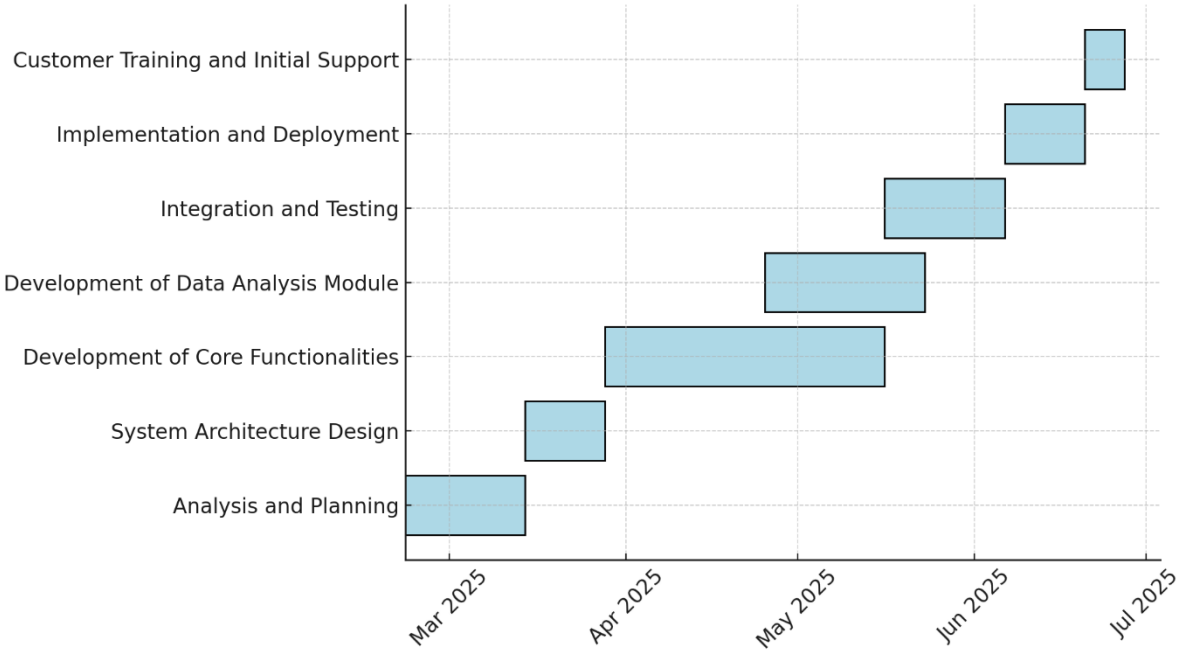
Development of Data Analysis Module: 6 weeks (parallel to main development)

Integration and Testing: 5 weeks

Implementation and Deployment: 3 weeks

Customer Training and Initial Support: 2 weeks

Total estimated time: 20 weeks



FUNCTIONAL REQUIREMENTS

Use case	***functional requirement***	***Description***	***Degree***
CU_01 Customer registration	RF-01	Allow the administrator to add clients.	High
	RF-02	Allow the administrator to modify clients	High
	RF-03	Allow the administrator to delete clients	High
CU_02 Membership management	RF-04	Assign a membership to the client (day, week or month).	High
	RF-05	Display the remaining days of the membership at the time of access registration.	High
	RF-06	Allow the renewal of memberships when they expire.	High

CU_03 Access registration	RF-07	Authenticate clients using a fingerprint reader.	High
	RF-08	Record the date and time of the client's entry.	High
CU_04 Administrator management	RF-09	Allow the main administrator to add administrators.	High
	RF-10	Allow the main administrator to modify administrators.	High
	RF-11	Allow the main administrator to delete administrators.	High
CU_05 Report generation	RF-12	Create access reports by client.	High
	RF-13	Create access reports filtered by day.	High
CU_06 Data analysis	RF-14	Generate comparative reports between branches.	High
	RF-15	Filter data by age range and gender.	High
	RF-16	Display statistical graphs on peak hours and days with the highest influx.	High
	RF-17	Allow the user to export data in PDF and CSV format.	High

Non-functional requirements

RNF_01 Usability:

- The interface must be simple and easy to use for both clients and administrators.

RNF_02 Compatibility:

- The application must be compatible with fingerprint reading devices.

RNF_03 Security:

- The application has different types of users.
- Customers' personal and access data must be protected.

RNF-04: The application must connect to a cloud database to consolidate data from all branches.

RNF-05: The system must be scalable for future growth.

Hardware and software Requirements

Hardware

- Pc device
- Fingerprint reader
- Network connection

Software

- Mysql
- Java

Data Requirements

Customer Data	Full name, pone, birthday, fingerprint . Membership details (start date, expiration date, membership type).
Administrator Data:	Name, email, password. Access level (main or assistant administrator).
Access Data:	Date and time of each customer check-in. Customer associated with the record.
Reporting Data:	Access history (customer, date, time).

Limitations:

Fingerprint Reader Dependency: Access log functionality depends on proper integration with the fingerprint reader hardware. If the fingerprint reader fails, functionality will be limited.

Initial Scalability: The application is designed for a specific gym, so its ability to handle multiple branches may be limited in its initial release.

Internet Access: If a cloud database or online services is chosen, the system will depend on a stable internet connection for some functionality.

Device Compatibility: The application may not be compatible with all fingerprint reader models.

Hardware Restrictions: System performance may depend on hardware specifications (such as the fingerprint reader or the server where the database is hosted).

Cost

Salary	
Backend Developer,	$47,500
Frontend Developer,	$26,000
Database Specialist,	$12,800
Test Engineer,	$12,000
Project Manager,	$23,680
Costo Total	$121,980

Phase	Cost
Analysis and Planning,	12524.44
System Architecture Design,	9893.33
Development of Core Functionalities,	47000
Development of Data Analysis Module,	25533.33
Integration and Testing,	14000
Implementation and Deployment,	19766.67
Customer Training and Initial Support	7262.22
Cost Total	135979.99

DESING

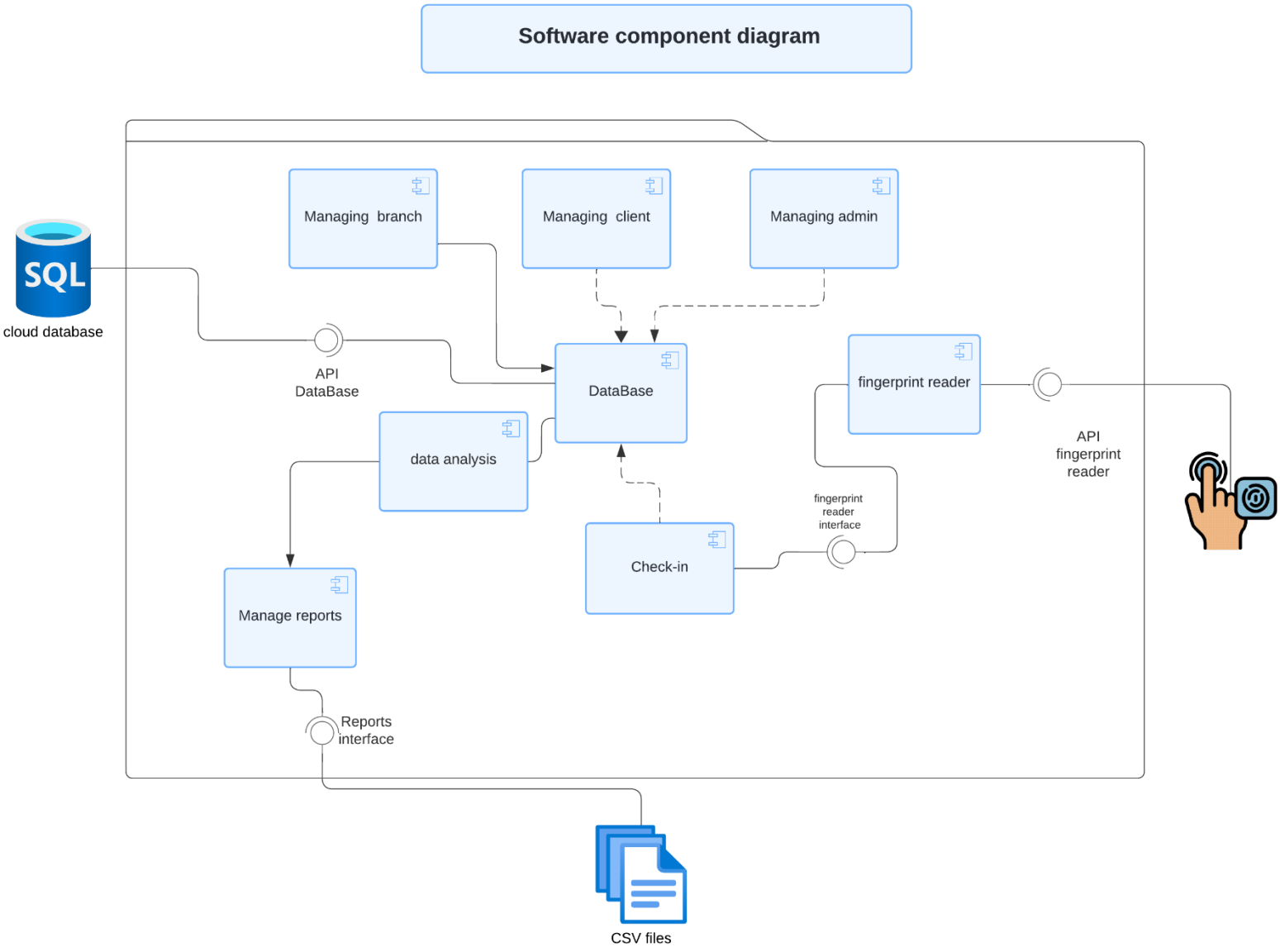
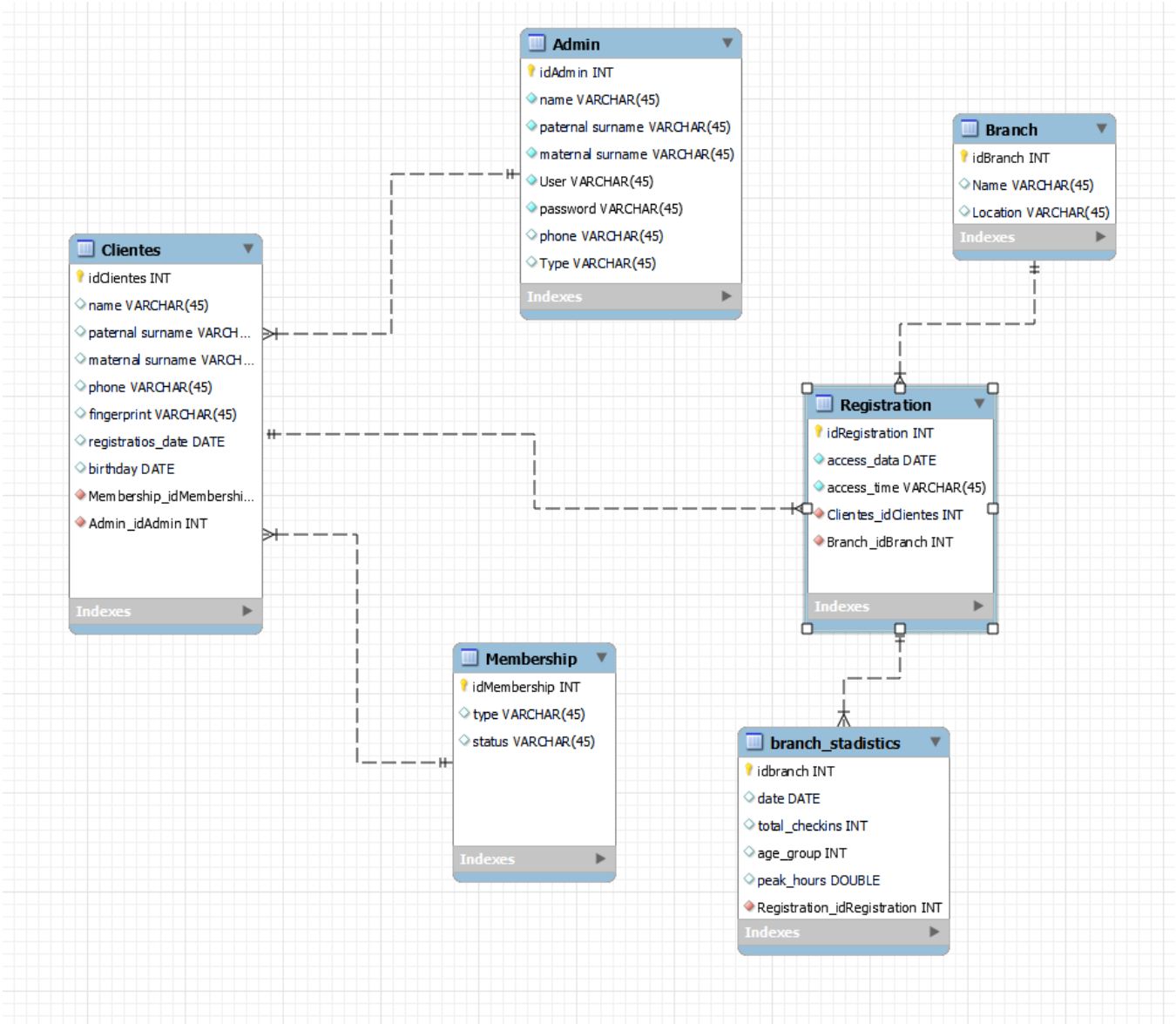
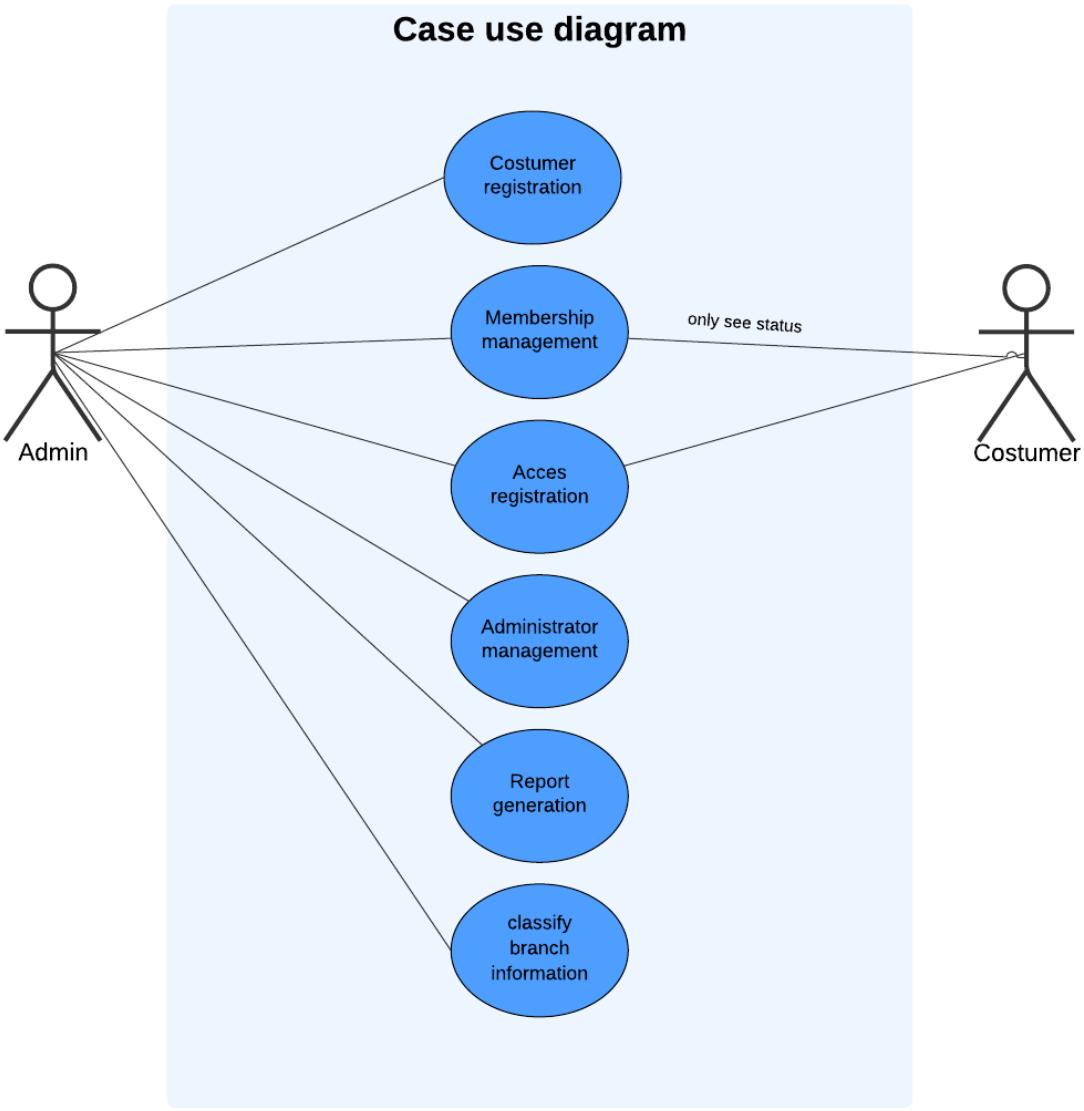

Software component diagram
Managing branch
Managing client
Managing admin
SQL
cloud database
API
DataBase
DataBase
fingerprint reader
API
fingerprint
reader
data analysis
fingerprint
reader
interface
Check-in
Manage reports
Reports
interface
CSV files

DIAGRAM DATABASE




Case use diagram
Costumer registration
Membership management
Acces registration
Administrator management
Report generation
classify branch information
only see status
Admin
Costumer