

CashTrack

BY TEAM RUNTIME TERROR

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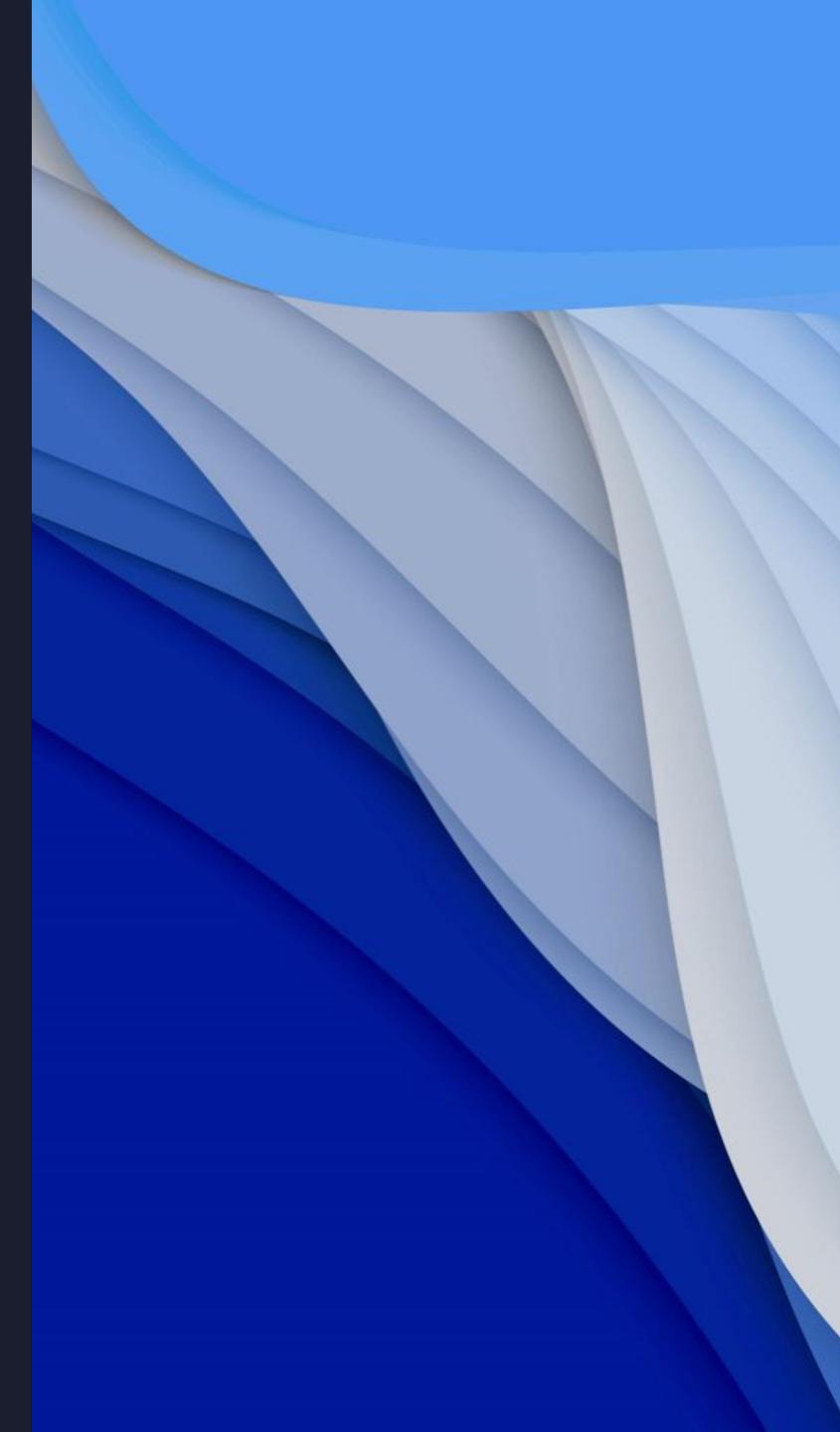


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Design for Maintainability



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PRODUCT INTRODUCTION



CashTrack

EASY RECORD OF ALL YOUR EXPENSES



DASHBOARD

CashTrack

Mehul Kumar

Home

Dashboard

Personal Expenses

Shared Expenses

My Friends

My Groups

Chat

Account

About CashTrack

FAQs

Total Spend \$S\$ 489

Update Now

Last day

Money In \$S\$ 856

In the last hour

Money Out \$S\$ 1,345

New Message +2

Amrita sent you a message!

Personal Expense Limit

80% Limit Reached

MONTHLY

Spending Categories

Your Expenses By Category

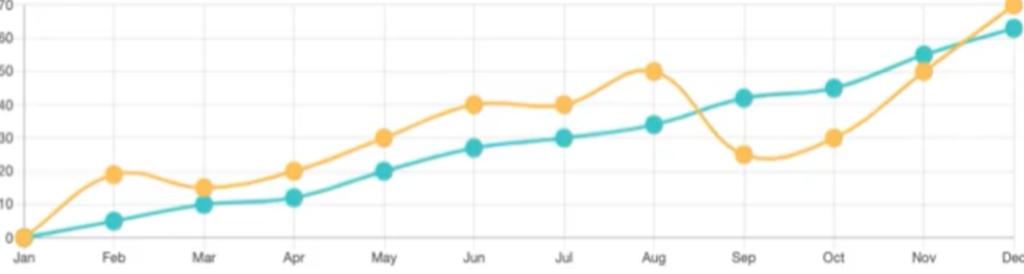


Food Shopping Entertainment Travel Other

Last expense on 2 January 2021

Your Money

Money In Vs Money Out



Month	Money In (\$)	Money Out (\$)
Jan	0	0
Feb	5	18
Mar	10	15
Apr	12	20
May	20	30
Jun	25	40
Jul	30	40
Aug	35	50
Sep	40	25
Oct	45	30
Nov	50	50
Dec	60	65

Money In Money Out

✓ Updated just now

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PERSONAL EXPENSE

The screenshot shows the CashTrack application interface for managing personal expenses. The top navigation bar includes the CashTrack logo, a user profile picture of Amrita Ravishankar, and notification icons.

The main content area is titled "PERSONAL EXPENSES" and displays three expense entries:

- H&M JEM** (SHOPPING) - **S\$ 63.5** | Date: 13th March, 2021 | Action buttons: edit (pencil), delete (trash can)
- Prime Supermarket** (FOOD) - **S\$ 15.2** | Date: 2nd February, 2021 | Action buttons: edit (pencil), delete (trash can)
- Crowded Bowl** (FOOD) - **S\$ 4.7** | Date: 2nd February, 2021 | Action buttons: edit (pencil), delete (trash can)

A sidebar on the left provides navigation links for Home, Dashboard, Personal Expenses (selected), Shared Expenses, My Friends, My Groups, Chat, Account, Support, About CashTrack, and FAQs.

At the bottom, a footer note reads: "Cash Track Pte. Ltd. © 2021 All rights reserved."

SHARED EXPENSE

The screenshot shows the CashTrack mobile application interface. At the top, there's a header bar with the CashTrack logo, a user profile picture of Amrita Ravishankar, and a notification icon. Below the header, the main title "SHARED EXPENSE" is centered. On the right side of the header, there's a blue button labeled "+ Expense" with a cursor icon pointing to it.

The left sidebar contains navigation links: Home (selected), Dashboard, Personal Expenses, Shared Expenses, My Friends, My Groups, Chat, Account, Support (selected), About CashTrack, and FAQs.

The main content area displays a summary of financial status:

- TOTAL BALANCE:** S\$ 4.2
- YOU OWE:** S\$ 21.3
- YOU ARE OWED:** S\$ 25.5

Below the summary, there are four transaction cards arranged in a grid:

	YOU OWE	YOU ARE OWED
Pasta Express Lunch 6th February, 2021 FOOD	You owe Mehul Kumar S\$ 4.10	Mehul Kumar owes you S\$ 21.20
Cab to MBS 4th February, 2021 TRAVEL	You owe Daniel Leong S\$ 17.20	Daniel Leong owes you S\$ 4.30
Coins for Laundry 2nd February, 2021 OTHER		

Each transaction card includes a "COMMENTS" and "SETTLE UP" button at the bottom.

At the bottom of the screen, a footer note reads: "Cash Track Pte. Ltd. © 2021 All rights reserved."

KEY FEATURES



User Authentication



Dashboard Overview



Personal Expense Record



Shared Expense Record



Data Analytics

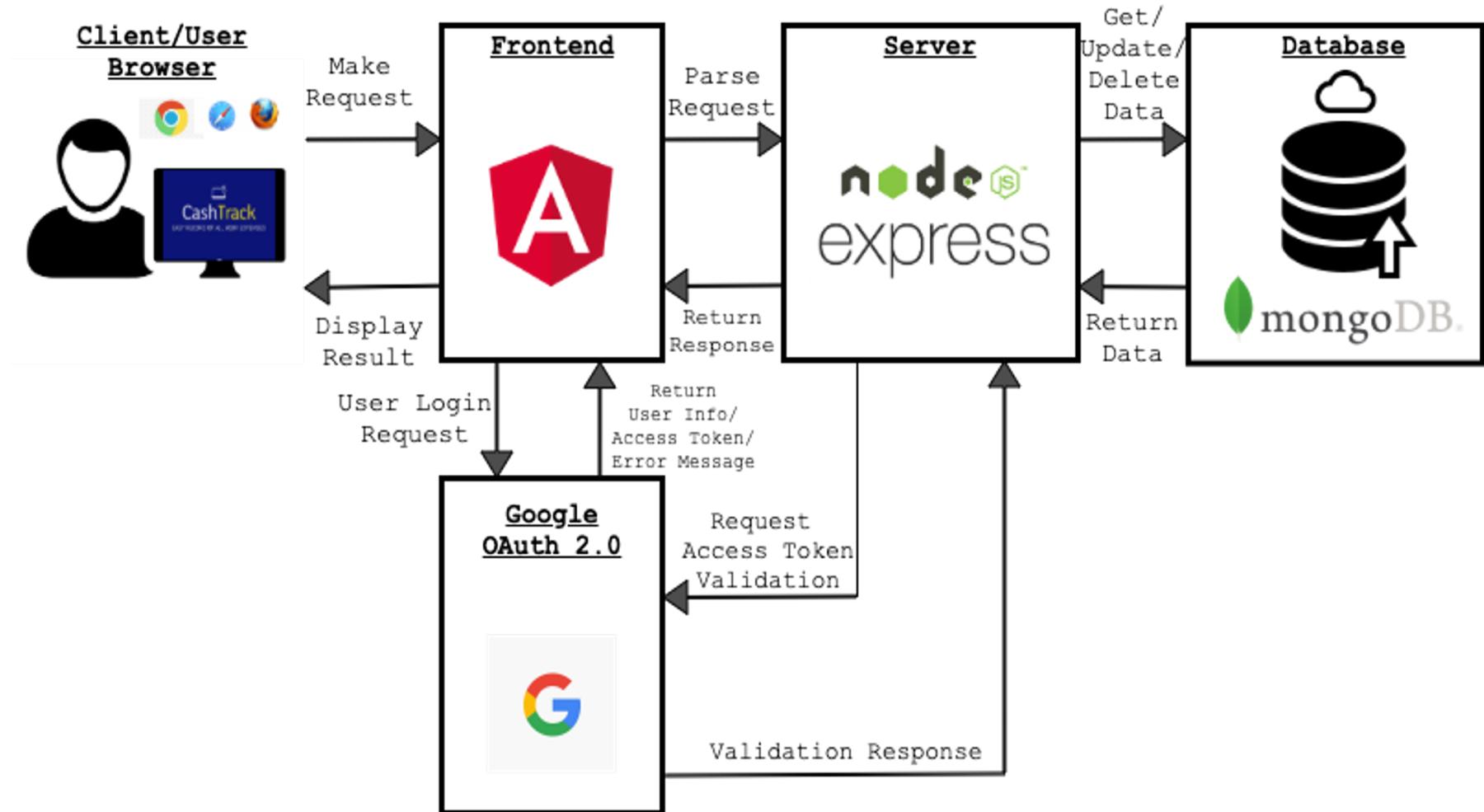


Friends, Groups, Chat

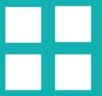


Notification

ARCHITECTURE OVERVIEW



SYSTEM DESIGN FEATURES



Modularity



Extensibility



Maintainability



Reusability



Scalability



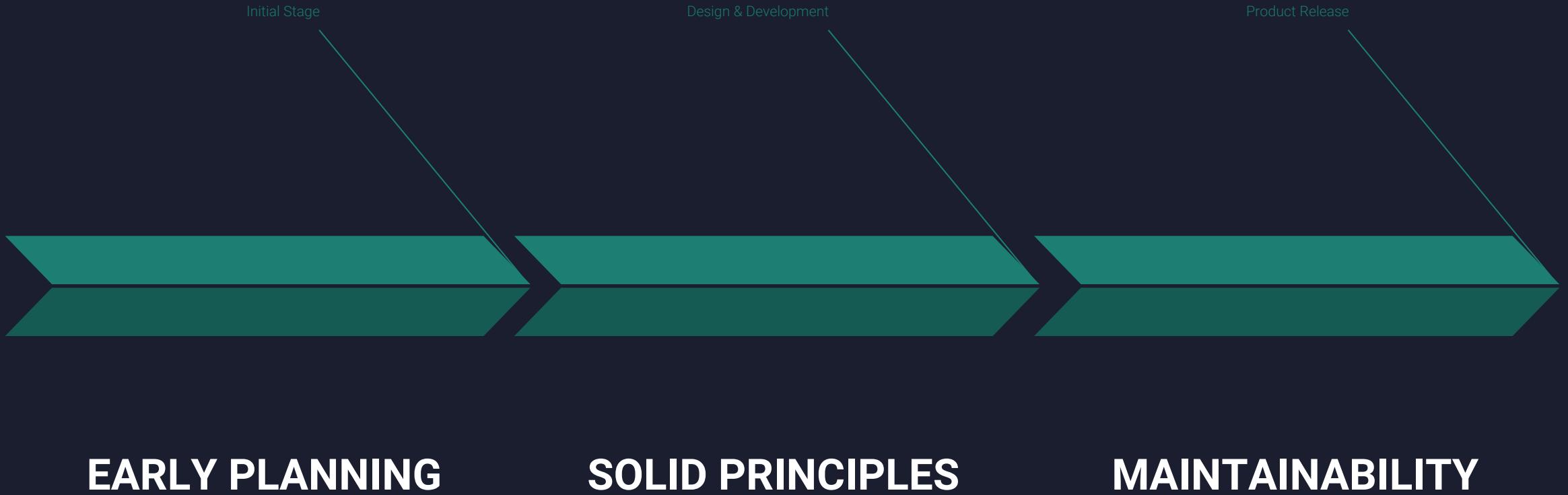
Performance



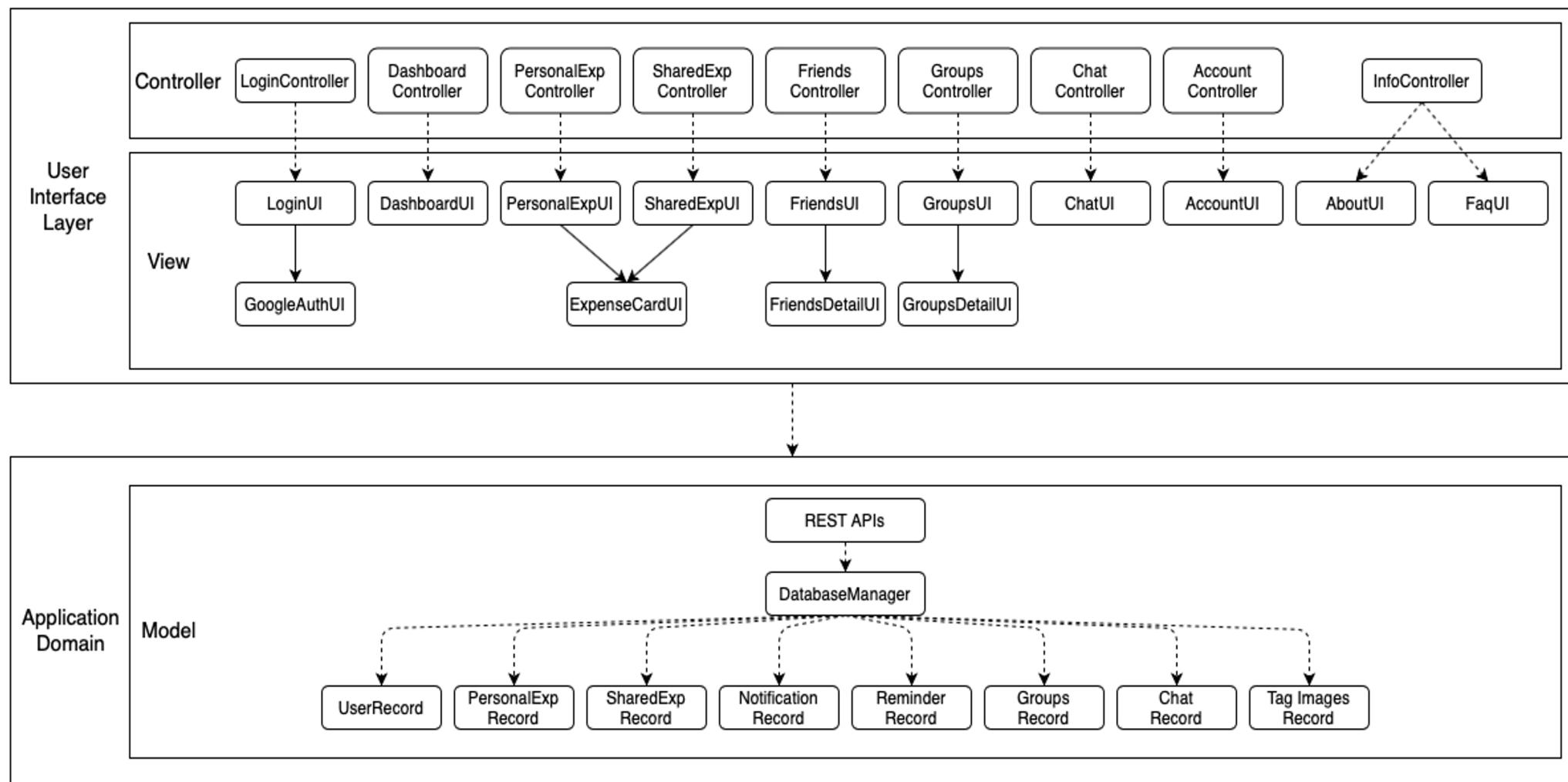
Reliability

DESIGN FOR MAINTAINABILITY

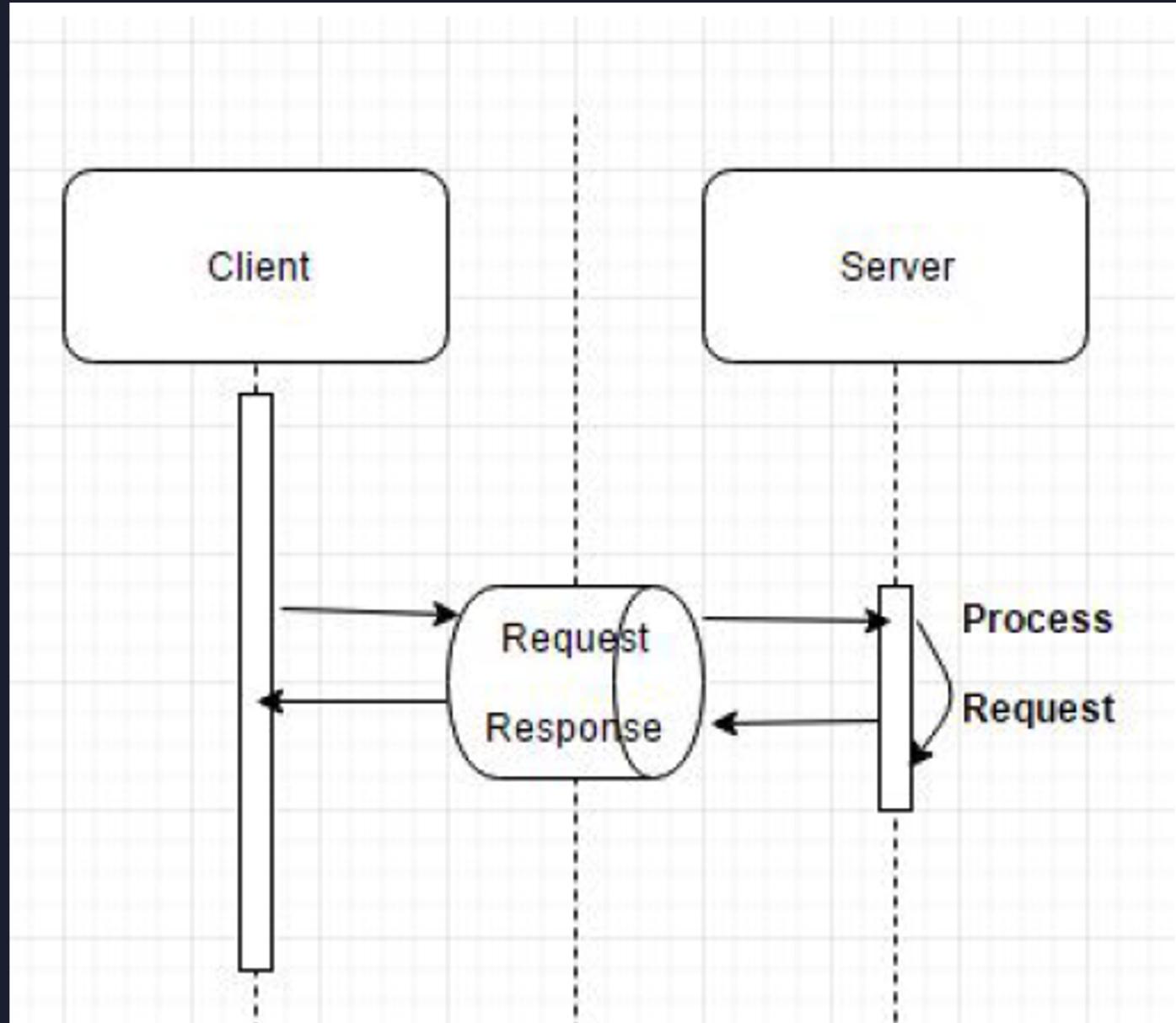
DESIGN STRATEGIES



ARCHITECTURAL DESIGN: MODEL-VIEW-CONTROLLER (MVC)



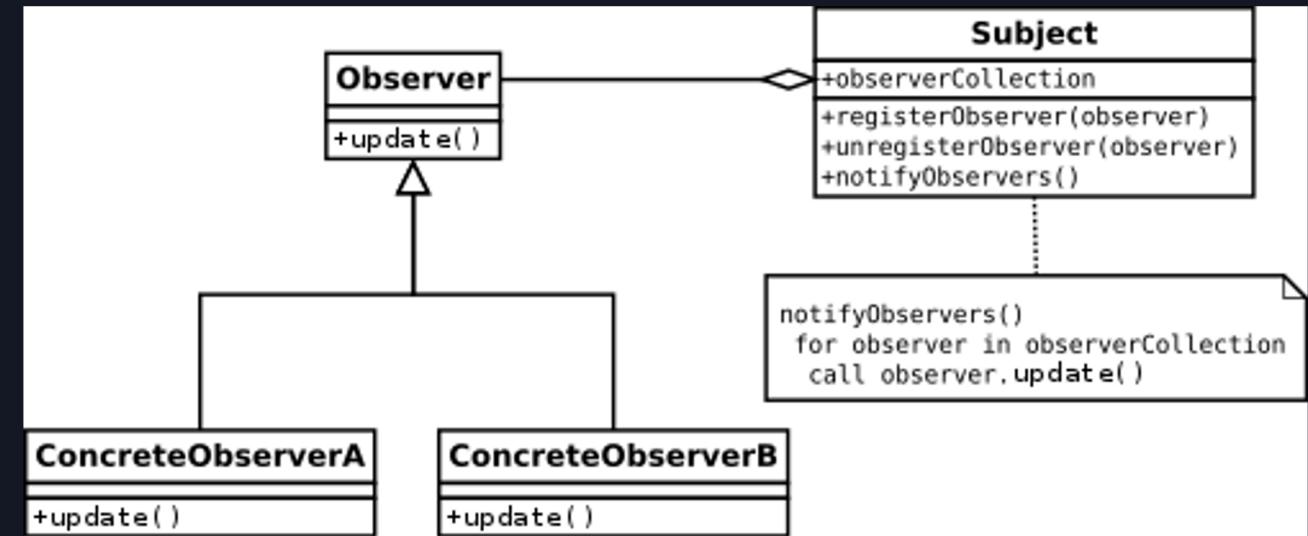
DESIGN PATTERNS: CLIENT-SERVER PATTERN



- > Our front-end, Angular, follows a request-response protocol for the updation of views based on user interaction.
- > ExpressJS with NodeJS is used to create REST APIs

DESIGN PATTERNS: OBSERVER PATTERN

-
- > Notification and Dashboard
- > Maintain a list of dependencies
- > Notified if there is a change in any of them



SOFTWARE CONFIGURATION MANAGEMENT TOOLS



MediaWiki



GitHub



OneDrive

SOFTWARE QUALITY ASSURANCE

CONFORMANCE OF STANDARDS WITH QUALITY DOCUMENTS

- User Experience Design Documentation (UEDD)
- System Requirements Specification (SRS)
- Software Verification and Validation Plan (SVVP)
- Software Architecture Design Document (SADD)
- Software Maintenance Documentation (SMD)



PRODUCT & PROCESS ASSESSMENTS BY QA PERSONNEL



Audit



Formal Inspection

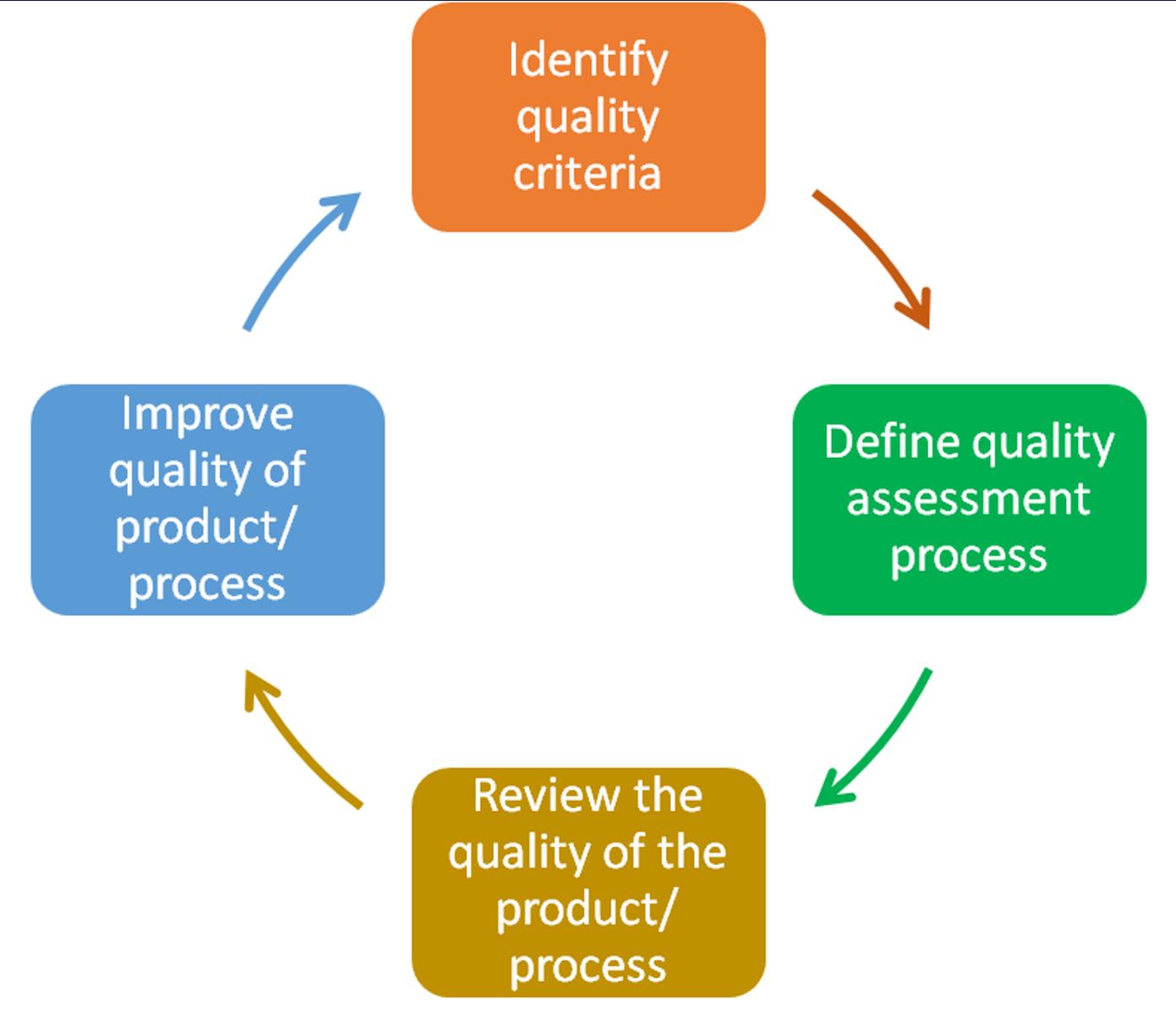


Review



Analysis

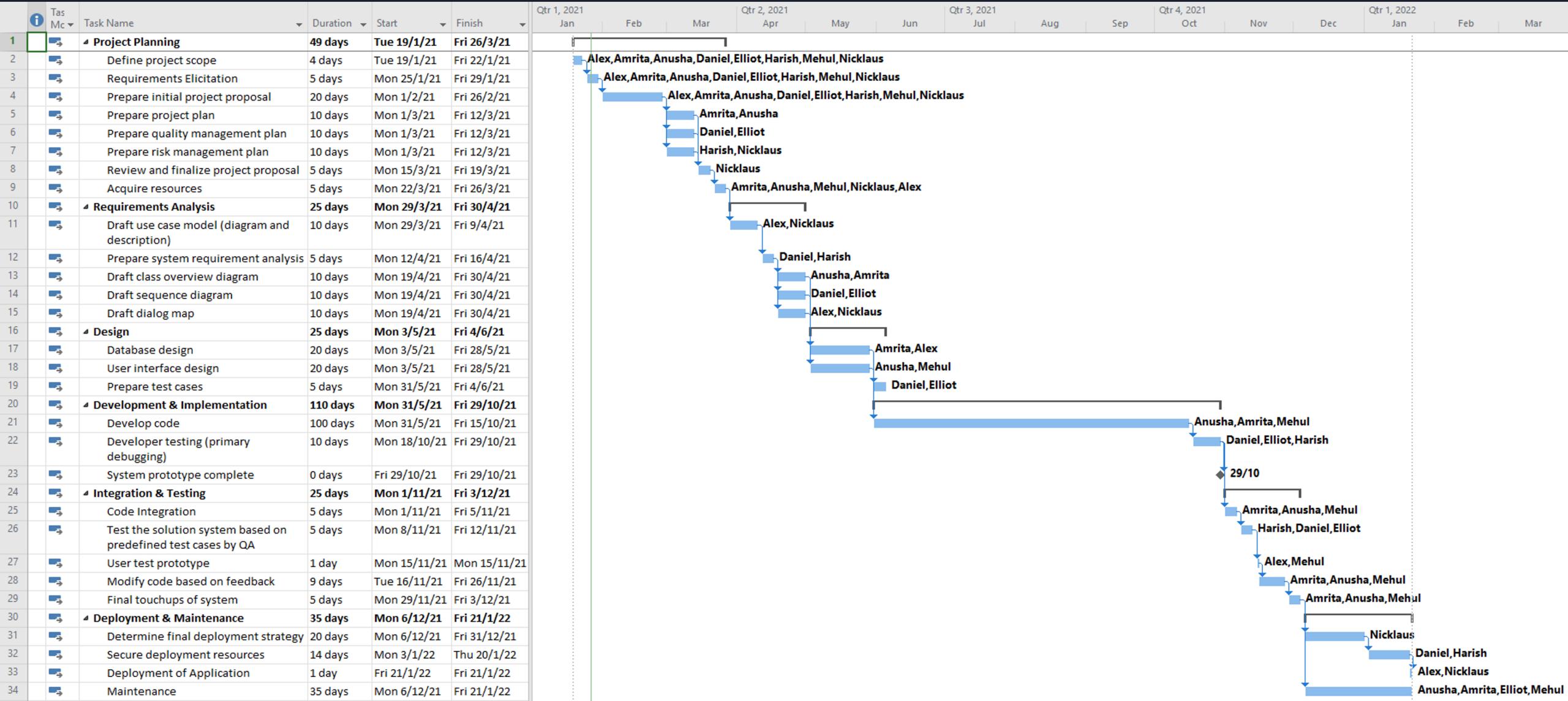
- Project Plan
- Requirements Analysis
- Software Design
- Test Plan
- Implementation
- Acceptance



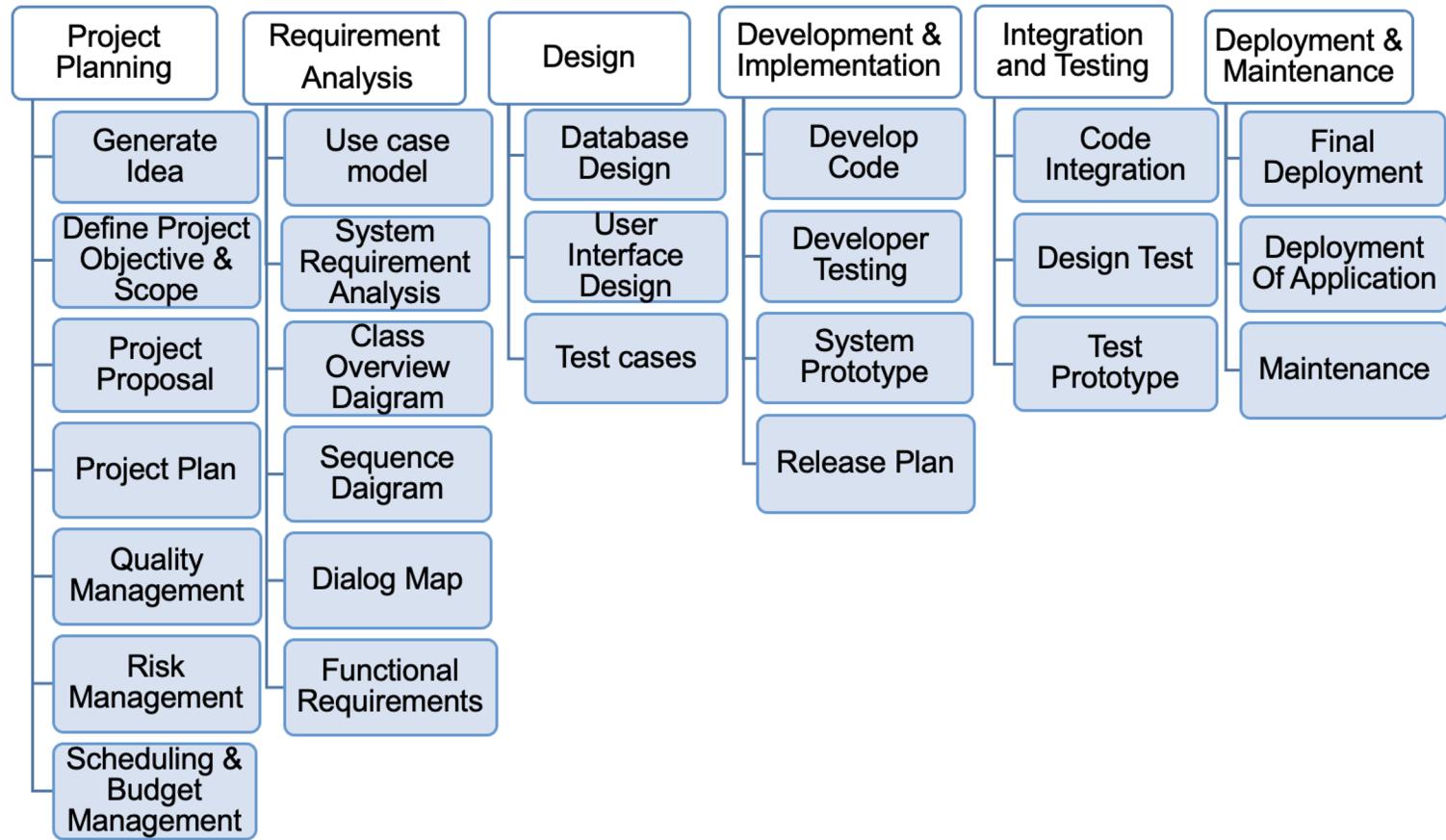
PRODUCT & PROCESS REFINEMENT CYCLE

PROJECT MANAGEMENT

PROJECT SCHEDULE



WORK BREAKDOWN STRUCTURE



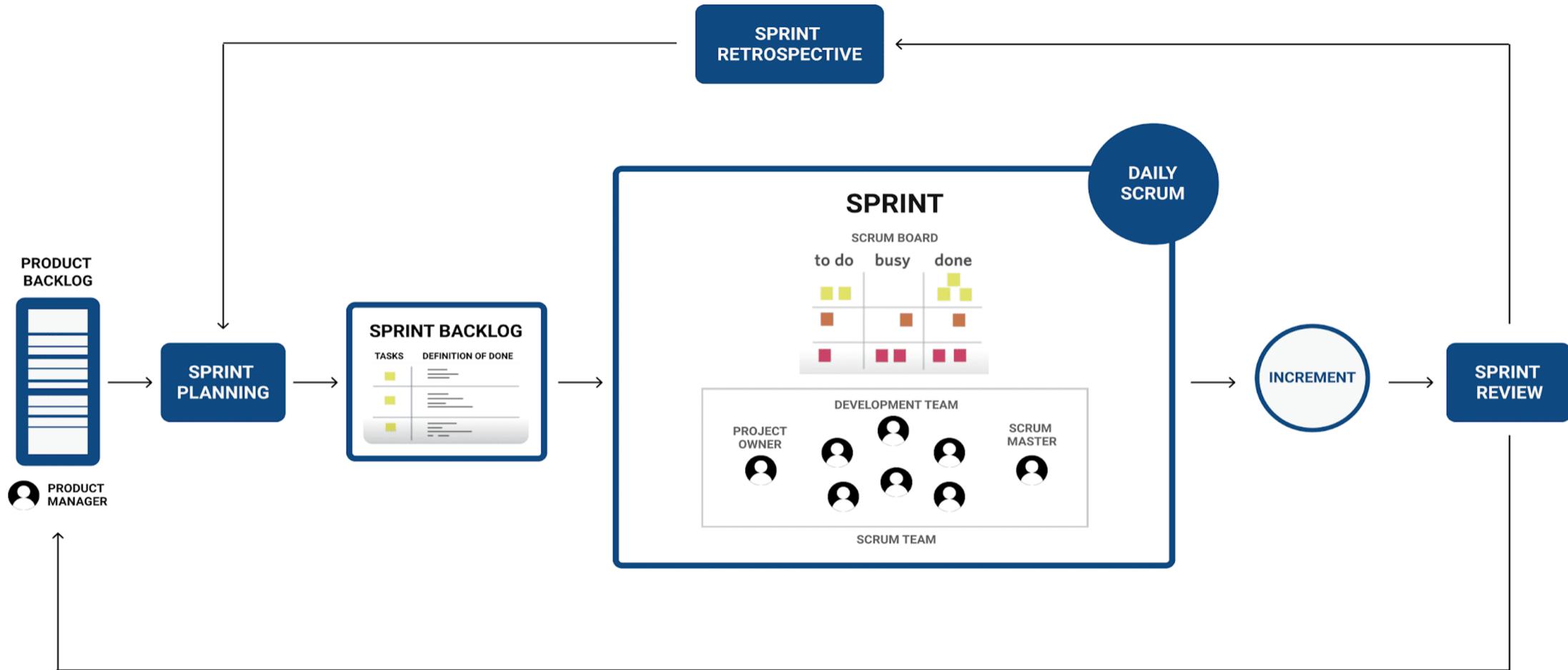
Estimate Type	Results
Unadjusted Function Points	109
Adjusted Function Points	103.55
Code Size	4867 LOC
Top-Down Effort	628 Person Hours
Bottom-Up Effort	659.4 Person Hours
Compression Rate	0.88
Desired Schedule	13.82 Weeks
Total Project Cost	\$529,634.00

EFFORT ESTIMATIONS

Category	Project Expenditures	Rate (\$ per Unit / Day)	Quantity (Units / No. of days)	Total (SGD)	
SELECTION PROCESS	Travel & Expenses	\$40.00	35	\$1,400.00	
IMPLEMENTATION PROCESS	Software Costs	Private Git Repository	\$205 per month	12	\$2,460.00
		Database	\$350 per month	12	\$4,200.00
	Hardware Costs	Servers	\$340 per month	12	\$4,080.00
		Project Manager	\$6000 per month	12	\$72,000.00
	Manpower Costs	QA Manager	\$5500 per month	12	\$66,000.00
		QA Engineer x 2	\$4600 per month	12	\$110,400.00
		Lead Developer	\$4800 per month	12	\$57,600.00
		Release Engineer	\$4250 per month	12	\$51,000.00
		Front-End Developer	\$4250 per month	12	\$51,000.00
		Back-End Developer	\$4250 per month	12	\$51,000.00
CONTINGENCY	Contingency	10% of Implementation costs	-	\$46,554.00	
MAINTENANCE COST	Software (Private Git Repository)	\$205 per month	12 months	\$2,460.00	
	Hardware (Server)	\$340 per month	12 months	\$4,080.00	
	Office Rental	\$450 per month	12 months	\$5,400.00	
TOTAL COSTS				\$529,634.00	

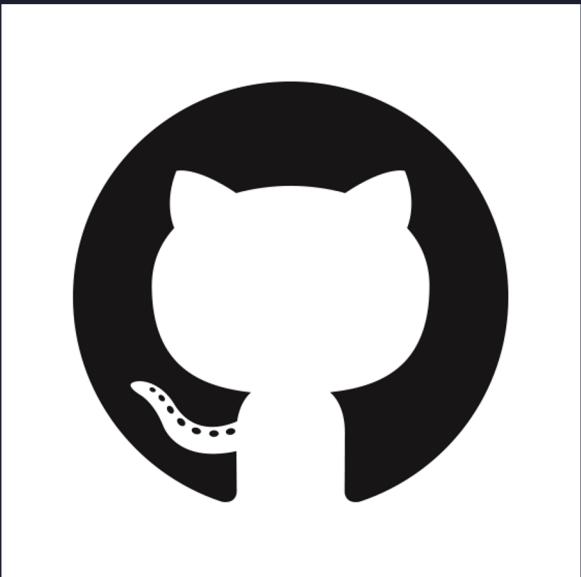
BUDGET ESTIMATION

PROJECT WORKFLOW





COMMUNICATION AND CODE FACILITATION



RISK MANAGEMENT

RISK MANAGEMENT PROCESS



RISK IDENTIFICATION



TECHNOLOGY
RISK



PEOPLE
RISK



ORGANISATIONAL
RISK



ESTIMATION
RISK



TOOLS
RISK



REQUIREMENTS
RISK

RISK ANALYSIS, EVALUATION AND RESPONSE

HIGH RISK

Key personnel N/A during time critical periods.

Risk Class: People
Occurrence: High
Severity: Serious

Mitigation: Create a contingency handover plan to available personnel (i.e. working on low priority tasks) to temporarily take over.

MEDIUM RISK

Inaccurate (overly optimistic or unrealistic) estimations.

Risk Class: Estimation
Occurrence: Medium
Severity: Serious

Mitigation: Generate a detailed work breakdown structure, and perform estimation periodically for a more accurate and realistic estimation.

LOW RISK

Restructuring of organization results in different teams working on the system.

Risk Class: Organisational
Occurrence: Low
Severity: Tolerable

Mitigation: Use of source code management and version control via SVN/Github/JIRA.

RISK MONITOR & REVIEW

Risk Management Plan

Risk Log

- *Risk Type & Description*
- *Occurrence (Low, Medium, High)*
- *Risk Severity (Insignificant, Tolerable, Serious, Catastrophic)*
- *Priority of Risks (Low, Medium, High)*
- *Mitigation/Contingency Plan*
- *Status of Active Risks (Triggered, Resolved, Retired)*

THANK YOU!
