COMP1807 – Agile Development with Scrum

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1. SCRUM process

1.1 Introducing the Team

A successful project relies not only on individuals who excel in their roles but also on their ability to collaborate efficiently with others. The **Agile methodology** is widely recognized as a framework that enhances teamwork by promoting flexibility, shared ownership, and continuous improvement. According to **Highsmith (2009)**, Agile empowers team members to self-organize, make collective decisions, and adapt to change quickly — all of which are essential for delivering successful outcomes in dynamic environments.

Our team will implement the project that CheapDeals.com LTD has consulted on, utilising the Agile Scrum framework. Here are the members involved in implementing the project:

- Tran Huu Hoang Tuan: Full-stack developer, SCRUM master
- Nguyen Vi An: Full-stack developer, QA
- Pham Duy Quang Huy: Full-stack developer
- Nguyen Anh Khoa: Full-stack developer, UI/UX designer
- Huynh Khoi Nguyen: Full-stack developer, UI/UX designer

1.2 Problem Analytics

CheapDeals.com LTD is currently facing several operational and customer experience issues that have negatively impacted its subscription rates. Although the company has an online presence and a CRM system in place, the majority of customer interactions still happen through phone calls or in-person visits. This leads to inefficiencies such as long waiting times (averaging 10–15 minutes per call), limited CSR (Customer Sales Representative) availability, and delays in order confirmation and billing.

Additionally, a recent customer satisfaction survey revealed that 68% of users felt the CSRs lacked sufficient information to understand their needs. The absence of real-time support through the existing online portal, combined with slow confirmation processes and outdated communication methods, has contributed to a steady decline in customer subscriptions.

The team has identified the development of a mobile application as a critical step to improve customer experience, streamline internal processes, and reestablish market positioning.

1.3 Product Vision

1.3.1 Customers

For: Customers’ age ranging 16 - 65.
Who: Want to purchase affordable mobile, tablet, and broadband.
The: CheapDeals mobile application.
Is an: Mobile application for Android 10+ integrated with a CRM system for customers to view, purchase affordable mobile, tablet and broadband deals.
That: Provide online payment services, manage orders, editable user detail.
Unlike: Current system lacks real-time assistance and order confirmation.
Our product: Provide real-time assistance and the lag-time between purchasing a package and receiving an email will be significantly improved.

1.3.2 Customer Sales Representatives (CSR)

For: The CSRs
Who: Want to manage customers’ subscriptions.
The: CheapDeals web application.
Is an: Web application CSRs to manage customers.
That: Help CSRs improve their relationship with customers.
Unlike: Call overload, having to process every order manually, and lack of real-time data
Our product: Connect in real-time with customers, reduce response times, improve service accuracy, and empower CSRs with instant access to permission-level customer data like orders, order information, etc.

1.4 Product vision statement

Our team vision is to develop a mobile and web application system that enhances the experience for both customers and Customer Sales Representatives (CSRs). The mobile app will allow customers aged 16–65 to easily view, customize, and purchase affordable mobile, tablet, and broadband deals, while also managing their account and payments in real time. At the same time, the web application CRM system will support CSRs in efficiently managing subscriptions and responding to customer needs faster. This new solution aims to overcome limitations in the current system, such as delayed confirmations, call overloads, and lack of real-time support, ultimately improving customer satisfaction and operational efficiency.

2. Product Backlog

2.1 User Stories

In Agile development, **user stories** are brief and user-focused descriptions of features that represent what a user needs and why. They guide the development team by ensuring the work being done delivers value to the end user. According to Mountain Goat Software (2023), *"A user story is a short, simple description of a feature told from the perspective of the person who desires the new capability, usually a user or customer of the system."*

2.1.1 Epic User Story One – Account Registration and Confirmation

ID	User Story
US1	As a new customer, I want to create an account, so that I can purchase mobile, tablet, and broadband deals and receive order confirmation via email.
US1.1	As a customer, I want to sign up by using my Google, or Facebook account, so that I can sign up quickly and manage my credentials more easily.
US1.2	As a customer, I want to receive a confirmation email after completing registration, so that I can be sure my account has been successfully created.
US1.3	As a customer, I want to sign in by using my Google, or Facebook account, so that I can sign in quickly.

2.1.2 Epic User Story Two – Package Browsing and Customisation

ID	User Story
US2	As a customer or potential customer, I want to browse and search for available packages via the Android app, so that I can easily find offers that match my needs.
US2.1	As a customer, I want to view full details of each package including device type, free minutes, SMS, and data, so that I can understand what is included.

US2.2	As a customer, I want to select from default package types like MobileOnly, BroadbandOnly, and TabletOnly, so that I can choose a simple, ready-made plan.
US2.3	As a customer, I want to customize my own package based on my mobile/broadband usage, so that I can only pay for what I actually need.
US2.4	As a customer, I want to view my current and past mobile or broadband usage in the app, so that I can make better package choices.
US2.5	As a customer, I want to add special requests when customising a package, so that I can tailor the deal to my unique requirements.
US2.6	As a customer, I want to choose bundle deals like the DoublePackage or TriplePackage, so that I can save money by combining multiple services.

2.1.3 Epic User Story Three – Package Enquiry Submission

ID	User Story
US3	As a customer, I want to make an enquiry about specific packages like MobileOnly, BroadbandOnly, TabletOnly, DoublePackage, or TriplePackage, so that I can get accurate support or clarification before making a purchase decision.

2.1.4 Epic User Story Four – Order Placement Channels

ID	User Story

US4	As a customer, I want to place an order online through the company’s app, so that I can buy products without visiting a physical store.
US4.1	As a customer, I want to place an order by calling the Sales department via mobile app or phoning, so that I can get help from a staff member during the ordering process.
US4.2	As a customer, I want to place an order in person at a physical store, so that I can see the product and get face-to-face assistance.
US4.3	As a customer, I want to see a message in the app confirming the 15% discount before checkout, so that I am aware I am receiving the promotional benefit.
US4.4	As a customer, I want to check the shopping cart so that I can estimate the packages’ price and make decisions.

2.1.5 Epic User Story Five – Guided Order Process via App

ID	**User Story**
US5	As a customer, I want to place an order via the mobile app by first signing up and selecting a new or upgrade package, so that my order can be processed by the system.
US5.1	As a new customer, I want to sign up by providing my personal details (name, email, address, and credit card information), so that I can create a profile and proceed with the ordering process.

US5.2	As a signed up user, I want to view and select available new or upgrade packages via an on-screen menu, so that I can choose the deal that best suits me.
US5.3	As a customer, I want my order to be submitted electronically to the CRM system after selecting a package, so that the processing happens automatically without requiring phone calls or manual steps.

2.1.6 User Story Six – Account Sign in and Bill Payment

ID	User Story
US6	As an unauthorized customer, I want to sign in the mobile app before settling my bill, so that my payment can be securely linked to my account.
US6.1	As an unauthorized customer, I want to sign in into the mobile app via my Google, or Facebook account, so that I can sign in quickly and manage my sign in credentials more easily.
US6.2	As a logged-in customer, I want to view and update my account information through the app, so that I can keep my personal and payment details accurate and up to date.
US6.3	As a logged-in customer, I want to view my current bill in real time through the app, so that I always know how much I owe.
US6.4	As a logged-in customer**,** I want to pay my bill using my credit card through the app, so that I can settle my balance quickly and securely.

US6.5	As a logged-in customer, I want my credit card details to be verified via the VISACheck system, so that I know my payment is processed safely by the bank.
US6.6	As a logged-in customer, I want to receive an automatic email receipt after completing a payment, so that I have evidence of the transaction for my records.

2.1.7 Epic User Story Seven – CSR Identity Verification and Customer Account Management

ID	User Story
US7	As a CSR, I want to verify the identity of the caller following a standard verification process. so that I can ensure the person I'm speaking with is a customer.
US7.1	As a CSR, I want to be able to access an existing customer profile after verifying the caller, so that I can proceed with the order using their correct information.
US7.2	As a CSR, I want to validate the identity of users so that I can securely manage their credit card information.

2.1.8 Epic User Story Eight – CSR Access to Packages and Enquiries

ID	User Story

US8	As a Customer Sales Representative (CSR), I want to access all available package information via the CRM system, so that I can provide accurate details about pricing and services to customers.
US8.1	As a CSR, I want to view detailed package information (including price, features, and availability), so that I can give correct advice to customers during support interactions.
US8.2	As a CSR, I want to view and respond to customer enquiries submitted through the mobile app, so that I can resolve their concerns in a timely and informed manner.

2.1.9 Epic User Story Nine – CRM Order Processing and Payment Handling

ID	User Story
US9	As a CSR, I want the CRM system to validate package availability, calculate the total order cost, and verify payment details, so that I can ensure accurate order processing.
US9.1	As a CSR, I want the CRM to check whether the selected packages are currently available, so that I can confirm the order with the customer.
US9.2	As a CSR, I want the CRM to calculate the total cost of an order by summing the selected package and deducting any valid discount or promo code, so that I can give the correct final price.

2.1.10 Epic User story ten

ID	User Story
US10	As a customer sales representative (CSR), I want to view and categorize customers based on the packages they are currently using (e.g., MobileOnly, DoublePackage, etc.), so that I can build customer profiles to receive deals.
US10.1	As a customer, I want to receive personalized offers via the mobile app, so that I can take advantage of discounts or upgrades relevant to my current package.
US10.2	As a CSR, I want to send personalized offers to selected customer profiles through the CRM system

2.1.11 User story eleven

ID	User Story
US11	As a customer, I want to enter and apply special offer codes during the ordering or checkout process, so that I can receive promotions or discounts that are relevant to me.

2.2 Acceptance Criteria

Acceptance criteria provide a detailed description of the functionality that must be present in the software and define the boundaries of a user story. It acts as a clear agreement between stakeholders, helping to define expectations, limit the scope of work. With acceptance criteria, the development team avoids misunderstandings, minimizes risks, and ensures that the final product meets the user's needs (GeeksforGeeks, 2024).

User Story	Description	Acceptance Criteria

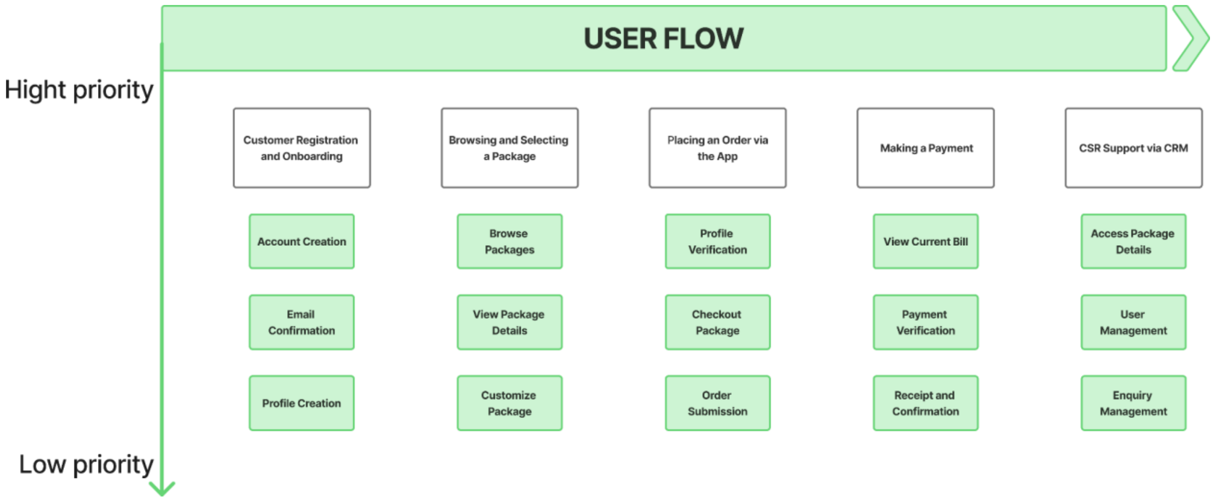
US 1	**[US1.1]** Signing up, and confirming via email	● Signing up & validation: ● Fill in information in the form, including email, username, password, and confirm password. ● Email cannot be blank, must be correct format (Ex: user@example.com) and must not match an existing email in the system. ● Username cannot be blank and must not match an existing email in the system. ● The password must have at least eight characters, with one uppercase letter, number, and symbol. ● Sign up via third-party such as Google, Facebook, account. ● After successful signing up, redirect to the homepage and receive a successful registration email.
	[US1.3]Signing in	● Signing in & validation: ● Fill in information in the form, including email, password. ● Email cannot be blank, must be correct format (Ex: user@example.com)and email must match the signed up email. ● Password must match signed up password ● Sign in via third-party such as Google, Facebook ● account. ● After successful sign in, redirect to the homepage.
US 2	Browse and customize packages	● Users can search and browse all packages on the Android app. ● Can view each package: device type, calling minutes, SMS, data capacity. ● Allows quick selection of default packages (MobileOnly, BroadbandOnly, TabletOnly). ● Allows customization of packages according to personal needs. ● Users can view order history to choose the right one. ● Allows adding special requests when customizing. ● Can choose combination packages such as

		DoublePackage or TriplePackage.
US 3	Send request for package consultation	● Users can choose a specific package (e.g. MobileOnly, DoublePackage) from a dropdown or list. ● Users can fill out and submit a consultation form via the app. ● A confirmation message appears after submission (e.g. “Your request has been received”). ● The request is sent to the CRM and CSR for follow-up.
US 4	Order through mobile app	● The system will save user information to receive promotions. ● Users can choose a new package or upgrade from the menu in the app. ● If ordering via app, users will see a 15% discount notification before payment. ● Users can view ordering details by clicking on the shopping cart button. ● After selecting a package, the order is automatically sent to the CRM system.
	Order through phoning	● CSR will identify the user and save user information on the CRM system for the user to receive promotions
	Place an order in person at a physical store	● CSR will consultation and save user information on the CRM system for the user to receive promotions
US 6	Settling bill & update profile	● Non-logged in users must log in before payment. ● Allow users to update personal information such as credit card updates. ● Allow credit card payments. ● Card verification system via VISACheck. ● Send confirmation email after successful payment. ● Display the current bill in real-time.
US 8	View packages	● Can view details: price, features, availability. ● Can filter packages by needs: device type.

		- Can filter packages by usage level (low, medium, high). - Can view a list of packages that match their filters, sorted by relevance or price.
US 10	Build customer profiles from usage packages	- Save users information - The system suggests personalized offers based on the profile. - Users receive relevant offers through the app. - Users can view and choose whether to accept, ignore, or save offers for later.
US 11	Apply promo code	- Users can enter a coupon code during ordering or checkout. - Valid codes will automatically apply a discount to the total bill. - Invalid codes will display an appropriate error. - Applied discounts are reflected in the order summary before payment is made.

2.3 Minimum Viable Product (MVP)

The visual design makes it easy to understand how the customer-facing features work together with backend CSR support to deliver the core value proposition of CheapDeals.com.



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The **Minimum Viable Product (MVP)** defines the smallest set of essential features that must be implemented to deliver the **core value** of the CheapDeals.com mobile and web system.

1. Customer Registration and Onboarding

- The experience begins with US1.1: the customer creates an account using email or social sign in.
  They receive an immediate confirmation email (US1.2), which builds trust and indicates successful onboarding.
- This process creates the customer profile needed for future actions like placing orders or making payments.

2. Browsing and Selecting a Package

- Once logged in, the customer can browse available packages (US2), view key details like device type, data, SMS (US2.1), and choose from default packages (US2.2).
- These features enable users to explore options before making purchasing decisions, a vital step in the buying process.

3. Placing an Order via the App

- Using the signed up profile (US5.1), customers can select new or upgrade packages (US5.2).
- Once a package is chosen, the system sends the order directly to the CRM for processing (US5.3).
- This eliminates the need for phone-based ordering and reduces the CSR’s workload.

4. **Making a Payment**

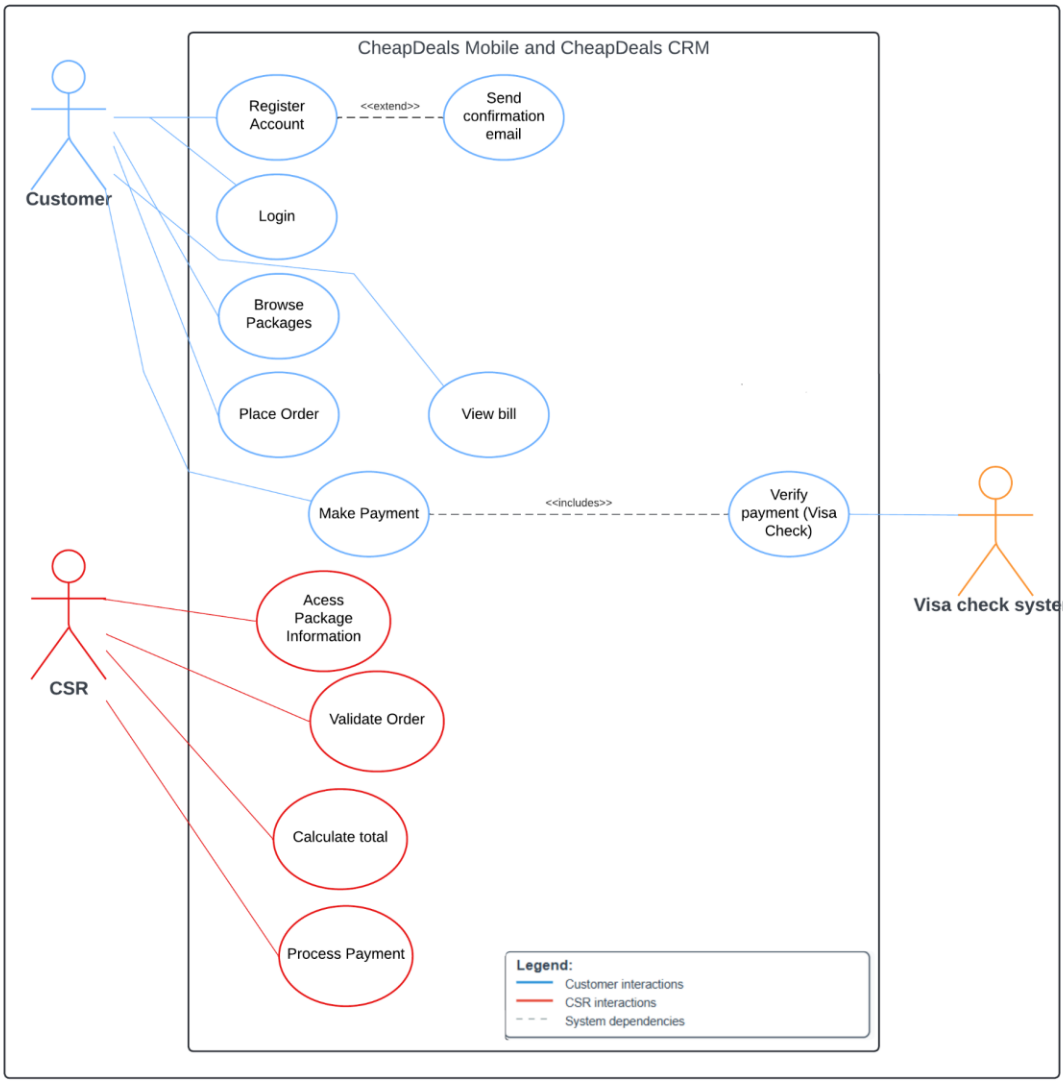
- Customers can view their current bill (US6.3), then proceed to pay securely using credit card (US6.4).
- The system uses VISACheck (US6.5) to verify payment.
  After a successful transaction, a receipt is automatically emailed (US6.6).
- This flow ensures real-time, secure, and traceable payments, replacing slow, manual confirmation via post or phone.

5. CSR Support via CRM

- In the backend, CSRs access package details (US8.1) to assist customers accurately.
- Before confirming the order, the system checks availability (US9.1), calculates the total including discounts (US9.2).
- These steps support quick order validation and processing, ensuring the customer journey is smooth from start to finish.

In Agile methodology, MVP allows teams to validate business ideas early by launching the core version of the product with minimal resources and iterations. As Ries (2011) explains, *“A minimum viable product is that version of a new product which allows a team to collect the maximum amount of validated learning about customers with the least effort.”*

In this project, the MVP focuses on delivering the following high-priority capabilities:



MVP Features - Customer Side (Mobile App):

- US1: Sign up a new account (via email or social sign in) and receive confirmation.
- US2: Browse available packages and view key package details (US2.1, US2.2).
- US5: Place an order via the app, including:
    - Signing up profile info (US5.1)

  - Selecting a package (US5.2)
  - Sending the order to CRM (US5.3)

- US6: Log in, view real-time bill, pay using credit card, and receive confirmation (US6.3–US6.6).

MVP Features - CSR Side (CRM Web System):

- US8: Access full package details for customer support (US8.1).
- US9: Validate availability, calculate total order with discount code, and process payment (US9.1–US9.2).

2.4 Moscow prioritisation

MoSCoW prioritisation is an Agile requirements management technique used to prioritize features or tasks. Writing requirements using MoSCoW helps the development team and customer clearly agree on the project scope and better manage expectations, time, and resources (Atlassian Community, 2023).

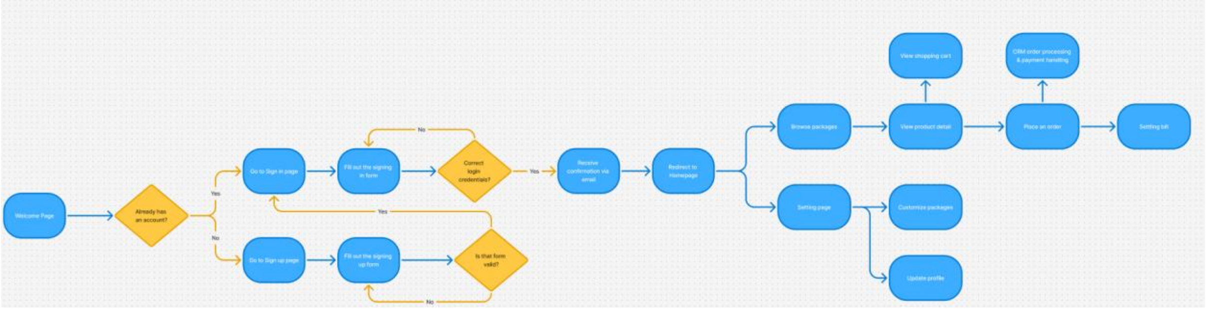
Must Have: Essential features that the system cannot function without.

Should Have: Important but not critical; adds value if included.

Could Have: Nice to have; improves experience but not necessary.

Won't Have: Not included this time; possible for future consideration.

This is user flow to show the features are the must that describe the basic steps a user will go through in the MVP (Minimum Viable Product) version of the app, from logging in/signing up to ordering and customizing a package.



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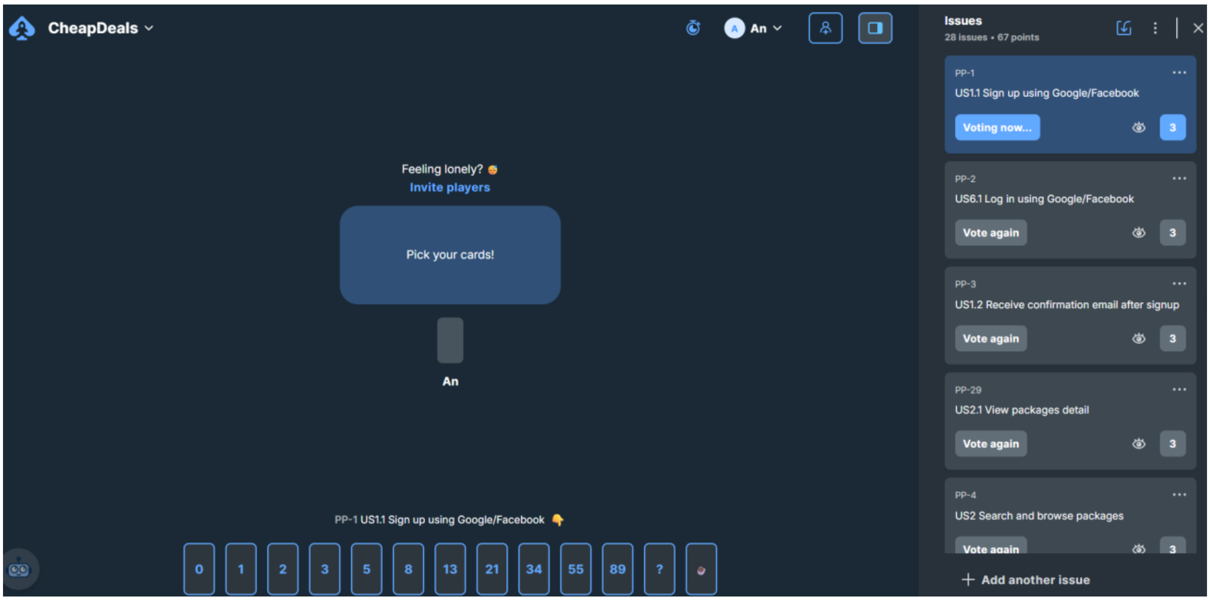
Priority	User story	Description
Must have	**US 1.1 , US1.2, US1.3**	Signing up, signing in for an account and confirm via email
	US 2	Browse and customize packages
	US 4	Order via app and view order details
	US 6	Settling bill & update profile
	US 8	View packages
	US 9	CRM Order Processing and payment Handling
Should have	**US 3**	Send request for package consultation
	US 10	Build customer profiles from usage packages
	US 7	Verifying a caller’s details
Could have	**US 11**	Apply promo code
	US 5	Upgrade packages and build profile
Won’t have		

2.5 User stories estimation using Planning Poker

Planning Poker is an agile estimation technique used by development teams to estimate the effort or complexity of user stories. Each team member privately selects a card (usually with values from the Fibonacci sequence) representing their estimate (mnorbyadams, M.N.A. 2023).

In this part, used planningpokeronline.com to estimate:



PP-1 US1.1 Sign up using Google/Facebook — 3

PP-2 US6.1 Log in using Google/Facebook — 3

PP-3 US1.2 Receive confirmation email after signup — 3

PP-29 US2.1 View packages detail — 3

PP-4 US2 Search and browse packages — 3

User story	Tuan	An	Huy	Khoa	Nguyen	Final estimation
US1.1	3	2	2	3	3	3
US6.1	3	2	2	3	3	3
US1.2	2	3	3	3	3	3
US2.1	3	3	3	3	3	3
US2	3	3	3	3	3	3
US4	3	3	3	3	3	3
US4.4	3	2	3	2	3	3
US4.1	3	3	3	1	1	2
US2.4	2	2	2	2	1	2
US2.5	3	3	2	3	3	3
US6.3	3	3	3	3	3	3
US9.2	3	2	3	2	2	2
US5.2	2	2	2	2	2	2
US2.3	3	3	3	3	3	3
US6.5	3	3	3	3	3	3
US10.1	1	1	2	1	1	1

US6.2	3	2	2	2	2	2
US6.6	3	3	3	3	3	3
US9.1	2	2	2	3	2	2
US8.2	2	2	2	2	2	2
US8.1	3	3	2	3	3	3
US7.1	3	2	3	2	2	2
US7.2	3	3	3	3	3	3
US7	3	2	2	2	2	2
US2.2	3	2	3	3	3	3
US4.3	1	1	1	1	1	1
US3	2	1	1	2	1	1
US11	1	1	1	1	1	1

Conclusion – Planning Poker Estimation

Using Planning Poker helped our team reach a shared understanding of task complexity and workload **because it encouraged open discussion and ensured everyone's perspective was considered**. Each team member provided estimates independently, and when there were differences—like in **US4.1** or **US7.1**—we discussed our reasoning and reached a consensus.

This method was effective because it **highlighted misunderstandings early, reduced bias from dominant voices, and led to more realistic sprint planning**. It also helped us identify which stories needed more clarification before development.

3. Sprint One

3.1 Sprint Planning and Sprint Backlog

3.1.1 Sprint Goal

In this Sprint, the development team aims to establish the foundational features needed for the CheapDeals mobile application: allow customers to sign up, sign in, and browse packages.

Following the goal, the selected user stories are:

- Users can sign up and sign in via social networks (Google, Facebook) (US1.1)
- Users receive registration confirmation email (US1.2)
- Users can update account information (US6.1)
- Allow users to update account information (US6.2)
- Allow users search and browse package (US2)
- Allow users view packages detail (US2.1)
- Allow users select default packages (US2.2)
- Allow users customize package (US2.3)
- Allow users view order history (US2.4)
- Allow users add special requests when customizing (US2.5)
- Allow users choose combination packages (US3)

3.1.2 Sprint "Definition of Done"

The Development Team establishes certain criteria known as the **Definition of Done**, which ensures that every deliverable meets a consistent standard of quality.

- All code has been written, committed, and reviewed via pull requests.
- Code is modular, readable, and optimized for maintainability.
- Follows the team's coding standards and naming conventions.
- Meets all **acceptance criteria** defined in the user story.
- Features are manually tested by developers across at least two devices or browsers.
- All major features have associated unit/integration tests where applicable.
- Bug tickets (if any) are created, tracked in Jira, and prioritized for the next sprint.
- Task status is updated in Jira with clear notes or blockers.
- Technical documentation and setup instructions are updated (if feature-specific).

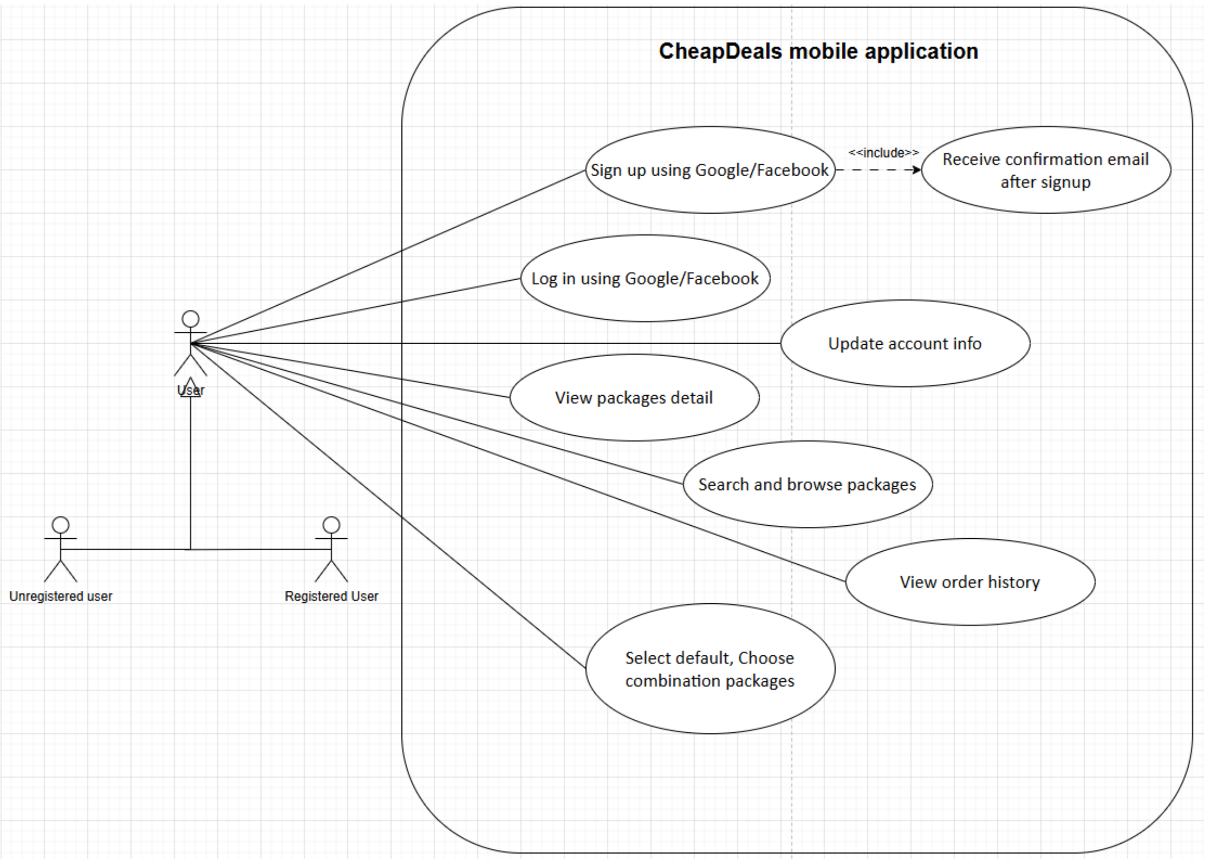
3.1.3 Sprint Backlog

User story	**Description**	**Estimation (Point)**	**Status**
US1.1	Sign up using Google/Facebook	3	Done

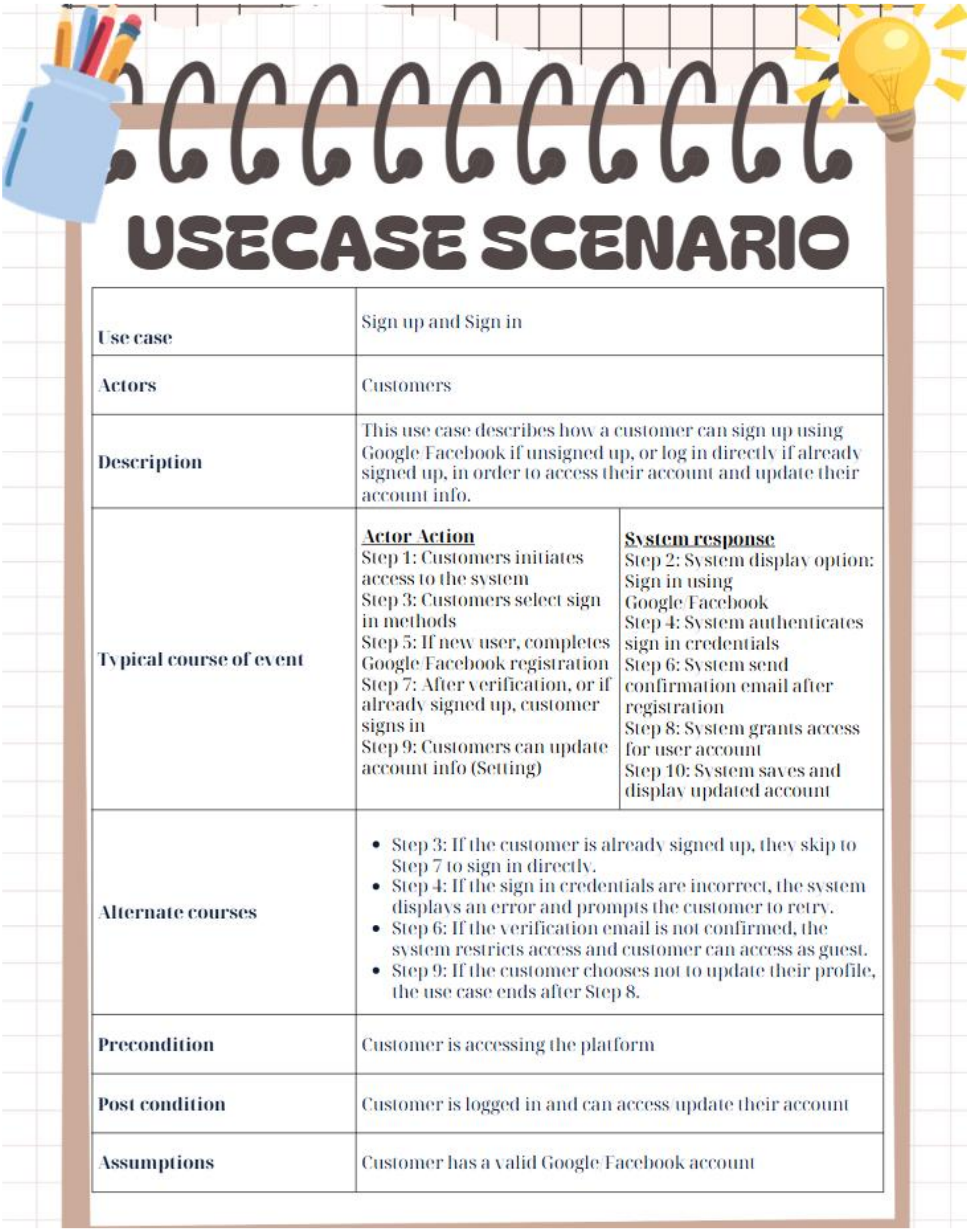
US1.2	Receive confirmation email after signup	3	Not Done
US6.1	Log in using Google/Facebook	3	Done
US6.2	Update account info	2	Done
US2	Search and browse packages	3	Done
US2.1	View packages detail	3	Done
US2.2	Select default packages	3	Done
US2.4	View order history	2	Done
US3	Choose combination packages	1	Done
Total		23	

3.2 Sprint Cycle

3.2.1. Modelling

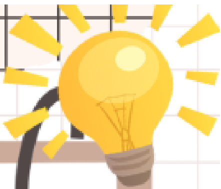

CheapDeals mobile application
Sign up using Google/Facebook
<<include>>
Receive confirmation email after signup
Log in using Google/Facebook
Update account info
View packages detail
Search and browse packages
View order history
Select default, Choose combination packages
User
Unregistered user
Registered User

Use Case Scenario:



USECASE SCENARIO

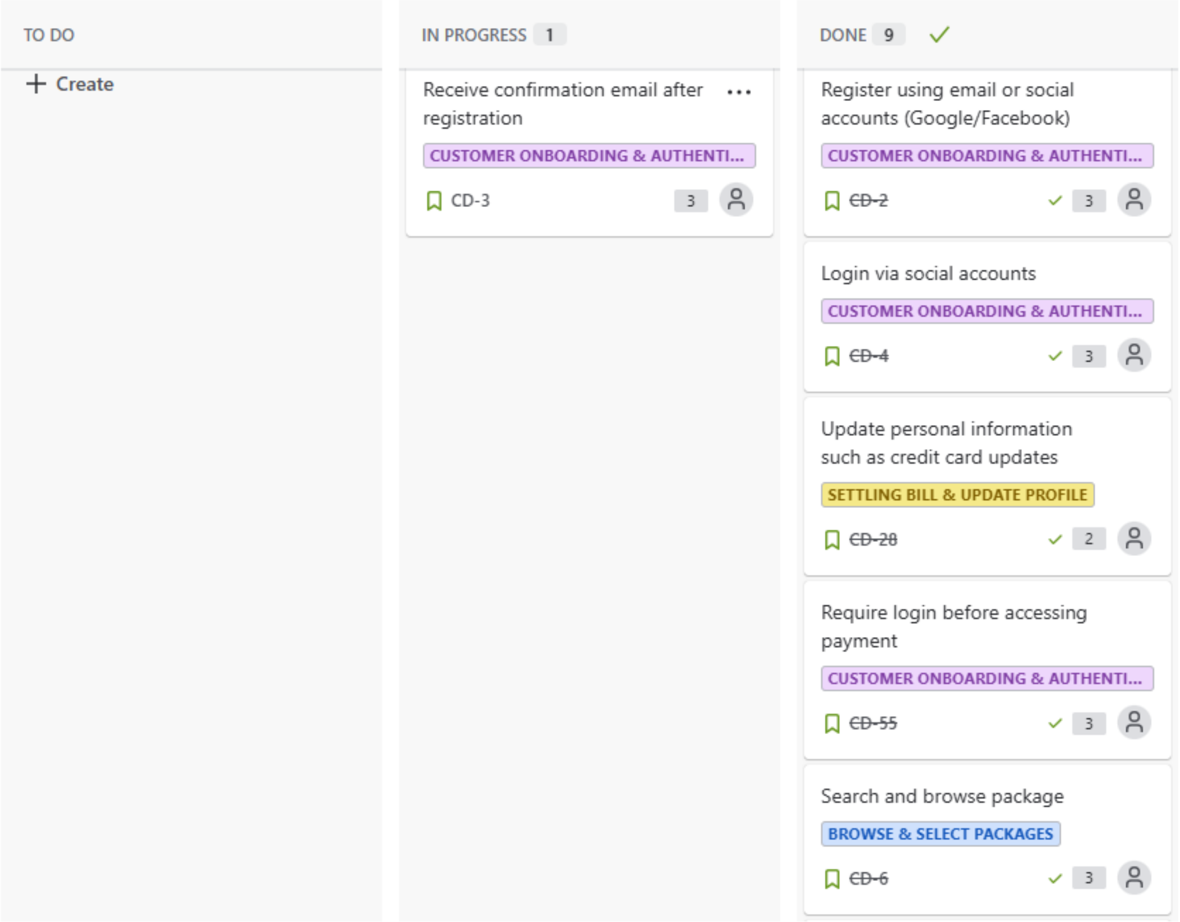
Use case	Sign up and Sign in
Actors	Customers
Description	This use case describes how a customer can sign up using Google/Facebook if unsigned up, or log in directly if already signed up, in order to access their account and update their account info.
Typical course of event	**<u>Actor Action</u>** Step 1: Customers initiates access to the system Step 3: Customers select sign in methods Step 5: If new user, completes Google/Facebook registration Step 7: After verification, or if already signed up, customer signs in Step 9: Customers can update account info (Setting) **<u>System response</u>** Step 2: System display option: Sign in using Google/Facebook Step 4: System authenticates sign in credentials Step 6: System send confirmation email after registration Step 8: System grants access for user account Step 10: System saves and display updated account
Alternate courses	• Step 3: If the customer is already signed up, they skip to Step 7 to sign in directly. • Step 4: If the sign in credentials are incorrect, the system displays an error and prompts the customer to retry. • Step 6: If the verification email is not confirmed, the system restricts access and customer can access as guest. • Step 9: If the customer chooses not to update their profile, the use case ends after Step 8.
Precondition	Customer is accessing the platform
Post condition	Customer is logged in and can access/update their account
Assumptions	Customer has a valid Google/Facebook account



USECASE SCENARIO

Use case	Search and browse packages	
Actors	Signed up Customers	
Description	Describes the process where a user can search or browse for packages, selects a default or customized package, and views their order history.	
Typical course of event	**Actor Action** Step 1: Customer accesses the platform Step 3: Customer browses by category or searches Step 5: Customer selects a package from the list Step 7: Customer selects default package or combination package Step 9: Customer views order history (Setting)	**System response** Step 2: System displays homepage, package categories and search bar Step 4: System displays filtered list of available packages Step 6: System displays package details including price and content Step 8: System adds selected package to cart Step 10: System displays previous order history with detailed information
Alternate courses	• Step 7 : If customers do not select any package, system will display "Your cart is empty" in the shopping cart section • Step 9: If the customer has no previous orders, the system will display "No order history".	
Precondition	Customer has successfully logged in	
Post condition	Customer has reviewed package details or order history	
Assumptions	Customer has an active account and internet connection	

3.2.2 Scrum Board



TO DO

+ Create

IN PROGRESS 1

Receive confirmation email after registration •••

CUSTOMER ONBOARDING & AUTHENTI...

CD-3 3

DONE 9 ✓

Register using email or social accounts (Google/Facebook)

CUSTOMER ONBOARDING & AUTHENTI...

~~CD-2~~ ✓ 3

Login via social accounts

CUSTOMER ONBOARDING & AUTHENTI...

~~CD-4~~ ✓ 3

Update personal information such as credit card updates

SETTLING BILL & UPDATE PROFILE

~~CD-28~~ ✓ 2

Require login before accessing payment

CUSTOMER ONBOARDING & AUTHENTI...

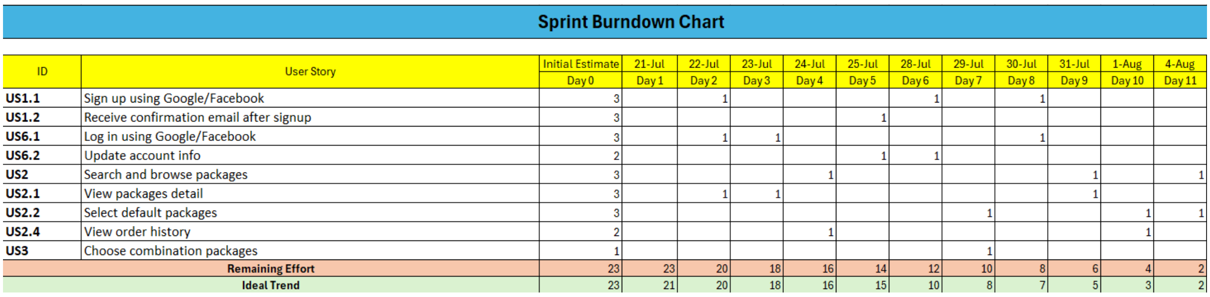
~~CD-55~~ ✓ 3

Search and browse package

BROWSE & SELECT PACKAGES

~~CD-6~~ ✓ 3

3.2.3 Burndown charts

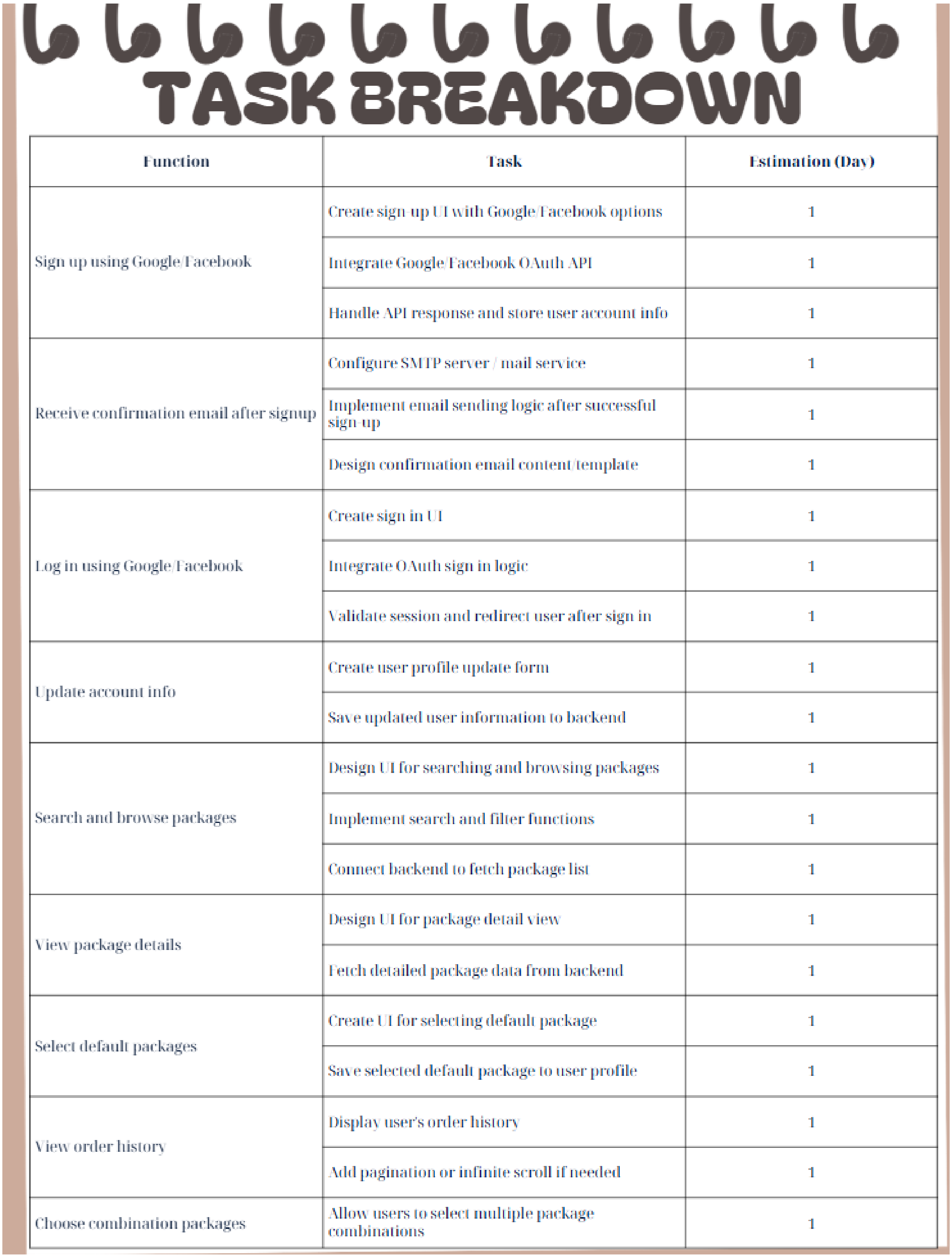


Sprint Burndown Chart

ID	User Story	Initial Estimate	21-Jul	22-Jul	23-Jul	24-Jul	25-Jul	28-Jul	29-Jul	30-Jul	31-Jul	1-Aug	4-Aug
		Day 0	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10	Day 11
US1.1	Sign up using Google/Facebook	3		1				1		1			
US1.2	Receive confirmation email after signup	3					1						
US6.1	Log in using Google/Facebook	3		1	1					1			
US6.2	Update account info	2					1	1					
US2	Search and browse packages	3				1					1		1
US2.1	View packages detail	3		1	1						1		
US2.2	Select default packages	3							1			1	1
US2.4	View order history	2				1						1	
US3	Choose combination packages	1							1				
Remaining Effort		23	23	20	18	16	14	12	10	8	6	4	2
Ideal Trend		23	21	20	18	16	15	10	8	7	5	3	2

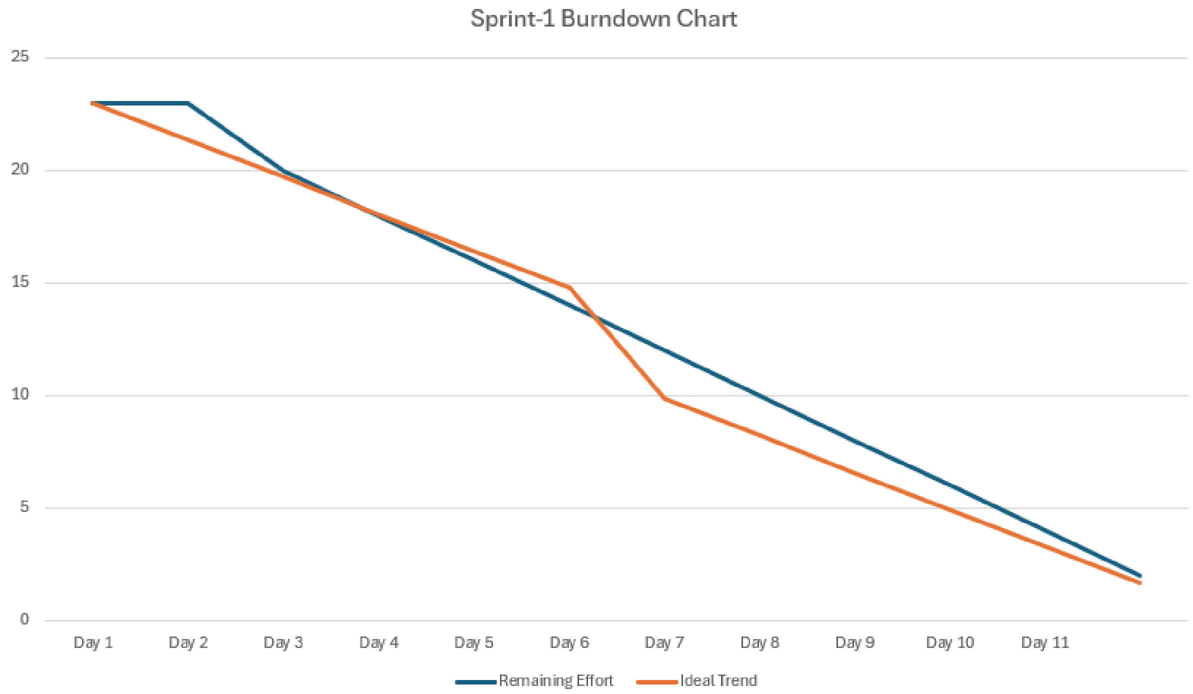
Sprint Backlogs Task Breakdown:

Sprint one

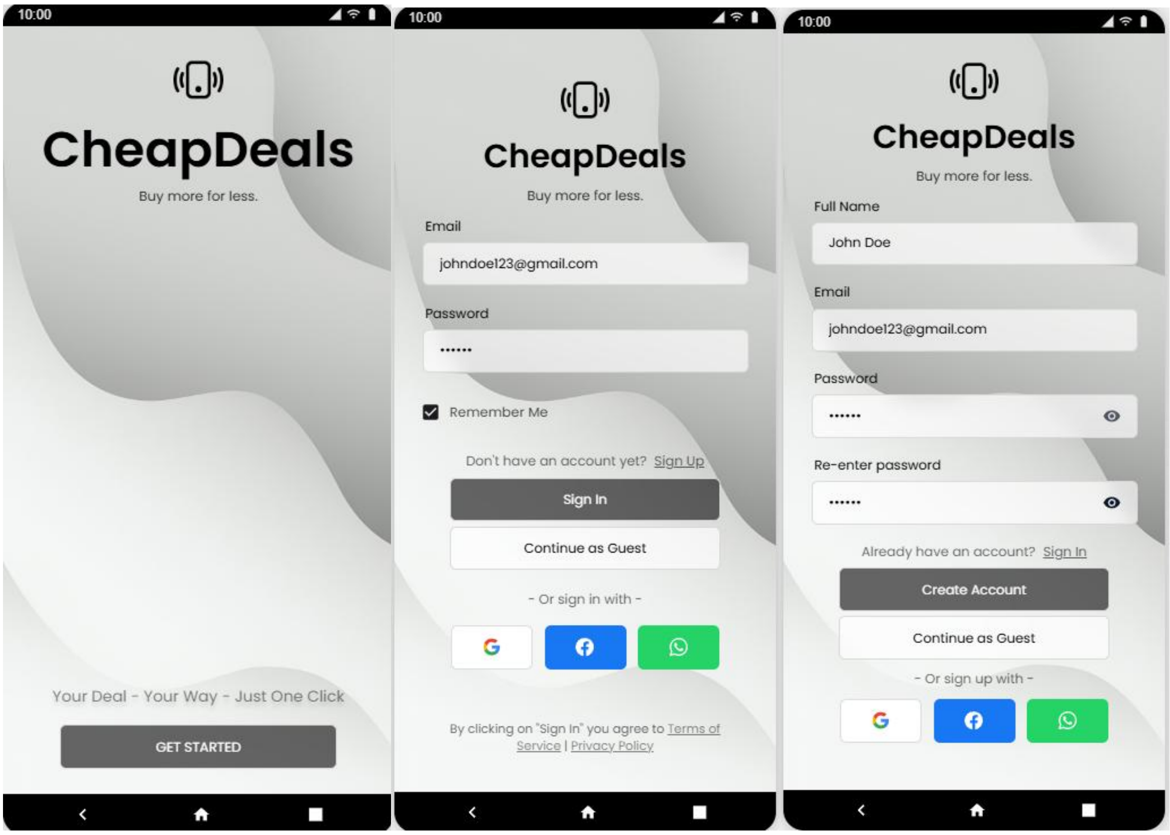


TASK BREAKDOWN

Function	Task	Estimation (Day)
Sign up using Google/Facebook	Create sign-up UI with Google/Facebook options	1
	Integrate Google/Facebook OAuth API	1
	Handle API response and store user account info	1
Receive confirmation email after signup	Configure SMTP server / mail service	1
	Implement email sending logic after successful sign-up	1
	Design confirmation email content/template	1
Log in using Google/Facebook	Create sign in UI	1
	Integrate OAuth sign in logic	1
	Validate session and redirect user after sign in	1
Update account info	Create user profile update form	1
	Save updated user information to backend	1
Search and browse packages	Design UI for searching and browsing packages	1
	Implement search and filter functions	1
	Connect backend to fetch package list	1
View package details	Design UI for package detail view	1
	Fetch detailed package data from backend	1
Select default packages	Create UI for selecting default package	1
	Save selected default package to user profile	1
View order history	Display user's order history	1
	Add pagination or infinite scroll if needed	1
Choose combination packages	Allow users to select multiple package combinations	1



3.2.4 Development



Email: johndoe123@gmail.com

Password: ••••••

☑ Remember Me

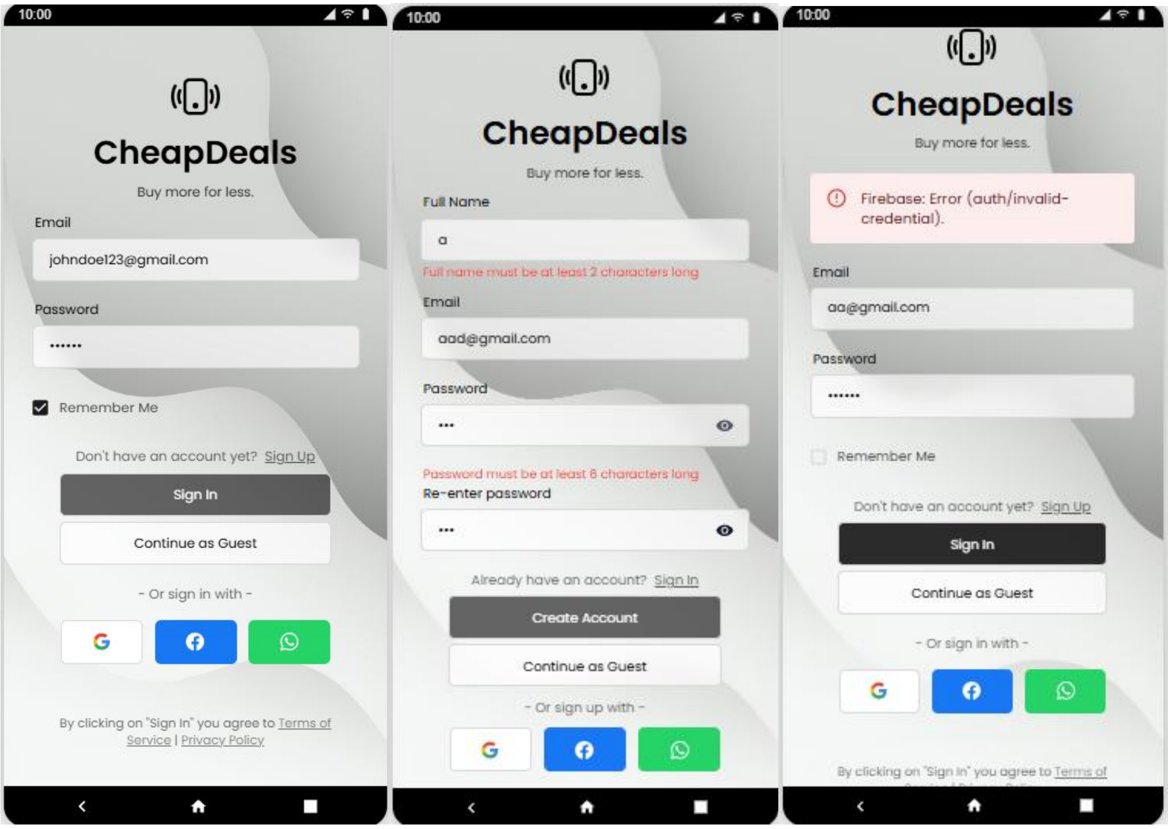
Full Name: John Doe

Email: johndoe123@gmail.com

Password: ••••••

Re-enter password: ••••••

Account Sign Up



Email: johndoe123@gmail.com

Password: ••••••

☑ Remember Me

Don't have an account yet? Sign Up
Sign In
Continue as Guest
- Or sign in with -
By clicking on "Sign In" you agree to Terms of Service | Privacy Policy
10:00
CheapDeals
Buy more for less.

Full Name: a

Full name must be at least 2 characters long

Email: aad@gmail.com

Password: •••

Password must be at least 6 characters long

Re-enter password: •••

Firebase: Error (auth/invalid-credential).

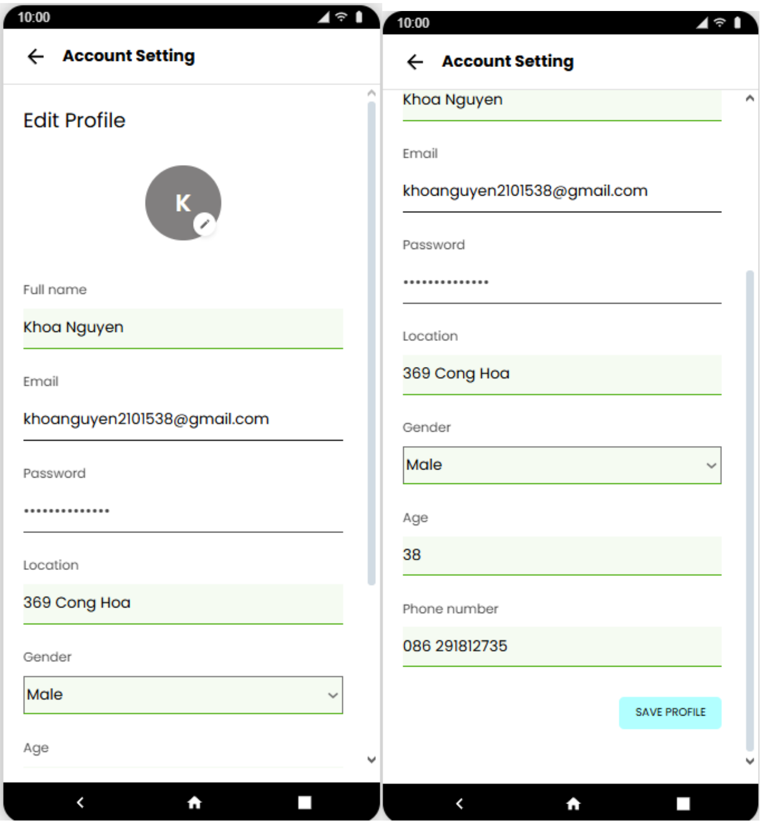
Email: aa@gmail.com

Password: ••••••

□ Remember Me

Don't have an account yet? Sign Up
Sign In
Continue as Guest
- Or sign in with -
By clicking on "Sign In" you agree to Terms of

Account Sign In and Invalid credentials sign up/sign in errors



Full name: Khoa Nguyen

Email: khoanguyen2101538@gmail.com

Password: ••••••••••••••

Location: 369 Cong Hoa

Gender: Male

Age

Khoa Nguyen

Email: khoanguyen2101538@gmail.com

Password: ••••••••••••••

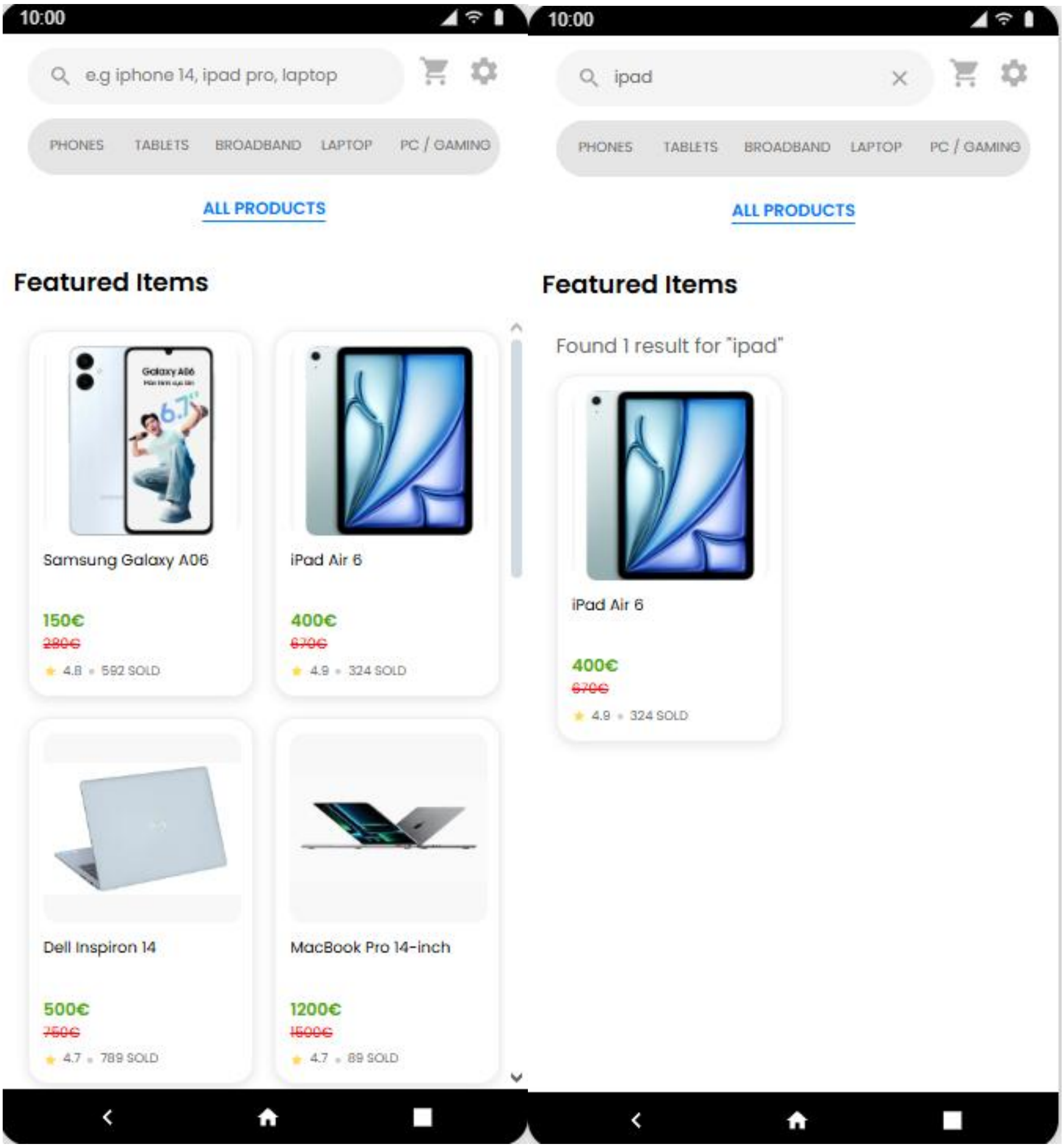
Location: 369 Cong Hoa

Gender: Male

Age: 38

Phone number: 086 291812735

Update account info



Featured Items

Samsung Galaxy A06
150€
~~280€~~
★ 4.8 • 592 SOLD

iPad Air 6
400€
~~670€~~
★ 4.9 • 324 SOLD

Dell Inspiron 14
500€
~~750€~~
★ 4.7 • 789 SOLD

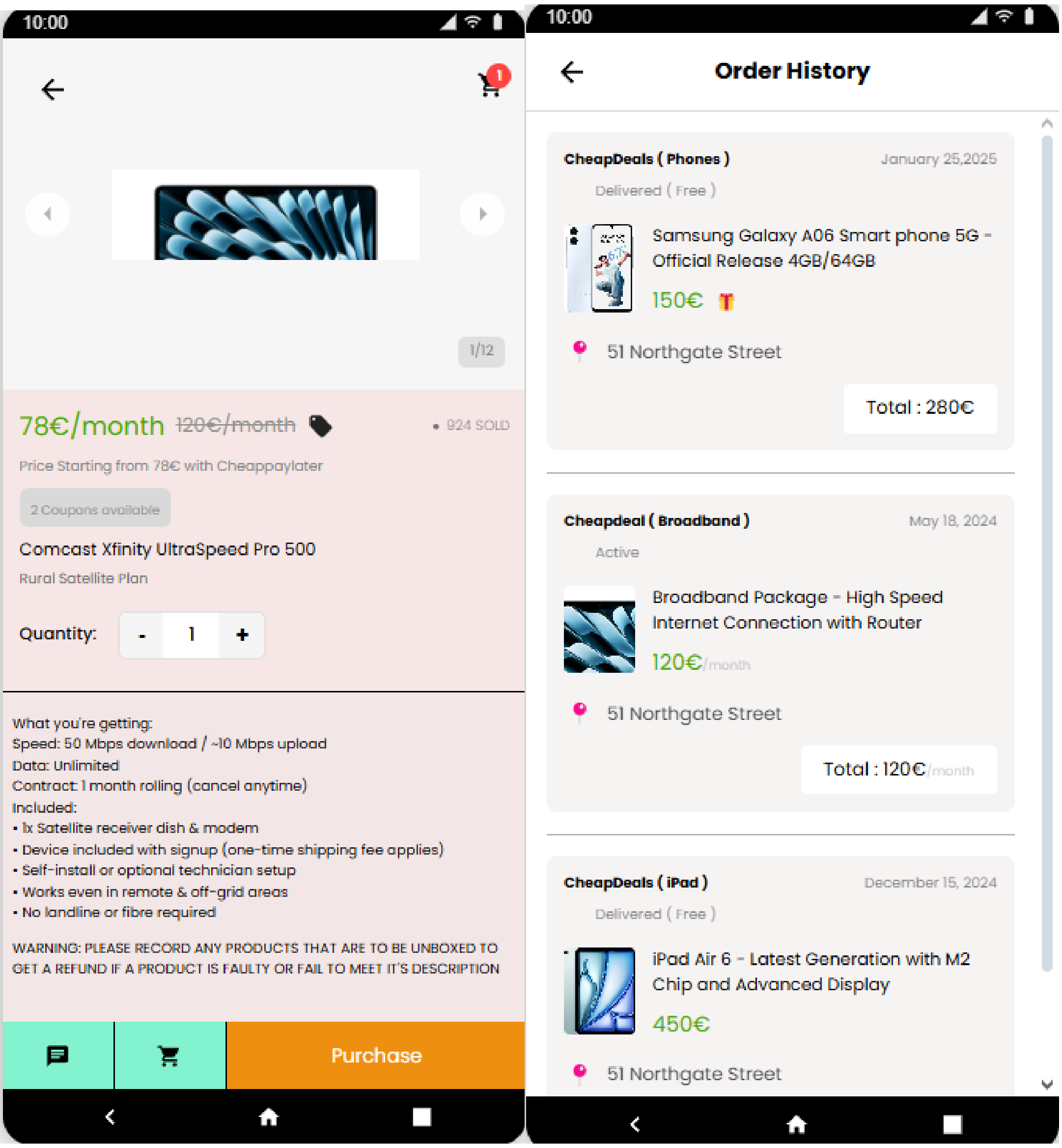
MacBook Pro 14-inch
1200€
~~1500€~~
★ 4.7 • 89 SOLD

Featured Items

Found 1 result for "ipad"

iPad Air 6
400€
~~670€~~
★ 4.9 • 324 SOLD

Search and browse packages



10:00

1/12

78€/month ~~120€/month~~

• 924 SOLD

Price Starting from 78€ with Cheappaylater

2 Coupons available

Comcast Xfinity UltraSpeed Pro 500

Rural Satellite Plan

Quantity: - 1 +

What you're getting:
Speed: 50 Mbps download / ~10 Mbps upload
Data: Unlimited
Contract: 1 month rolling (cancel anytime)
Included:

- 1x Satellite receiver dish & modem
- Device included with signup (one-time shipping fee applies)
- Self-install or optional technician setup
- Works even in remote & off-grid areas
- No landline or fibre required

WARNING: PLEASE RECORD ANY PRODUCTS THAT ARE TO BE UNBOXED TO GET A REFUND IF A PRODUCT IS FAULTY OR FAIL TO MEET IT'S DESCRIPTION

Purchase

10:00

Order History

CheapDeals (Phones) January 25,2025
Delivered (Free)
Samsung Galaxy A06 Smart phone 5G - Official Release 4GB/64GB
150€
51 Northgate Street
Total : 280€

Cheapdeal (Broadband) May 18, 2024
Active
Broadband Package - High Speed Internet Connection with Router
120€/month
51 Northgate Street
Total : 120€/month

CheapDeals (iPad) December 15, 2024
Delivered (Free)
iPad Air 6 - Latest Generation with M2 Chip and Advanced Display
450€
51 Northgate Street

View package details and order history

3.2.5 Meetings

3.2.5.1 Daily meetings

Meeting agenda:
Attendees: Development team, Scrum Master, Product Owner
Purpose: Daily meetings throughout the two-week Sprint 1 cycle aimed to ensure alignment on the sprint goal, identify blockers, and distribute progress updates.

Notable meetings:

- Early Sprint:
  Focused on setting up the foundational features, primarily US1.1 (customer

registration), US2.1 (viewing package details), and US6.1 (account sign in). The team discussed and finalized the data structure for customer profiles and frontend integration with Firebase Auth.

- Mid Sprint:
  Issues arose while integrating social sign in (Google/Facebook) for US1.1. Tuan and Vi An collaborated to resolve OAuth API errors. Simultaneously, US2.1 was finalized with static mock data to test UI interactions and filtering logic.
- Late Sprint:
  A testing session revealed that US9.6 (logout function) was low priority and deferred to future sprint. Team discussed smoothing user transition between onboarding and browsing. Sign in persistence with Firebase was also validated.

3.2.5.2 Sprint Meeting

Meeting agenda:
Attendees: Development team, Scrum Master, Product Owner, Business Stakeholders
Purpose: Sprint 1 review meeting to present completed deliverables and gather product owner feedback.

Reviewed Deliverables:

- US1.1 – Customer registration with Google sign in fully implemented and tested
- US2.1 – Package browsing with device info, SMS, and data allowance available
- US6.1 – Account sign in using Firebase Auth completed
- US9.6 – Logout deprioritized for MVP

Customer Feedback Highlights:

- Customers found the registration and sign in process smooth, especially with Google integration.
- Interface for browsing packages was easy to use, and customers appreciated the clarity of package details.

3.2.5.3 Retrospective meeting

Attendees: Development team, Scrum Master, Product Owner
Purpose: Review Sprint 1 performance and identify improvement areas for Sprint 2.

Meeting notes:
What went well:

- Khoa: “Firebase sign in integration was handled cleanly with reusable components.”
- An: “UI for package browsing functioned as expected with minimal bugs.”
- Tuan: “Jira helped maintain clarity in task status.”

What could be improved:

- Khoi Nguyen: “OAuth sign in could have been tested earlier in the sprint.”
- Huy: “Some UI tasks overlapped; clearer coordination is needed to avoid rework.”

What did not go well:

- General: Delays in authentication integration affected other dependent stories.

Action Plan:

- Frontend and backend pairs to be assigned per story for clearer ownership
- Early testing and code reviews for integration-heavy features like auth and payments

4. Sprint Two

4.1 Sprint Planning and Sprint Backlog

4.1.1 Sprint Goal

In this Sprint, the development team aims to establish the foundational features needed for the CheapDeals mobile application: enable customers to place an order, add/remove items from the shopping cart, and complete payment with confirmation.

Following the goal, the selected user stories are:

- Allow users add special requests when customizing (US2.5)
- Allow users customize package (US2.3)
- Allow users place an order through mobile app (US4)
- Allow users choose a new package or upgrade from the menu in the app (US5.2)
- Allow users place an order through calling the Sales department via mobile app (US4.1)
- Allow users add/remove items from the cart (US4.4)
- Allow users pay with credit card (US6.4)
- Allow users card verification system via VISACheck (US6.5)
- Allow users send confirmation email after successful payment (US6.6)
- Allow users display the current bill in real-time (US6.3)
- Allow CSR save user information on CRM system (US7.1)
- Allow CSR validate users (US7.2)

4.1.2 Sprint “Definition of Done”

The Development Team establishes certain criteria known as the **Definition of Done**, which ensures that every deliverable meets a consistent standard of quality.

- All code has been written, committed, and reviewed via pull requests.
- Code is modular, readable, and optimized for maintainability.
- Follows the team’s coding standards and naming conventions.
- Meets all **acceptance criteria** defined in the user story.
- Features are manually tested by developers across at least two devices or browsers.
- All major features have associated unit/integration tests where applicable.
- Bug tickets (if any) are created, tracked in Jira, and prioritized for the next sprint.
- Task status is updated in Jira with clear notes or blockers.
- Technical documentation and setup instructions are updated (if feature-specific).

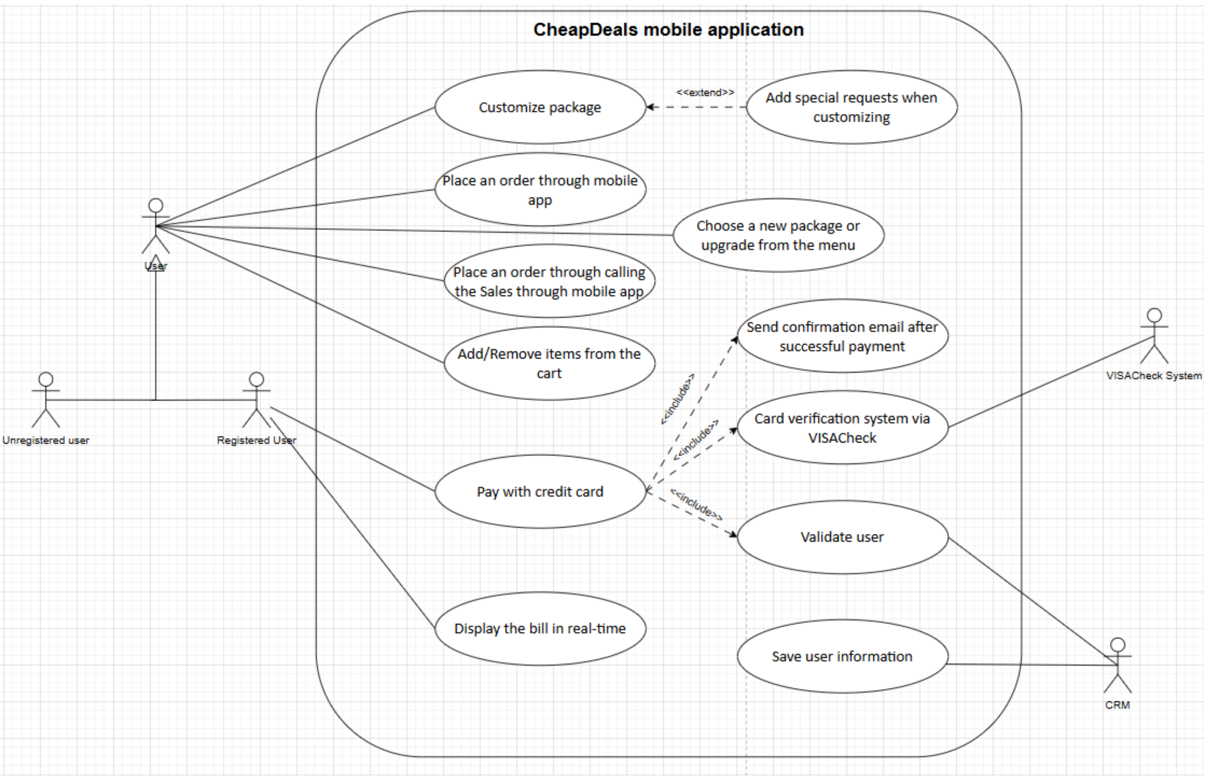
4.1.3 Sprint Backlog

User story	**Description**	**Estimation (Point)**	**Status**
US2.5	Add special requests when customizing	3	Done
US2.3	Customize package	3	Done
US4	Place an order through mobile app	3	Done
US5.2	Choose a new package or upgrade from the menu	2	Done
US4.1	Place an order through calling the Sales through mobile app	2	Not Done
US4.4	Add/Remove items from the cart	3	Done
US6.4	Pay with credit card	3	Done
US6.5	Card verification system via VISACheck	3	Done

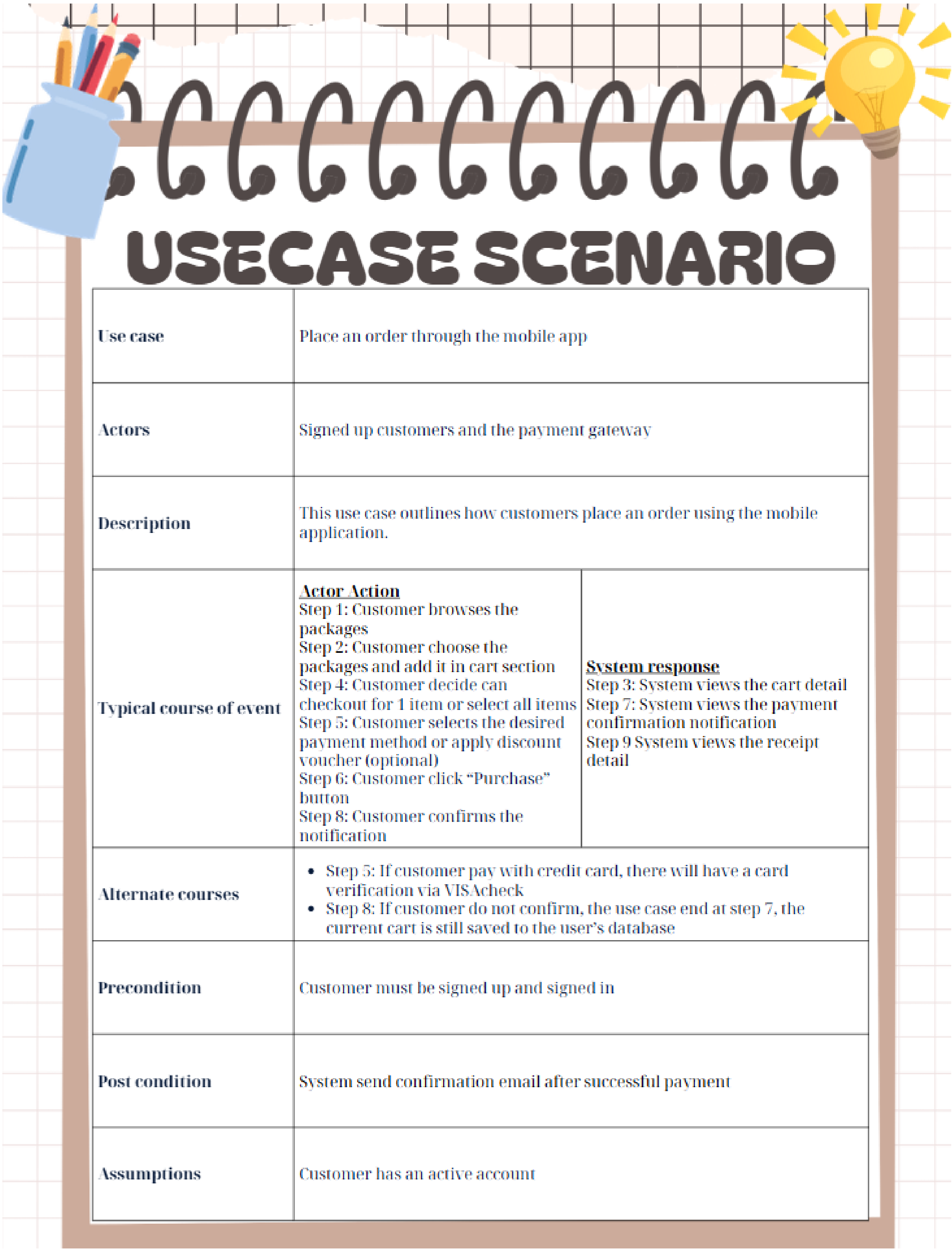
US6.6	Send confirmation email after successful payment	3	Not Done
US6.3	Display the bill in real-time	3	Done
US7.1	Save user information	2	Done
US7.2	CSR validate users	3	Done
Total		33	

4.2 Sprint Cycle

4.2.1. Modelling


CheapDeals mobile application
Customize package
<<extend>>
Add special requests when customizing
Place an order through mobile app
Choose a new package or upgrade from the menu
Place an order through calling the Sales through mobile app
Add/Remove items from the cart
Send confirmation email after successful payment
<<include>>
<<include>>
Card verification system via VISACheck
Pay with credit card
<<include>>
Validate user
Display the bill in real-time
Save user information
User
Unregistered user
Registered User
VISACheck System
CRM

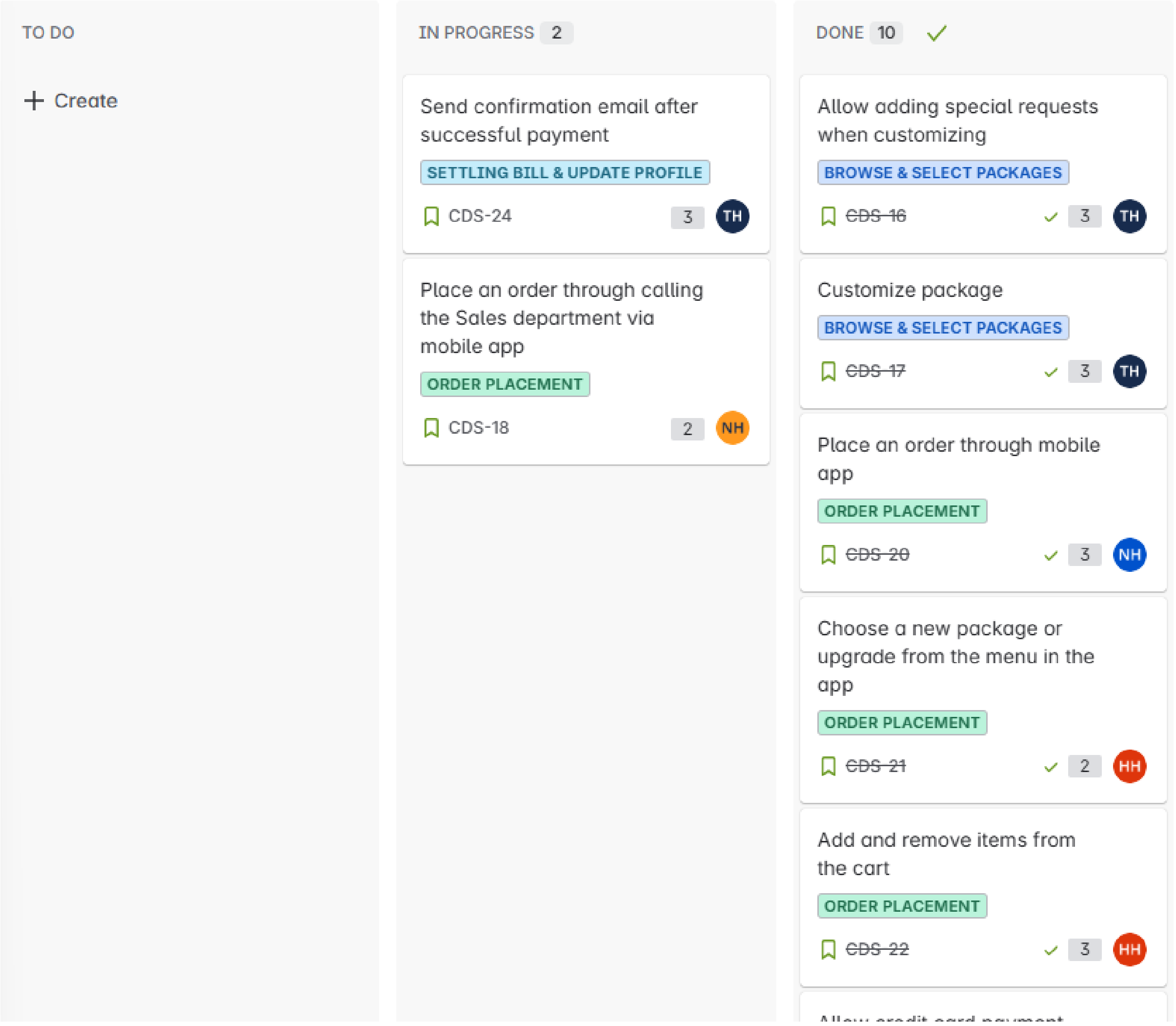
Use case scenario



USECASE SCENARIO

Use case	Place an order through the mobile app	
Actors	Signed up customers and the payment gateway	
Description	This use case outlines how customers place an order using the mobile application.	
Typical course of event	**Actor Action** Step 1: Customer browses the packages Step 2: Customer choose the packages and add it in cart section Step 4: Customer decide can checkout for 1 item or select all items Step 5: Customer selects the desired payment method or apply discount voucher (optional) Step 6: Customer click "Purchase" button Step 8: Customer confirms the notification	**System response** Step 3: System views the cart detail Step 7: System views the payment confirmation notification Step 9 System views the receipt detail
Alternate courses	- Step 5: If customer pay with credit card, there will have a card verification via VISAcheck - Step 8: If customer do not confirm, the use case end at step 7, the current cart is still saved to the user's database	
Precondition	Customer must be signed up and signed in	
Post condition	System send confirmation email after successful payment	
Assumptions	Customer has an active account	

4.2.2 Scrum Board



TO DO

+ Create

IN PROGRESS 2

Send confirmation email after successful payment

SETTLING BILL & UPDATE PROFILE

CDS-24 3 TH

Place an order through calling the Sales department via mobile app

ORDER PLACEMENT

CDS-18 2 NH

DONE 10 ✓

Allow adding special requests when customizing

BROWSE & SELECT PACKAGES

~~CDS-16~~ ✓ 3 TH

Customize package

BROWSE & SELECT PACKAGES

~~CDS-17~~ ✓ 3 TH

Place an order through mobile app

ORDER PLACEMENT

~~CDS-20~~ ✓ 3 NH

Choose a new package or upgrade from the menu in the app

ORDER PLACEMENT

~~CDS-21~~ ✓ 2 HH

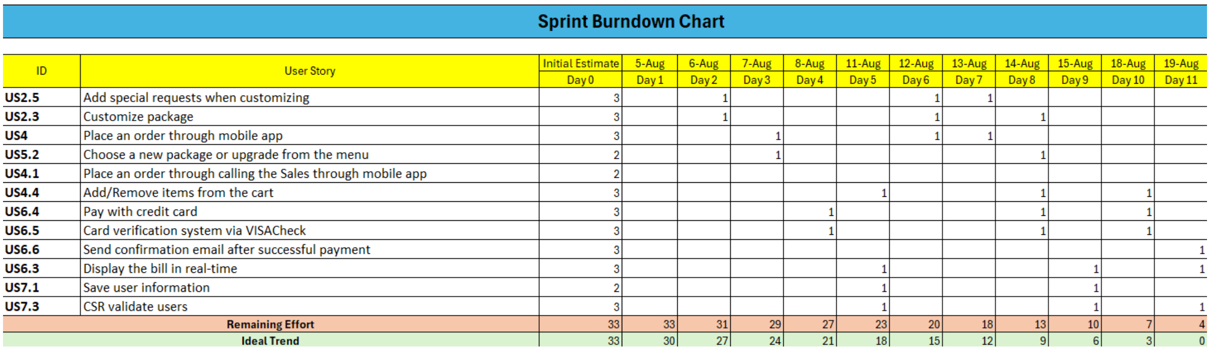
Add and remove items from the cart

ORDER PLACEMENT

~~CDS-22~~ ✓ 3 HH

Allow credit card payment

4.2.3 Burndown charts

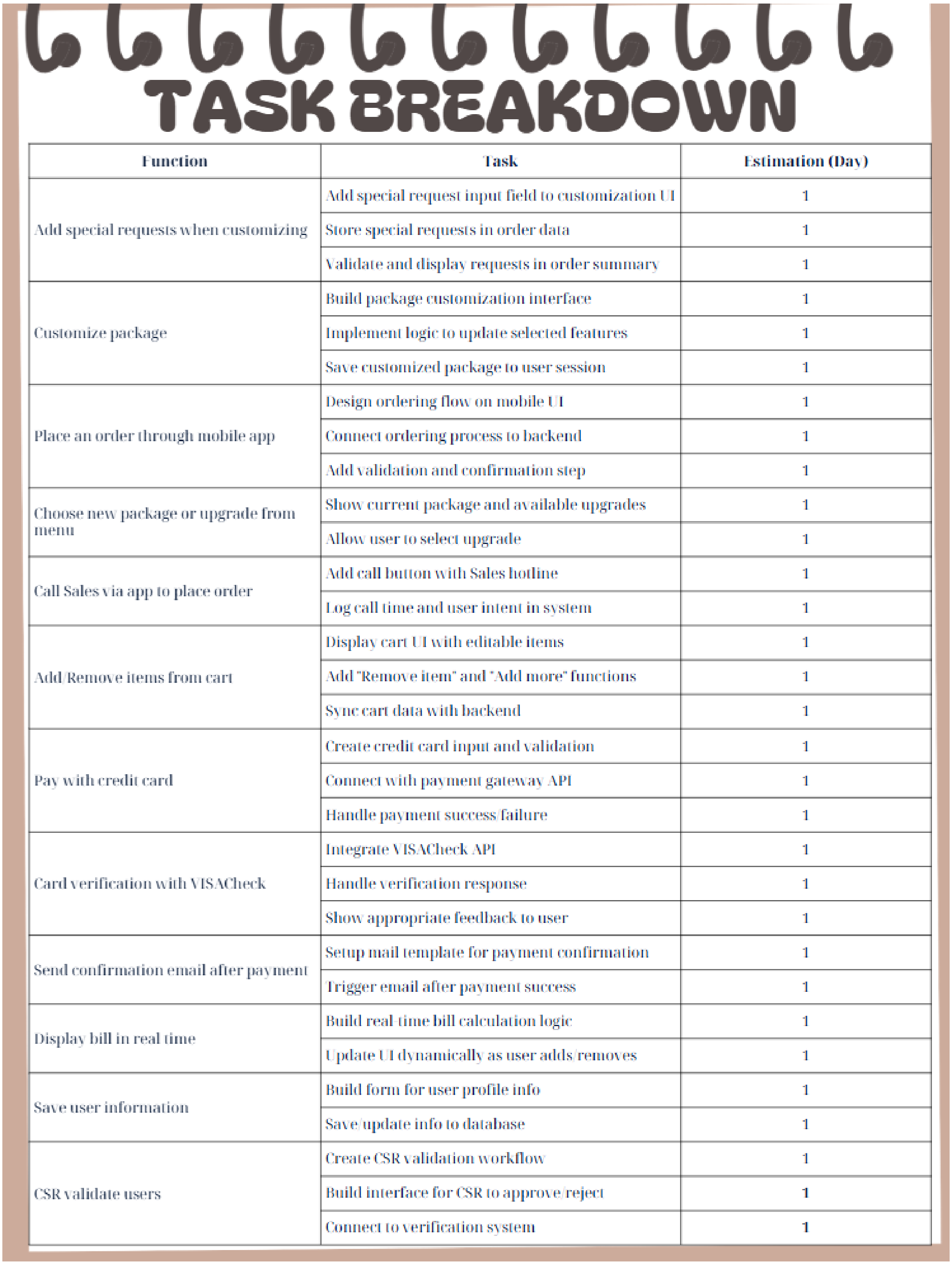


Sprint Burndown Chart

ID	User Story	Initial Estimate	5-Aug	6-Aug	7-Aug	8-Aug	11-Aug	12-Aug	13-Aug	14-Aug	15-Aug	18-Aug	19-Aug
		Day 0	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10	Day 11
US2.5	Add special requests when customizing	3		1				1	1				
US2.3	Customize package	3		1				1		1			
US4	Place an order through mobile app	3			1			1	1				
US5.2	Choose a new package or upgrade from the menu	2			1					1			
US4.1	Place an order through calling the Sales through mobile app	2											
US4.4	Add/Remove items from the cart	3					1			1		1	
US6.4	Pay with credit card	3				1				1		1	
US6.5	Card verification system via VISACheck	3				1				1		1	
US6.6	Send confirmation email after successful payment	3											1
US6.3	Display the bill in real-time	3					1				1		1
US7.1	Save user information	2					1				1		
US7.3	CSR validate users	3					1				1		1
Remaining Effort		33	33	31	29	27	23	20	18	13	10	7	4
Ideal Trend		33	30	27	24	21	18	15	12	9	6	3	0

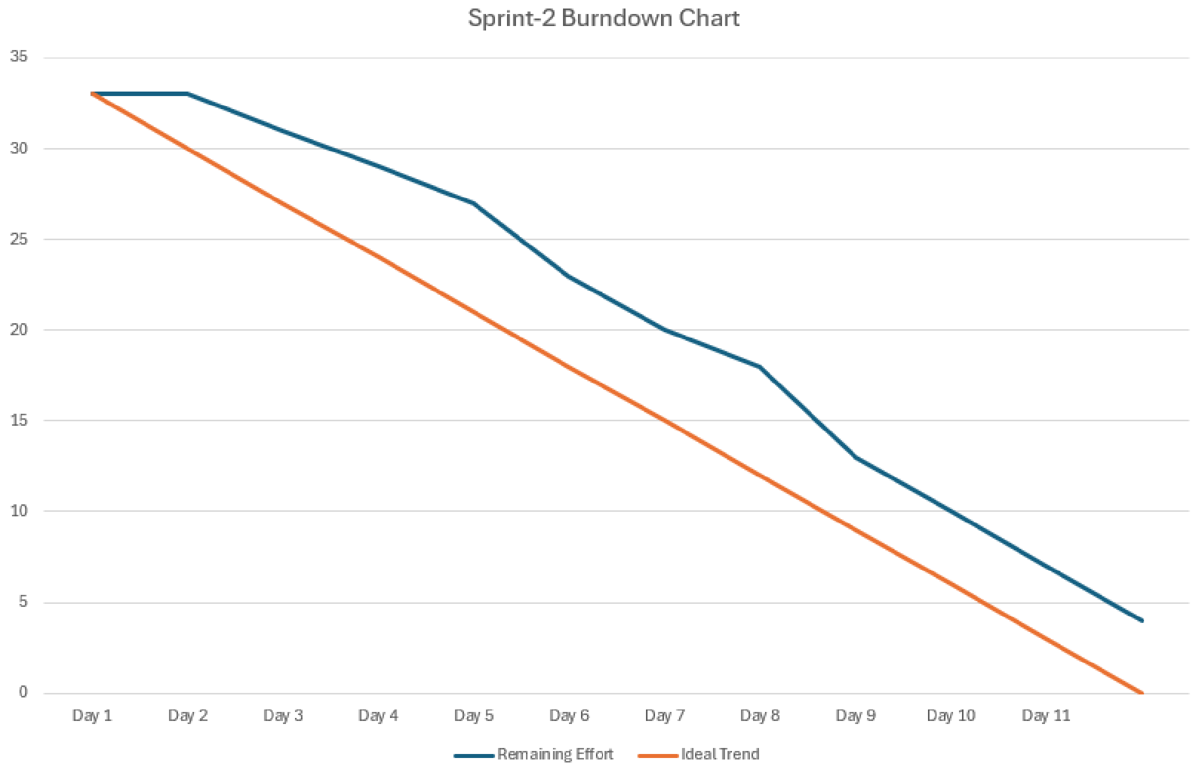
Sprint Backlogs Task Breakdown:

Sprint 2

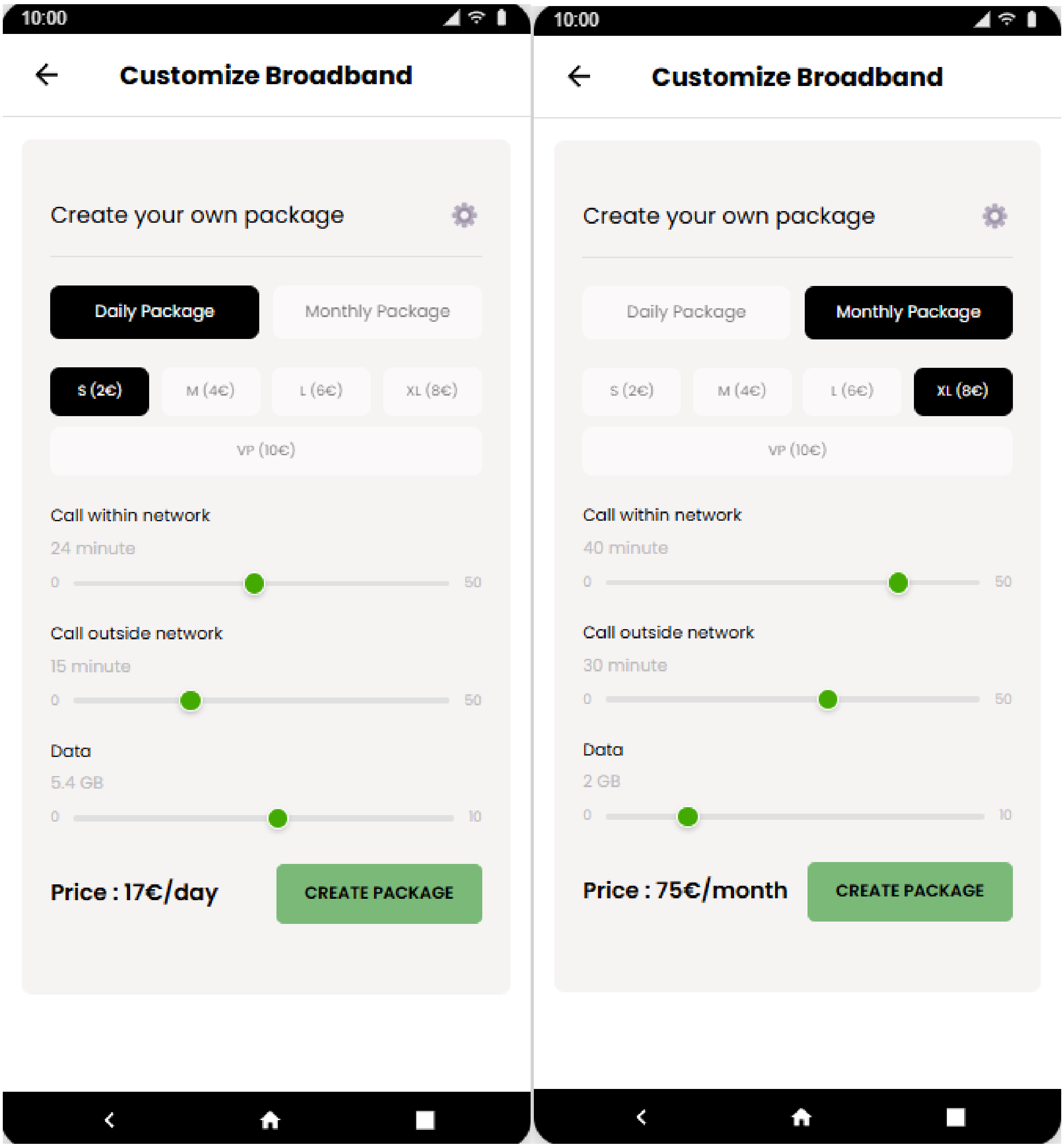


TASK BREAKDOWN

Function	Task	Estimation (Day)
Add special requests when customizing	Add special request input field to customization UI	1
	Store special requests in order data	1
	Validate and display requests in order summary	1
Customize package	Build package customization interface	1
	Implement logic to update selected features	1
	Save customized package to user session	1
Place an order through mobile app	Design ordering flow on mobile UI	1
	Connect ordering process to backend	1
	Add validation and confirmation step	1
Choose new package or upgrade from menu	Show current package and available upgrades	1
	Allow user to select upgrade	1
Call Sales via app to place order	Add call button with Sales hotline	1
	Log call time and user intent in system	1
Add/Remove items from cart	Display cart UI with editable items	1
	Add "Remove item" and "Add more" functions	1
	Sync cart data with backend	1
Pay with credit card	Create credit card input and validation	1
	Connect with payment gateway API	1
	Handle payment success/failure	1
Card verification with VISACheck	Integrate VISACheck API	1
	Handle verification response	1
	Show appropriate feedback to user	1
Send confirmation email after payment	Setup mail template for payment confirmation	1
	Trigger email after payment success	1
Display bill in real time	Build real-time bill calculation logic	1
	Update UI dynamically as user adds/removes	1
Save user information	Build form for user profile info	1
	Save/update info to database	1
CSR validate users	Create CSR validation workflow	1
	Build interface for CSR to approve/reject	1
	Connect to verification system	1


Sprint-2 Burndown Chart
35
30
25
20
15
10
5
0
Day 1
Day 2
Day 3
Day 4
Day 5
Day 6
Day 7
Day 8
Day 9
Day 10
Day 11
Remaining Effort
Ideal Trend

4.2.4 Development



10:00

Customize Broadband

Create your own package

Daily Package | Monthly Package

S (2€) | M (4€) | L (6€) | XL (8€)

VP (10€)

Call within network

24 minute

0 50

Call outside network

15 minute

0 50

Data

5.4 GB

0 10

Price : 17€/day

CREATE PACKAGE

10:00

Customize Broadband

Create your own package

Daily Package | Monthly Package

S (2€) | M (4€) | L (6€) | XL (8€)

VP (10€)

Call within network

40 minute

0 50

Call outside network

30 minute

0 50

Data

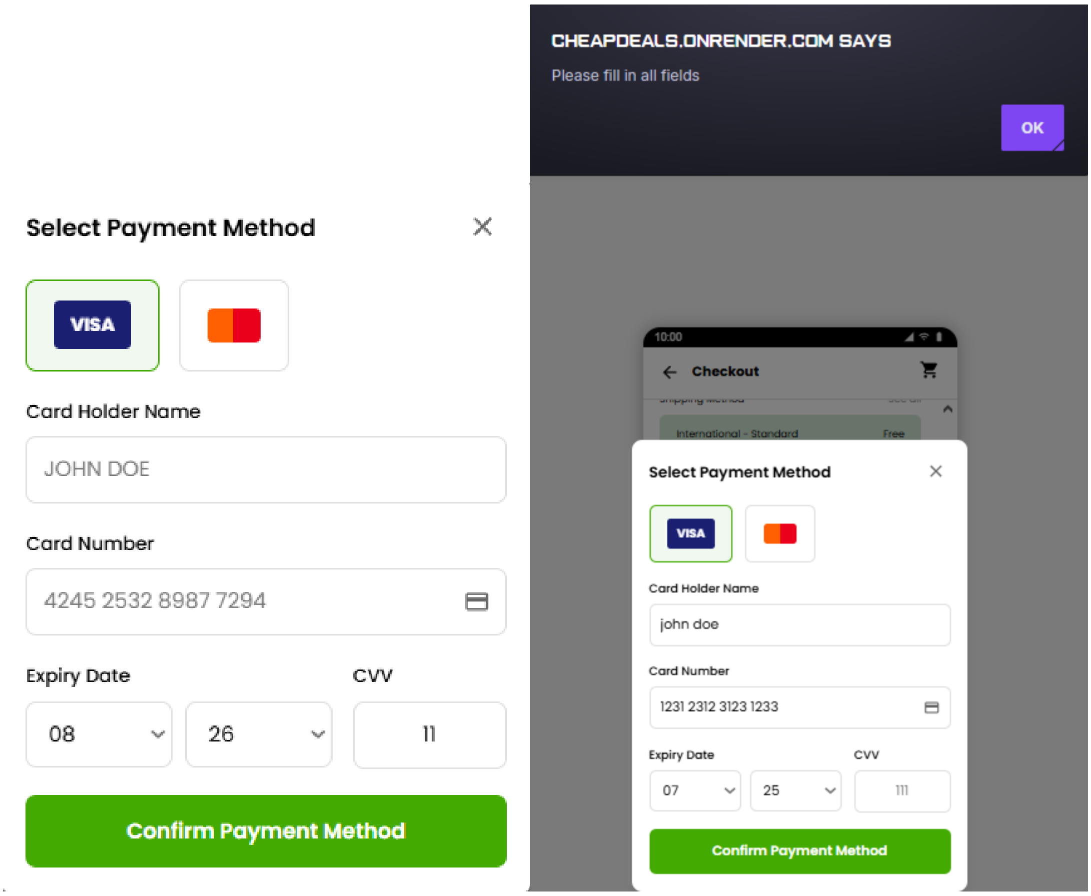
2 GB

0 10

Price : 75€/month

CREATE PACKAGE

Add Special request and customize package



Select Payment Method

Card Holder Name

JOHN DOE

Card Number

4245 2532 8987 7294

Expiry Date

08 26

CVV

11

CHEAPDEALS.ONRENDER.COM SAYS

Please fill in all fields

Select Payment Method

Card Holder Name

john doe

Card Number

1231 2312 3123 1233

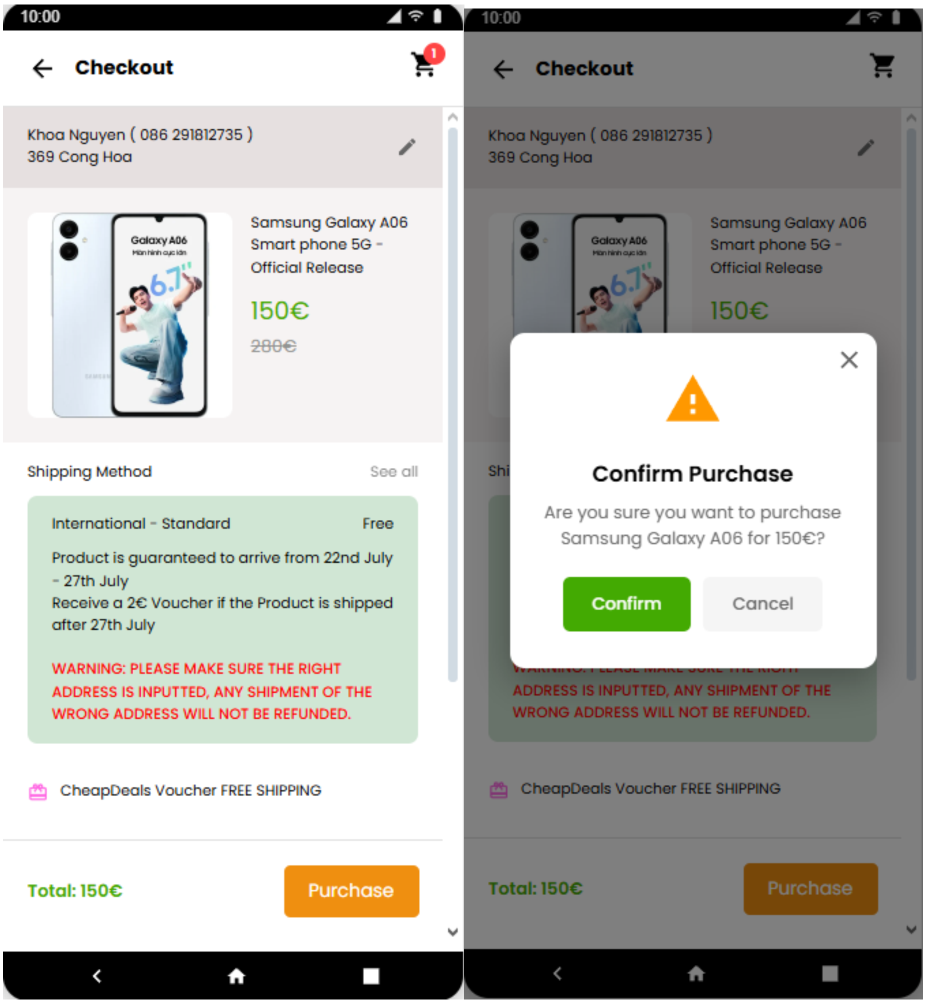
Expiry Date

07 25

CVV

111

Proceed payment with Credit card Visa / Mastercard check, Error when user did not input in all fields



10:00

Checkout

Khoa Nguyen (086 291812735)
369 Cong Hoa

Samsung Galaxy A06 Smart phone 5G - Official Release

150€

~~280€~~

Shipping Method — See all

International - Standard — Free

Product is guaranteed to arrive from 22nd July - 27th July
Receive a 2€ Voucher if the Product is shipped after 27th July

WARNING: PLEASE MAKE SURE THE RIGHT ADDRESS IS INPUTTED, ANY SHIPMENT OF THE WRONG ADDRESS WILL NOT BE REFUNDED.

CheapDeals Voucher FREE SHIPPING

Total: 150€

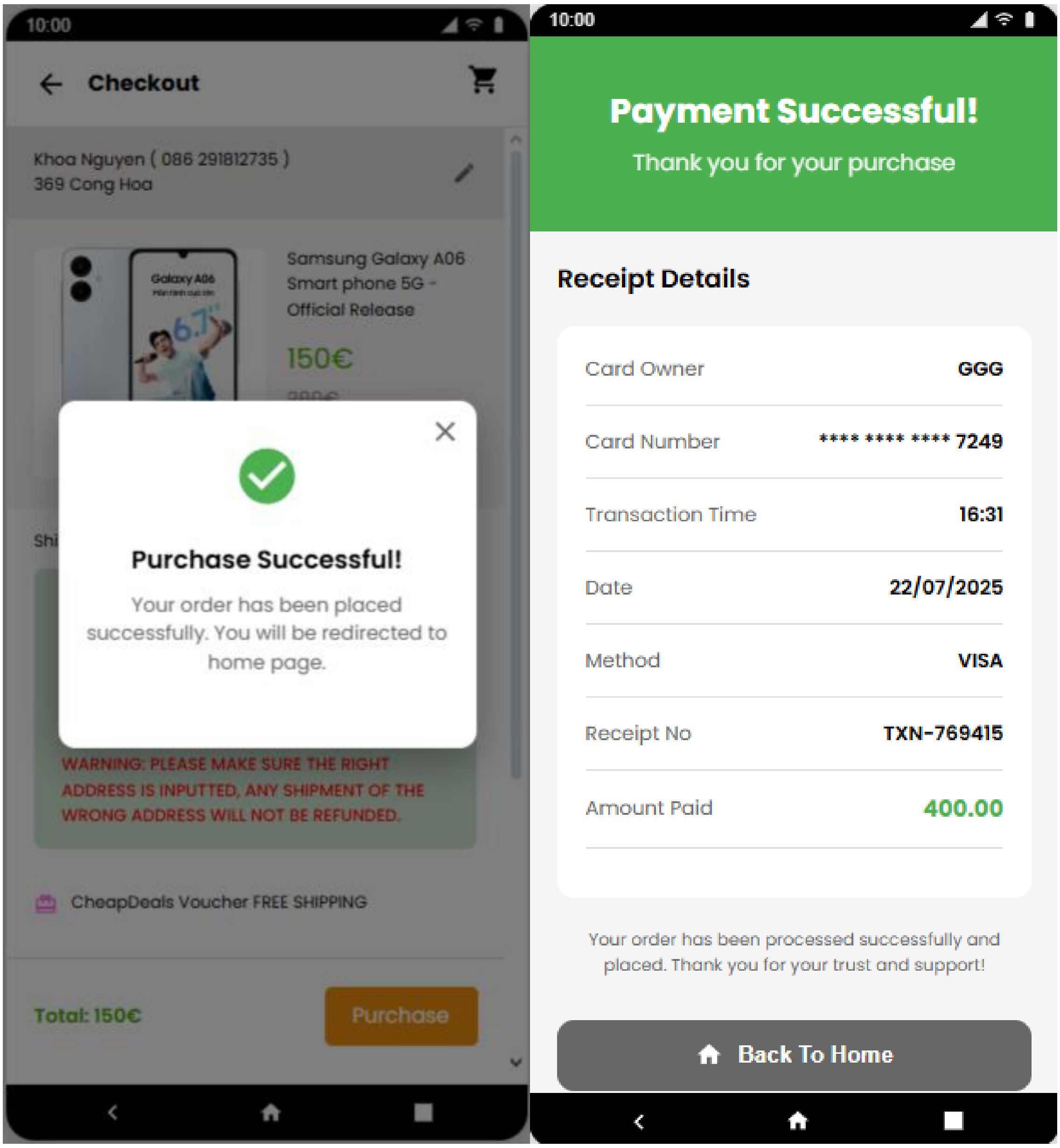
Purchase

Confirm Purchase

Are you sure you want to purchase Samsung Galaxy A06 for 150€?

Confirm — Cancel

Saves User’s information before purchase



Khoa Nguyen (086 291812735)
369 Cong Hoa

Samsung Galaxy A06 Smart phone 5G - Official Release

150€

Purchase Successful!

Your order has been placed successfully. You will be redirected to home page.

WARNING: PLEASE MAKE SURE THE RIGHT ADDRESS IS INPUTTED, ANY SHIPMENT OF THE WRONG ADDRESS WILL NOT BE REFUNDED.

CheapDeals Voucher FREE SHIPPING

Total: 150€

Payment Successful!

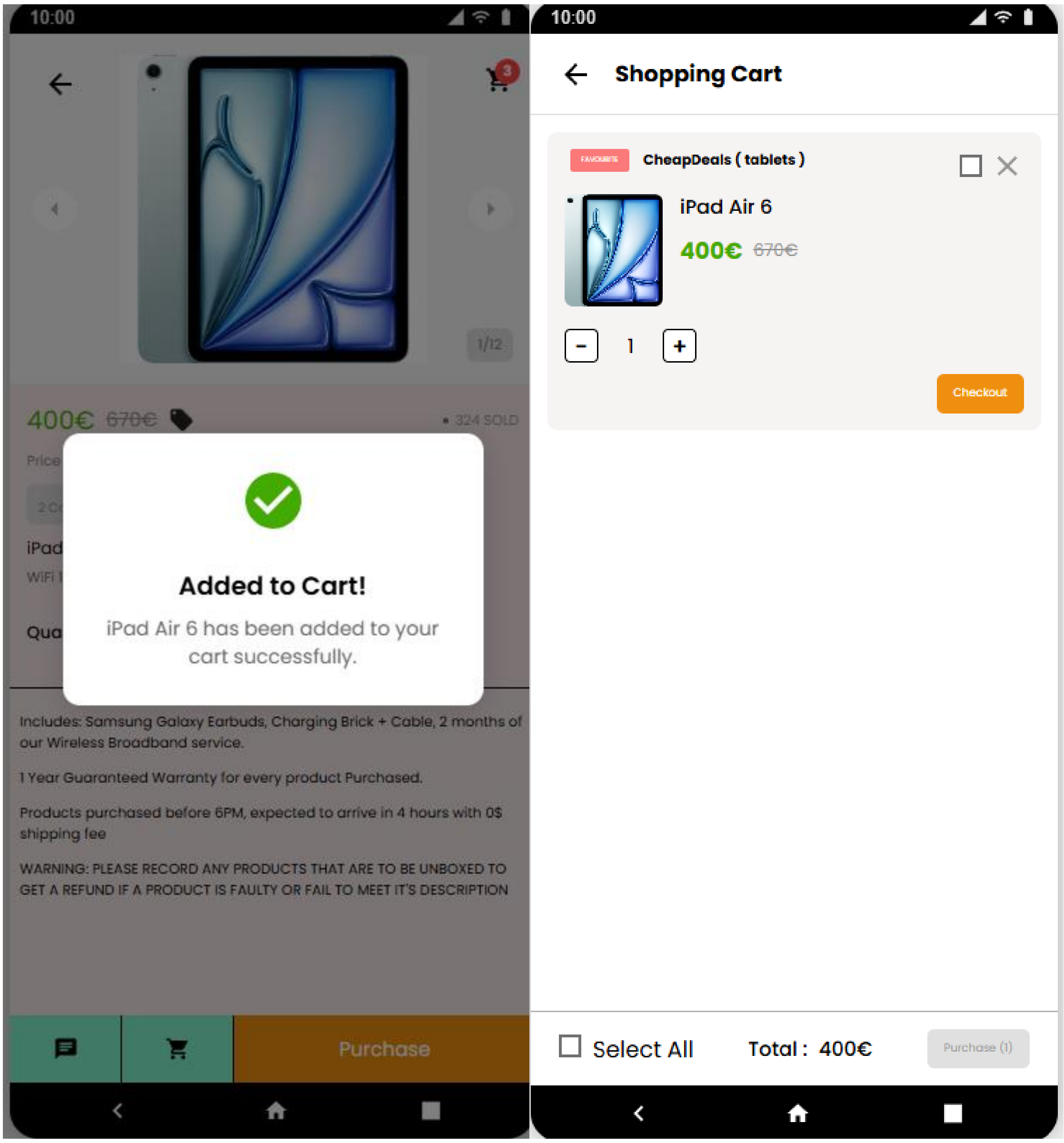
Thank you for your purchase

Receipt Details

Card Owner	GGG
Card Number	**** **** **** 7249
Transaction Time	16:31
Date	22/07/2025
Method	VISA
Receipt No	TXN-769415
Amount Paid	400.00

Your order has been processed successfully and placed. Thank you for your trust and support!

Place and order through mobile app and Real time Bill display after purchase



Added to Cart!

iPad Air 6 has been added to your cart successfully.

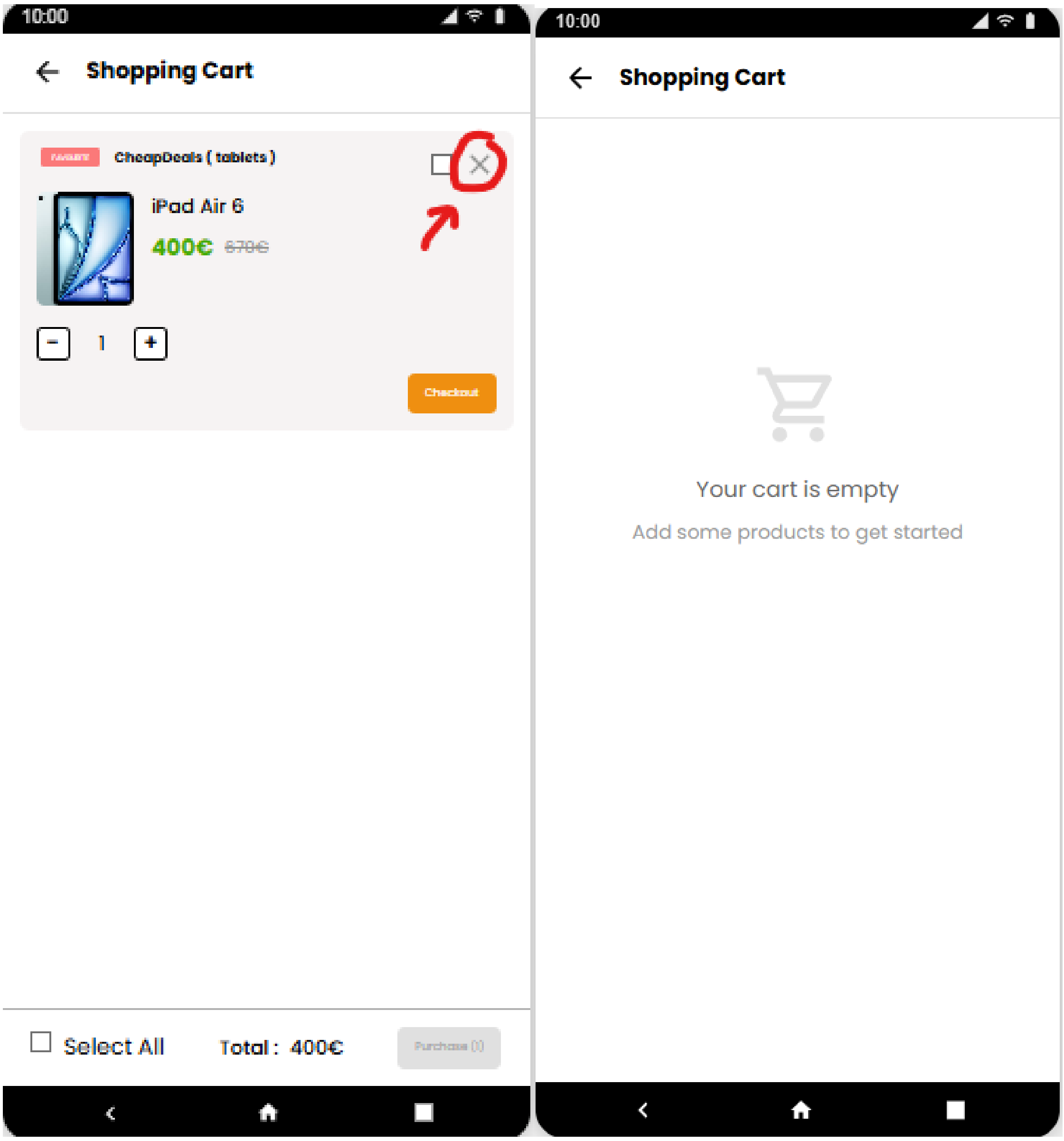
Includes: Samsung Galaxy Earbuds, Charging Brick + Cable, 2 months of our Wireless Broadband service.

1 Year Guaranteed Warranty for every product Purchased.

Products purchased before 6PM, expected to arrive in 4 hours with 0$ shipping fee

WARNING: PLEASE RECORD ANY PRODUCTS THAT ARE TO BE UNBOXED TO GET A REFUND IF A PRODUCT IS FAULTY OR FAIL TO MEET IT'S DESCRIPTION

Add product to cart



Your cart is empty

Add some products to get started

Remove product from cart with “X” icon

4.2.5 Meetings

4.2.5.1. Daily meetings

Meeting agenda:

Attendees: Development team, Scrum Master, Product Owner

Purpose: Maintain consistent updates on task progress, identify blockers, and facilitate coordination between frontend and backend teams for Sprint 2 goals.

Notable meetings:

- **Early Sprint:**
  The team focused on implementing customization logic for packages (**US2.3**) and integrating special request fields (**US2.5**) into the UI. Discussions revolved around data modeling and ensuring compatibility with the backend package creation system.
- **Mid Sprint:**
  Completed and reviewed logic for selecting and upgrading packages (**US5.2**) and placing orders via the mobile app (**US4**). The cart feature (**US4.4**) was implemented to support adding/removing items dynamically. An early test revealed syncing issues with selected items, which were resolved through component state refactoring.
- **Late Sprint:**
  Attention shifted to the payment process. **US6.4** (credit card payment), **US6.5** (VISACheck verification), and **US6.3** (real-time bill display) were tested thoroughly. The confirmation email feature (**US6.6**) was delayed due to Mail API integration issues. A fallback plan was proposed for next sprint.

4.2.5.2 Sprint Meeting

Meeting agenda:

Attendees: Development team, Scrum Master, Product Owner, Business Stakeholders
Purpose: Sprint 2 review and feedback session to assess deliverables and prepare for Sprint 3.

Reviewed Deliverables:

The team demonstrate the prototype with the below features:

- US2.5 – Added “special requests” feature during customization
- US2.3 – Package customization successfully implemented
- US4 – Customers can now place orders through the mobile app
- US5.2 – Support for choosing new/upgrade packages

- US4.4 – Cart allows adding/removing items dynamically
- US6.4 – Secure credit card payment implemented
- US6.5 – Card verification via VISACheck integrated
- US6.3 – Real-time bill calculation and display
- US4.1 – Ordering via phone not implemented
- US6.6 – Confirmation email delayed due to backend issue

Business Stakeholders Feedback:

- Pleased with how the payment process was streamlined

- Emphasized that sending confirmation emails (**US6.6**) is crucial for customer trust and must be prioritized in Sprint 3
- Approved flow of cart and customization features

4.2.5.3 Retrospective meeting

Meeting agenda:
Attendees: Development team, Scrum Master, Product Owner
Purpose: Reflect on successes and identify process improvements from Sprint 2.

What went well:

- Quang Huy: "Real-time bill logic was implemented with minimal bugs."
- Tuan: "VISACheck integration worked smoothly thanks to early planning."
- Khoi Nguyen: "Cart interaction was intuitive and stable across devices."

What could be improved:

- An: "Email functionality should've been tested earlier to avoid delays."
- Khoa: "We should aim to reduce time spent fixing misalignments between UI and backend inputs."

What did not go well:

- General: Late attention to **US6.6** caused unfinished work.

Action Plan:

- Prioritize integration testing at mid-sprint checkpoints
- Assign backend lead to guide implementation of external services (e.g., email)

5. Sprint Three

5.1 Sprint Planning and Sprint Backlog

5.1.1 Sprint Goal

In this Sprint, the development team aims to establish the foundational features needed for the CheapDeals mobile application: enable CSR operations, apply promo codes, and validate order logic in CRM system

- Allow users receive relevant offers through the app (US10.1)
- Allow users can enter a coupon code during ordering or checkout (US11)
- Order via app, users will see a 15% discount notification before payment (US4.3)
- CSR verify the identification of the caller following a standard verification

process (US7)
- CSR accesses existing customer profile (US7.1)
- CRM checks package availability (US9.1)
- CSR view customer enquiries (US8.2)
- CRM calculates total order with discounts (US9.2)

5.1.2 Sprint "Definition of Done"

The Development Team establishes certain criteria known as the **Definition of Done**, which ensures that every deliverable meets a consistent standard of quality.

Following the goal, the selected user stories are:

- All code has been written, committed, and reviewed via pull requests.
- Code is modular, readable, and optimized for maintainability.
- Follows the team's coding standards and naming conventions.
- Meets all **acceptance criteria** defined in the user story.
- Features are manually tested by developers across at least two devices or browsers.
- All major features have associated unit/integration tests where applicable.
- Bug tickets (if any) are created, tracked in Jira, and prioritized for the next sprint.
- Task status is updated in Jira with clear notes or blockers.
- Technical documentation and setup instructions are updated (if feature-specific).

Test case - RG ID	Feature	Steps	Expected Result	Result	Datetime
TC-RG-01	Sign up with Google/Facebook	1. Click "Sign up with Google" or "Facebook" 2. Authenticate the account 3. Enter additional info if required	Account is created and redirected to the dashboard	Pass	23, July
TC-RG-02	Validate after signup	1. Complete signup	Account is verified and	Pass	23, July

		2. Open the confirmation email 3. Click the verification link	ready for sign in		
TC-RG-03	Log in with Google/Facebook	1. Click the sign in with Google/Facebook button 2. Grant access permission	Successfully logged into the system	Pass	23, July
TC-RG-04	Update account info + credit card	1. Go to account settings 2. Update name/info/credit card 3. Click Save	Account and credit card information is updated successfully	Pass	23, July
TC-RG-05	Search & browse packages	1. Go to “Packages” section 2. Enter a keyword 3. Browse the list	Relevant packages are displayed	Pass	23, July
TC-RG-06	View package detail	1. Click on a package from the list	Detailed information of the package is shown	Pass	23, July
TC-RG-07	Select default package	1. Go to package list 2. Select MobileOnly, BroadbandOnly, or TabletOnly	Selected package is set as default	Pass	23, July
TC-RG-08	View order history	1. Navigate to “Order History”	Past orders are displayed correctly	Pass	23, July

TC-RG-09	Choose combination package	1. Go to combination packages 2. Choose a double or triple package	Selected combination is saved successfully	Pass	23, July
TC-RG-10	Customize + add special requests	1. Customize the package 2. Enter special requests	Customization and requests are saved properly	Pass	23, July
TC-RG-11	Place order via app	1. Select a package 2. Click "Place Order" 3. Confirm the order	Order is submitted successfully	Pass	23, July
TC-RG-12	Upgrade or change package	1. Open the menu 2. Select "Upgrade/Change Package"	User is switched to the new or upgraded package	Pass	23, July
TC-RG-13	Place order via call	1. Call the sales hotline 2. CSR confirms the order 3. Proceed to place the order	Order is recorded by the CSR	Pass	23, July
TC-RG-14	Add/remove from cart	1. Open the cart 2. Add or remove items	Cart is updated correctly	Pass	23, July
TC-RG-15	Pay with credit card	1. Choose "Pay with credit card" 2. Enter card details	Payment is processed successfully	Pass	23, July
TC-RG-16	VisaCheck verification	1. Enter Visa card info	Card is validated or	Pass	23, July

		2. System runs VisaCheck validation	rejected if invalid		
TC-RG-17	Confirmation email after payment	1. Complete payment successfully	Confirmation email is sent to the user	Pass	23, July
TC-RG-18	Display real-time bill	1. Navigate to “Billing” section	Real-time bill is displayed with updated info	Pass	23, July
TC-RG-19	Save user info	1. Update user info 2. Logout and sign in again	Updated user information is retained correctly	Pass	23, July
TC-RG-20	CSR validate users	1. CSR inputs caller info 2. Matches with system data	Caller identity is verified accurately	Pass	23, July
TC-RG-21	Offers after registration	1. Complete registration 2. Open the app	Personalized offers are displayed to the user	Pass	23, July
TC-RG-22	Apply coupon	1. Go to checkout 2. Enter a valid promo code	Discount is applied and reflected in total	Pass	23, July
TC-RG-23	15% discount notification	1. Select a package 2. Proceed to payment	A 15% discount notification is shown before payment	Pass	23, July
TC-RG-24	Caller verification by CSR	1. Call the support line 2. CSR asks verification questions	Caller identity is confirmed or rejected	Pass	23, July

TC-RG-25	CRM check package availability	1. CSR checks package in CRM system	Availability status is displayed correctly	Pass	23, July
TC-RG-26	CSR view enquiry form	1. User submits enquiry form 2. CSR opens CRM system	Enquiry details are visible to CSR	Pass	23, July
TC-RG-27	CRM calculates total order + discount	1. Select package and enter promo 2. Proceed to checkout	Final price includes correct discount calculation	Pass	23, July
TC-RG-28	Email confirmation after payment	1. Complete payment successfully	Confirmation email is delivered to the user	Pass	23, July

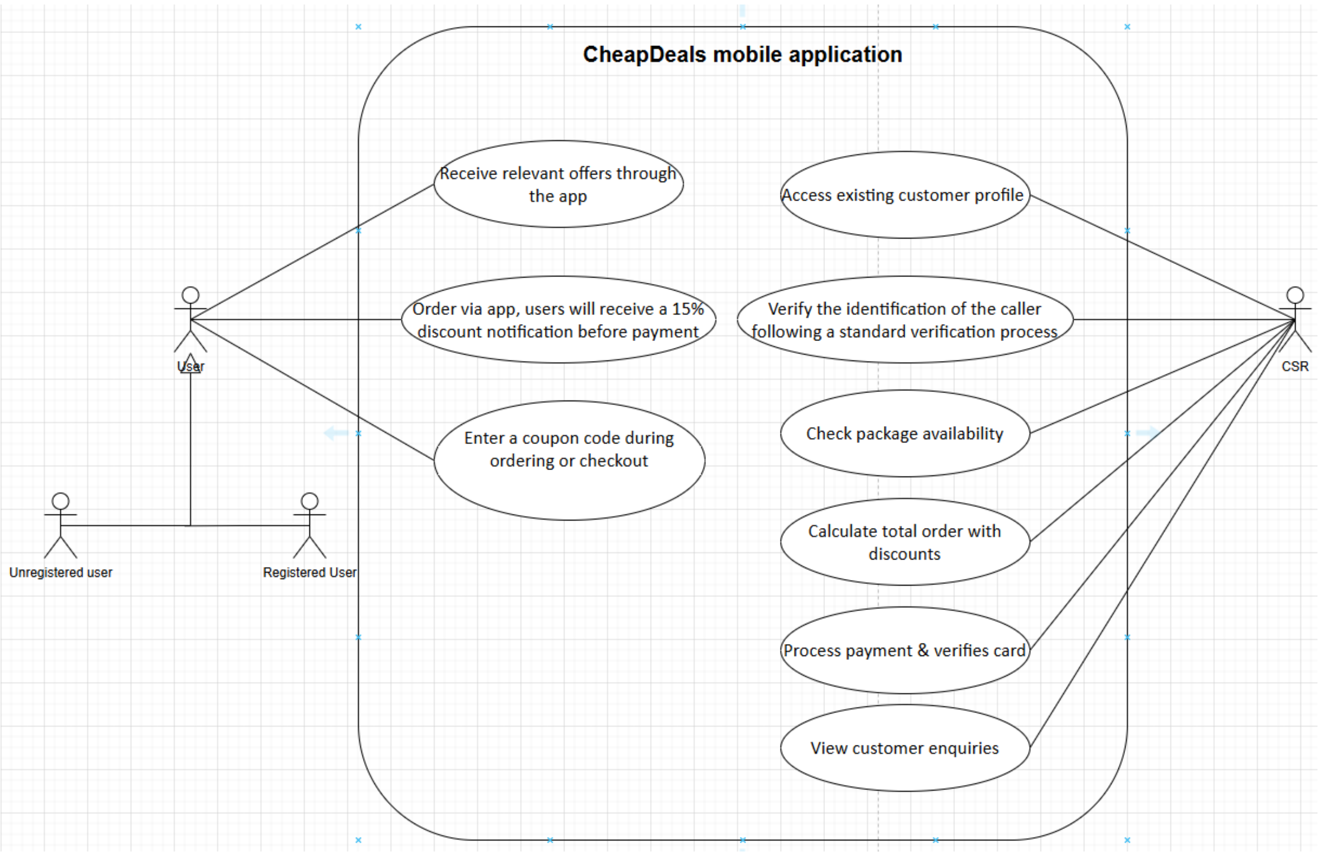
5.1.3 Sprint Backlog

User story	**Description**	**Estimation (Point)**	**Status**
US1.2	Receive confirmation email after registration	3	Done
US10.1	Users receive relevant offers through the app	1	Done
US11	Users can enter a coupon code during ordering or checkout	1	Done
US4.3	Order via app, users will receive a 15% discount notification before payment	1	Done
US7	CSR verify the identification of the	2	Done

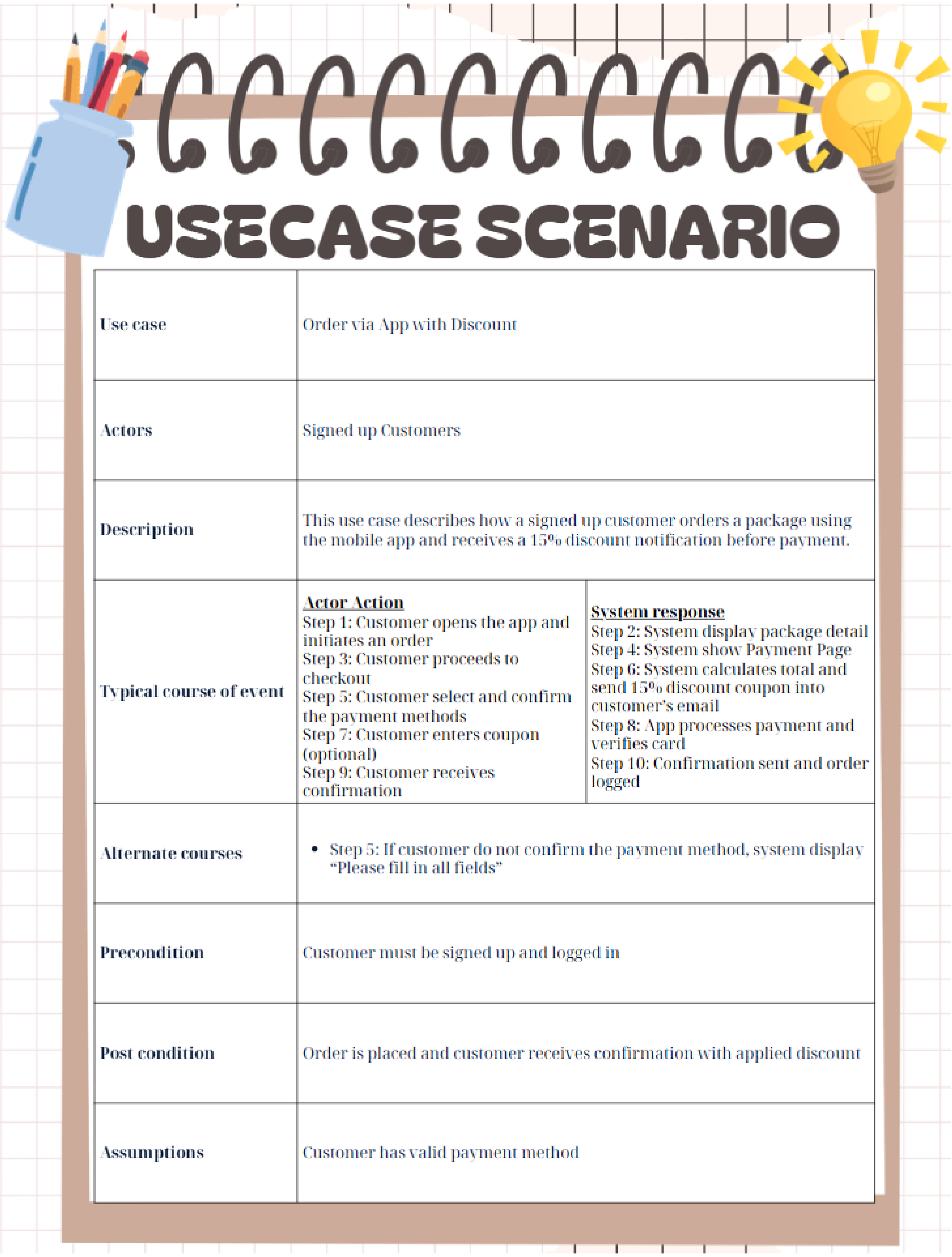
	caller following a standard verification process		
US9.1	CRM checks package availability	2	Done
US8.2	CSR view customer enquiries	2	Done
US9.2	CRM calculates total order with discounts	2	Done
US4.1	Place an order through calling the Sales department via mobile app	2	Done
US6.6	Send confirmation email after successful payment	3	Done
TOTAL		19	

5.2 Sprint Cycle

5.2.1. Modelling


CheapDeals mobile application
Receive relevant offers through the app
Order via app, users will receive a 15% discount notification before payment
Enter a coupon code during ordering or checkout
Access existing customer profile
Verify the identification of the caller following a standard verification process
Check package availability
Calculate total order with discounts
Process payment & verifies card
View customer enquiries
User
Unregistered user
Registered User
CSR

Use Case Scenario:



USECASE SCENARIO

Use case	Order via App with Discount
Actors	Signed up Customers
Description	This use case describes how a signed up customer orders a package using the mobile app and receives a 15% discount notification before payment.
Typical course of event	**Actor Action** Step 1: Customer opens the app and initiates an order Step 3: Customer proceeds to checkout Step 5: Customer select and confirm the payment methods Step 7: Customer enters coupon (optional) Step 9: Customer receives confirmation **System response** Step 2: System display package detail Step 4: System show Payment Page Step 6: System calculates total and send 15% discount coupon into customer's email Step 8: App processes payment and verifies card Step 10: Confirmation sent and order logged
Alternate courses	- Step 5: If customer do not confirm the payment method, system display "Please fill in all fields"
Precondition	Customer must be signed up and logged in
Post condition	Order is placed and customer receives confirmation with applied discount
Assumptions	Customer has valid payment method

USECASE SCENARIO

Use case	Access existing customer profile	
Actors	CSR	
Description	This use case describes the process of CSR viewing a list of existing signed up customers	
Typical course of event	**Actor Action** Step 1: CSR Admin clicks on the "Users" button in the side navigation bar	**System Response** Step 2: System displays the list of signed up customers with their name, phone number, status of each user, join date
Alternate courses	- Step 2: If customers use "Continue as Guest" function, then the list of user will not displays them	
Precondition	Customers has logged in	
Post condition	A list of existing signed up customers is displayed	
Assumptions	None at this time	

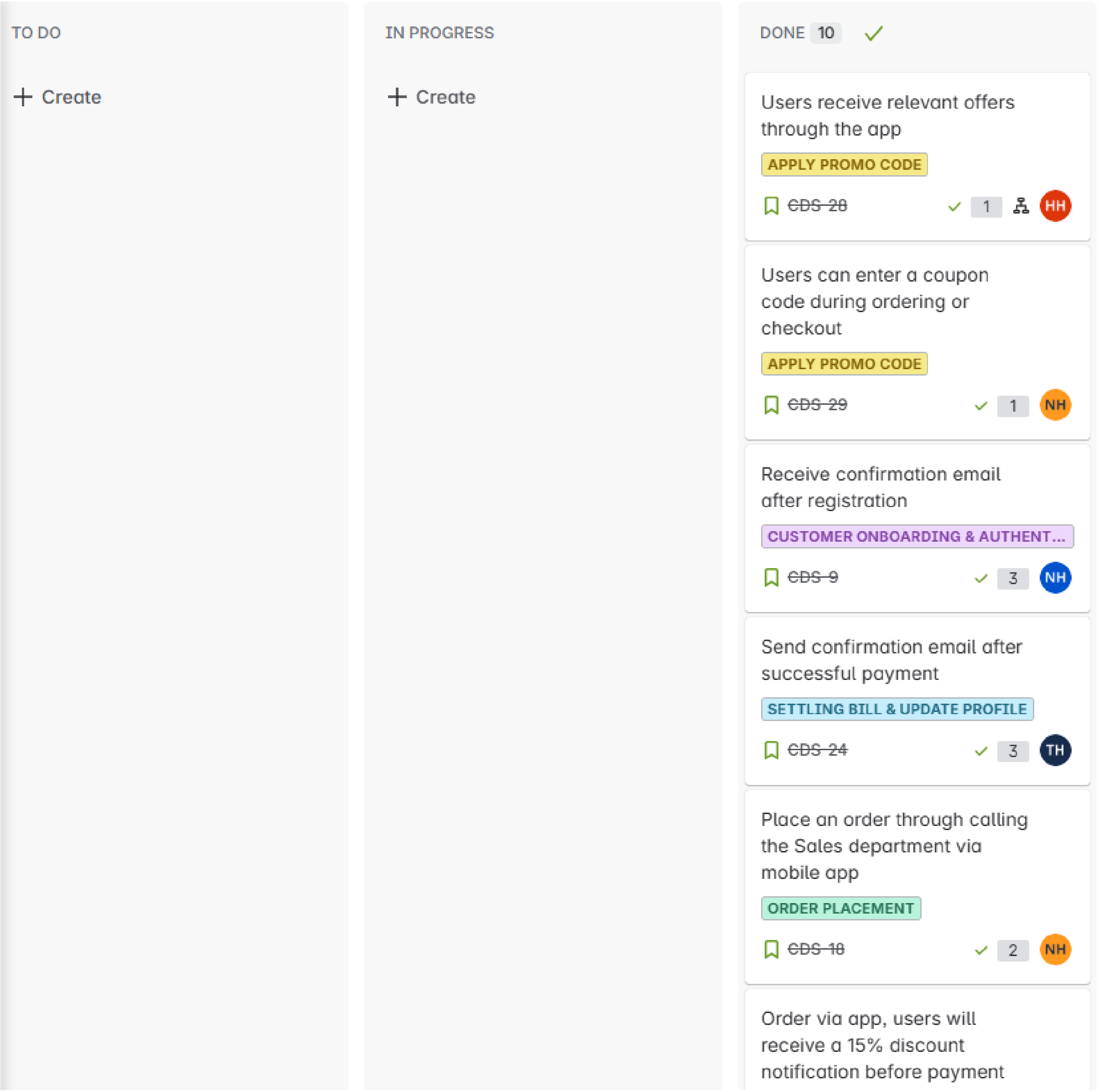
USECASE SCENARIO

Use Case	View customer enquiries	
Actors	CSR	
Description	This use case outlines how CSR retrieve and view all customer enquiries	
Typical course of event	**Actor Action** Step 1: CSR Admin clicks on the "Enquiries" button in the side navigation bar	**System Response** Step 2: System displays the Enquiry Management list with customers name, email of customers, their enquiries, status of that enquiries, date
Alternate courses		
Precondition	CSR Admin has logged in	
Post condition	Enquiry Management list are displayed	
Assumptions	None at this time	

USECASE SCENARIO

Use case	Check package availability	
Actors	CSR	
Description	This use case outlines how CSR accesses a list of all available packages and views detailed information about each one.	
Typical course of event	**Actor Action** Step 1: CSR Admin clicks on the "Packages" button in the side navigation bar Step 3: CSR Admin clicks on the Pen icon to view package detail and they can edits it.	**System Response** Step 2: System displays the list of packages Step 4: System displays the list of package detail with name, current price, original price, category, discount percentage, description and status of each package that admin select to
Alternate courses		
Precondition	The CSR Admin has logged in	
Post condition	Package detail are displayed	
Assumptions	None at this time	

5.2.2 Scrum Board



TO DO

+ Create

IN PROGRESS

+ Create

DONE 10 ✓

Users receive relevant offers through the app

APPLY PROMO CODE

~~CDS-28~~ ✓ 1 HH

Users can enter a coupon code during ordering or checkout

APPLY PROMO CODE

~~CDS-29~~ ✓ 1 NH

Receive confirmation email after registration

CUSTOMER ONBOARDING & AUTHENT...

~~CDS-9~~ ✓ 3 NH

Send confirmation email after successful payment

SETTLING BILL & UPDATE PROFILE

~~CDS-24~~ ✓ 3 TH

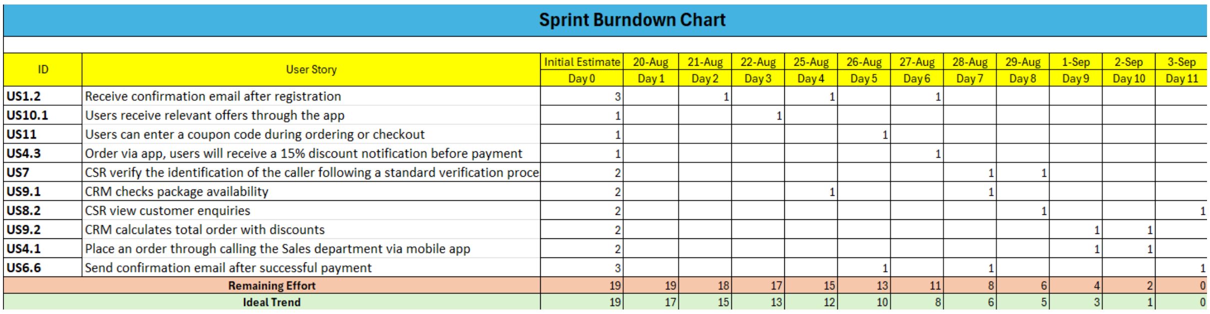
Place an order through calling the Sales department via mobile app

ORDER PLACEMENT

~~CDS-18~~ ✓ 2 NH

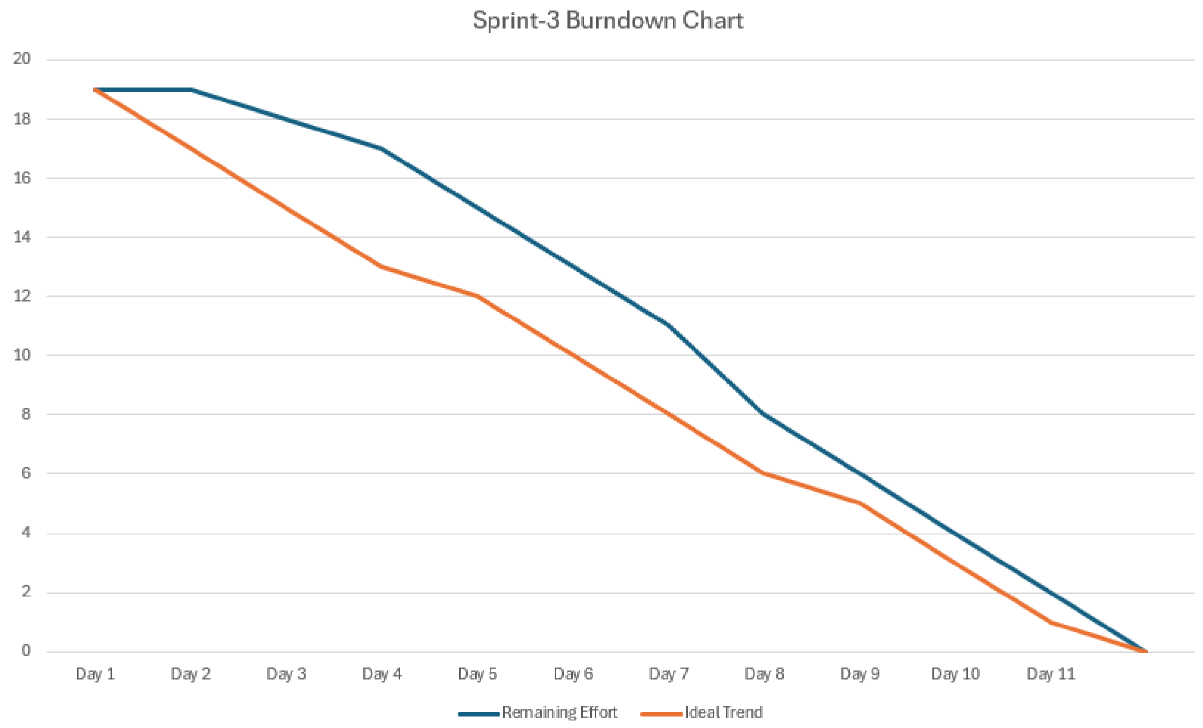
Order via app, users will receive a 15% discount notification before payment

5.2.3 Burndown chart



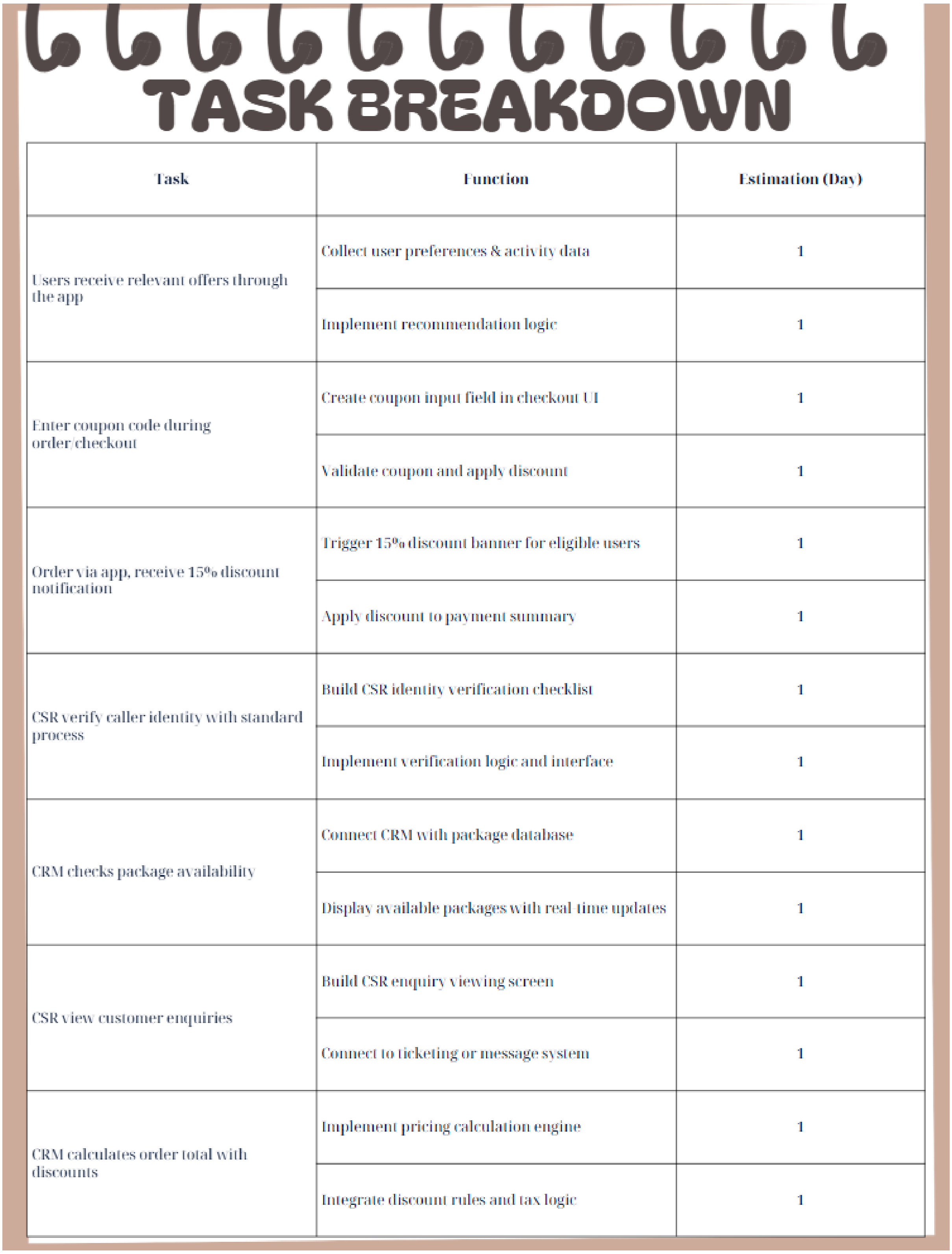
Sprint Burndown Chart

ID	User Story	Initial Estimate	20-Aug	21-Aug	22-Aug	25-Aug	26-Aug	27-Aug	28-Aug	29-Aug	1-Sep	2-Sep	3-Sep
		Day 0	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10	Day 11
US1.2	Receive confirmation email after registration	3		1		1		1					
US10.1	Users receive relevant offers through the app	1			1								
US11	Users can enter a coupon code during ordering or checkout	1					1						
US4.3	Order via app, users will receive a 15% discount notification before payment	1						1					
US7	CSR verify the identification of the caller following a standard verification proce	2							1	1			
US9.1	CRM checks package availability	2				1			1				
US8.2	CSR view customer enquiries	2								1			1
US9.2	CRM calculates total order with discounts	2									1	1	
US4.1	Place an order through calling the Sales department via mobile app	2									1	1	
US6.6	Send confirmation email after successful payment	3					1		1				1
Remaining Effort		19	19	18	17	15	13	11	8	6	4	2	0
Ideal Trend		19	17	15	13	12	10	8	6	5	3	1	0


Sprint-3 Burndown Chart
20
18
16
14
12
10
8
6
4
2
0
Day 1
Day 2
Day 3
Day 4
Day 5
Day 6
Day 7
Day 8
Day 9
Day 10
Day 11
Remaining Effort
Ideal Trend

Sprint Backlogs Task Breakdown:

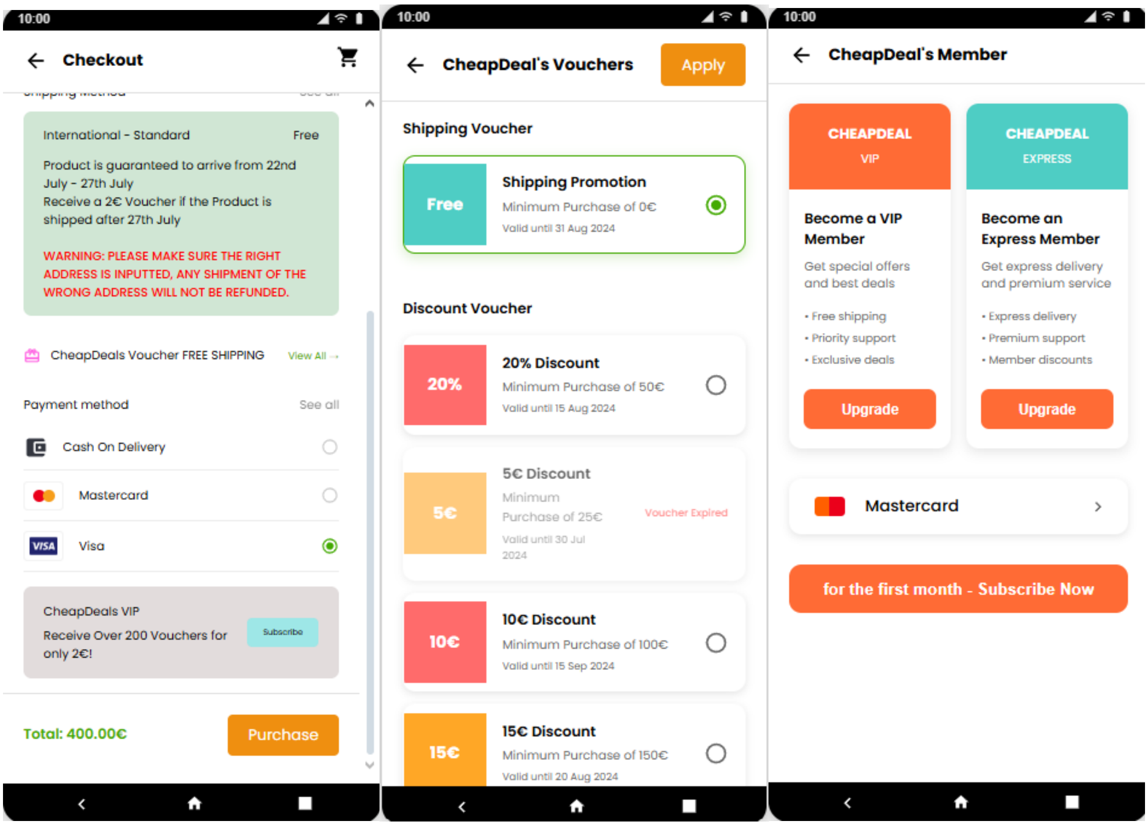
Sprint three



TASK BREAKDOWN

Task	Function	Estimation (Day)
Users receive relevant offers through the app	Collect user preferences & activity data	1
	Implement recommendation logic	1
Enter coupon code during order/checkout	Create coupon input field in checkout UI	1
	Validate coupon and apply discount	1
Order via app, receive 15% discount notification	Trigger 15% discount banner for eligible users	1
	Apply discount to payment summary	1
CSR verify caller identity with standard process	Build CSR identity verification checklist	1
	Implement verification logic and interface	1
CRM checks package availability	Connect CRM with package database	1
	Display available packages with real-time updates	1
CSR view customer enquiries	Build CSR enquiry viewing screen	1
	Connect to ticketing or message system	1
CRM calculates order total with discounts	Implement pricing calculation engine	1
	Integrate discount rules and tax logic	1

5.2.4 Development



10:00

← **Checkout**

Shipping method See all

International - Standard Free

Product is guaranteed to arrive from 22nd July - 27th July
Receive a 2€ Voucher if the Product is shipped after 27th July

WARNING: PLEASE MAKE SURE THE RIGHT ADDRESS IS INPUTTED, ANY SHIPMENT OF THE WRONG ADDRESS WILL NOT BE REFUNDED.

CheapDeals Voucher FREE SHIPPING View All →

Payment method See all

- Cash On Delivery ○
- Mastercard ○
- Visa ●

CheapDeals VIP
Receive Over 200 Vouchers for only 2€! Subscribe

Total: 400.00€ Purchase

10:00

← **CheapDeal's Vouchers** Apply

Shipping Voucher

Free	**Shipping Promotion** Minimum Purchase of 0€ Valid until 31 Aug 2024	●

Discount Voucher

20%	**20% Discount** Minimum Purchase of 50€ Valid until 15 Aug 2024	○
5€	5€ Discount Minimum Purchase of 25€ Valid until 30 Jul 2024	Voucher Expired
10€	**10€ Discount** Minimum Purchase of 100€ Valid until 15 Sep 2024	○
15€	**15€ Discount** Minimum Purchase of 150€ Valid until 20 Aug 2024	○

10:00

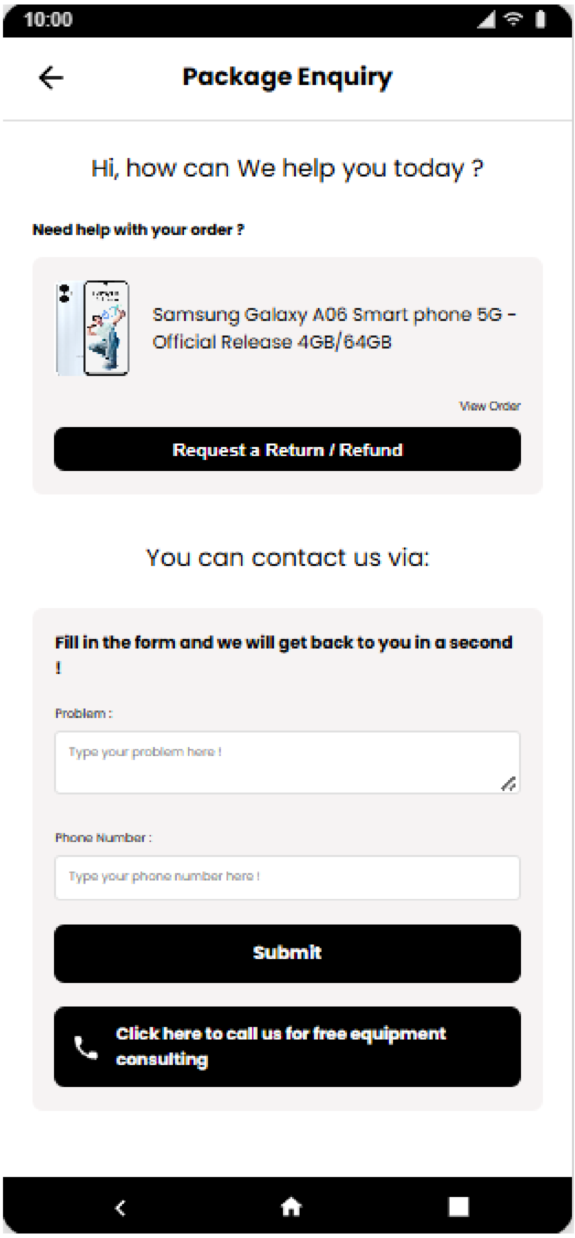
← **CheapDeal's Member**

CHEAPDEAL VIP	CHEAPDEAL EXPRESS
Become a VIP Member	**Become an Express Member**
Get special offers and best deals	Get express delivery and premium service
• Free shipping • Priority support • Exclusive deals	• Express delivery • Premium support • Member discounts
Upgrade	Upgrade

Mastercard ›

for the first month - Subscribe Now

Users are offered to upgrade their membership and receive more deals, and enter a coupon code during ordering or checkout



10:00

Package Enquiry

Hi, how can We help you today ?

Need help with your order ?

Samsung Galaxy A06 Smart phone 5G - Official Release 4GB/64GB

View Order

Request a Return / Refund

You can contact us via:

Fill in the form and we will get back to you in a second !

Problem :

Type your problem here !

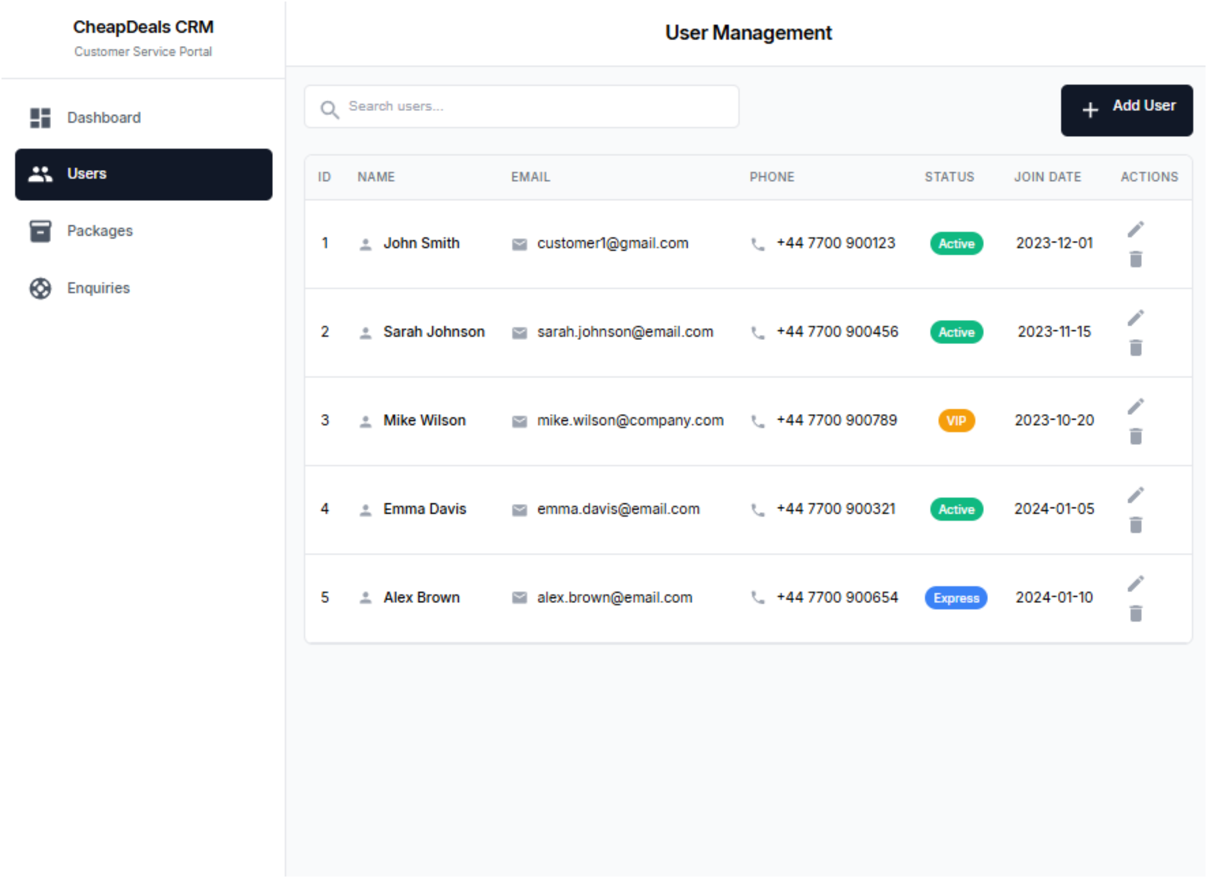
Phone Number :

Type your phone number here !

Submit

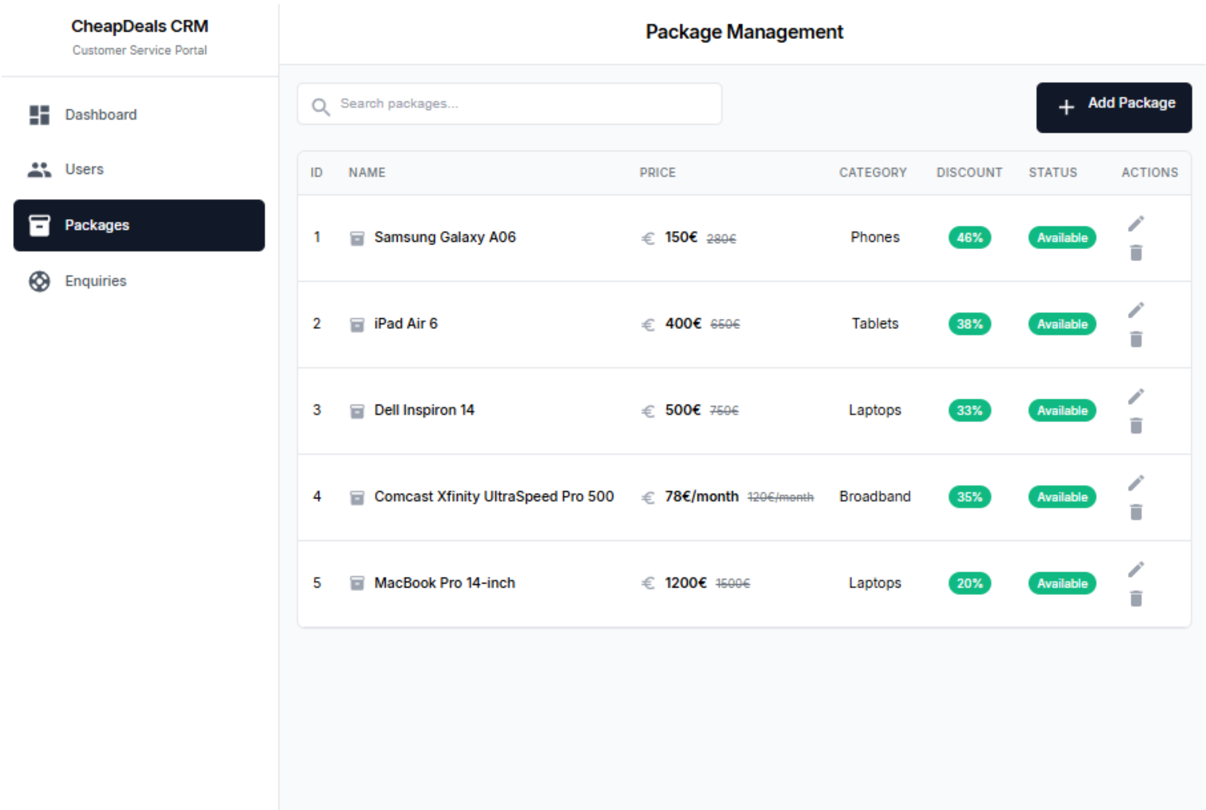
Click here to call us for free equipment consulting

Customers place an order through calling the Sales department via mobile app and request an enquiry



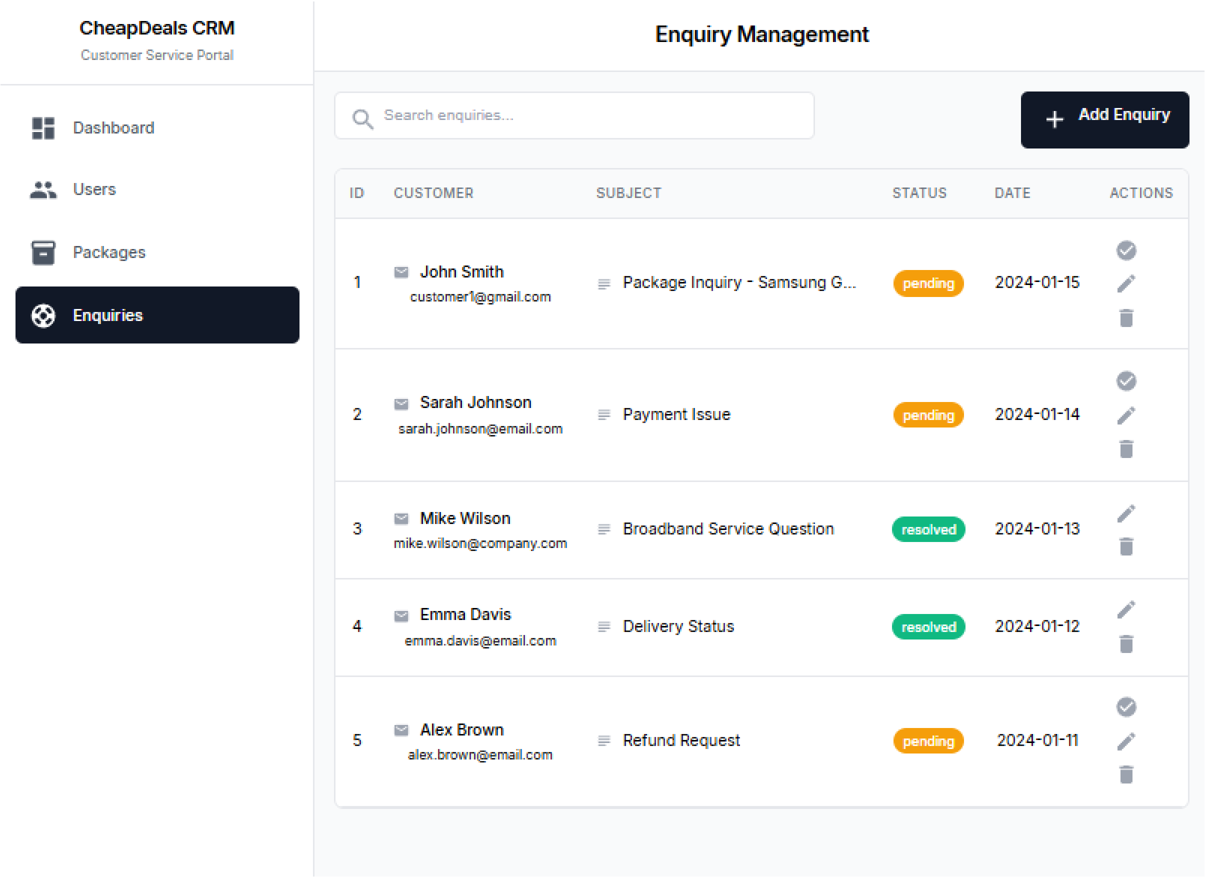
ID	NAME	EMAIL	PHONE	STATUS	JOIN DATE	ACTIONS
1	John Smith	customer1@gmail.com	+44 7700 900123	Active	2023-12-01	
2	Sarah Johnson	sarah.johnson@email.com	+44 7700 900456	Active	2023-11-15	
3	Mike Wilson	mike.wilson@company.com	+44 7700 900789	VIP	2023-10-20	
4	Emma Davis	emma.davis@email.com	+44 7700 900321	Active	2024-01-05	
5	Alex Brown	alex.brown@email.com	+44 7700 900654	Express	2024-01-10	

CSR verify the identification of the caller following a standard verification process



ID	NAME	PRICE	CATEGORY	DISCOUNT	STATUS	ACTIONS
1	Samsung Galaxy A06	€ 150€ ~~280€~~	Phones	46%	Available	
2	iPad Air 6	€ 400€ ~~650€~~	Tablets	38%	Available	
3	Dell Inspiron 14	€ 500€ ~~750€~~	Laptops	33%	Available	
4	Comcast Xfinity UltraSpeed Pro 500	€ 78€/month ~~120€/month~~	Broadband	35%	Available	
5	MacBook Pro 14-inch	€ 1200€ ~~1500€~~	Laptops	20%	Available	

CRM checks package availability and total order with discount



Enquiry Management

ID	CUSTOMER	SUBJECT	STATUS	DATE	ACTIONS
1	John Smith customer1@gmail.com	Package Inquiry - Samsung G...	pending	2024-01-15	✓ ✎ 🗑
2	Sarah Johnson sarah.johnson@email.com	Payment Issue	pending	2024-01-14	✓ ✎ 🗑
3	Mike Wilson mike.wilson@company.com	Broadband Service Question	resolved	2024-01-13	✎ 🗑
4	Emma Davis emma.davis@email.com	Delivery Status	resolved	2024-01-12	✎ 🗑
5	Alex Brown alex.brown@email.com	Refund Request	pending	2024-01-11	✓ ✎ 🗑

CSR view customers enquiries

5.2.5 Meetings

5.2.5.1 Daily meetings

Meeting agenda:

Attendees: Development team, Scrum Master, Product Owner

Purpose: Daily standups were held to synchronize progress, unblock team members, and ensure critical MVP features such as email confirmation and enquiry handling were implemented smoothly.

Notable meetings:

- **Early Sprint:**
  Sprint planning prioritized outstanding features: confirmation email after payment (US6.6), customer enquiry (US7.1), and CSR package access (US8.1). The team discussed Firebase configuration for triggering email receipts and reviewed UI layout for the enquiry screen.

- **Mid Sprint:**
  Developers reported successful Firebase integration for enquiry form. The CSR

portal to view enquiries and packages was tested internally. A Firebase permission issue arose and was resolved after defining role-based access controls.

- **Late Sprint:**
  Final testing confirmed email confirmations were triggered post-payment. UI for customer enquiries was polished and linked to backend data. CSR screens received final visual tweaks. Team started preparing for sprint demo.

5.2.5.2 Sprint meetings

Meeting agenda:
Attendees: Development team, Scrum Master, Product Owner, Business Stakeholders
Purpose: Review deliverables from Sprint 3, demonstrate new functionalities, and validate MVP completeness.

Reviewed Deliverables:

- US6.6 – Confirmation email sent to customer after payment
- US7.1 – Customer enquiry form implemented and submitted data stored
- US8.1 – CSR can access all available packages
- US8.2 – CSR can view and manage customer enquiries
- US9.2 – Card details verified; total calculated with discount and promo code

Customer Feedback Highlights:

- Emphasized the importance of responsive UI before launch
- Users found the enquiry form intuitive and appreciated quick response confirmation.
- CSR testers confirmed they could efficiently access packages and resolve customer queries via the new backend interface.

5.2.5.3 Retrospective meeting

Meeting agenda:
Attendees: Development team, Scrum Master, Product Owner
Purpose: Reflect on team performance, identify areas for improvement, and optimize workflow for the final sprint.

What went well:

- Tuan: “Enquiry logic and data sync between frontend and backend worked perfectly.”
- Vi An: “Firebase triggers for emails functioned smoothly.”
- Khoa: “CSR dashboard made package viewing more efficient for internal testing.”

What could be improved:

- Huy: “Responsive layout should’ve been tested earlier in the sprint.”
- Khoi Nguyen: “Error handling could be more user-friendly, especially for failed promo codes.”

What did not go well:

- General: Mobile UI responsiveness still had minor issues at demo time
- Product Owner: Noted that cross-device testing should begin earlier in future sprints

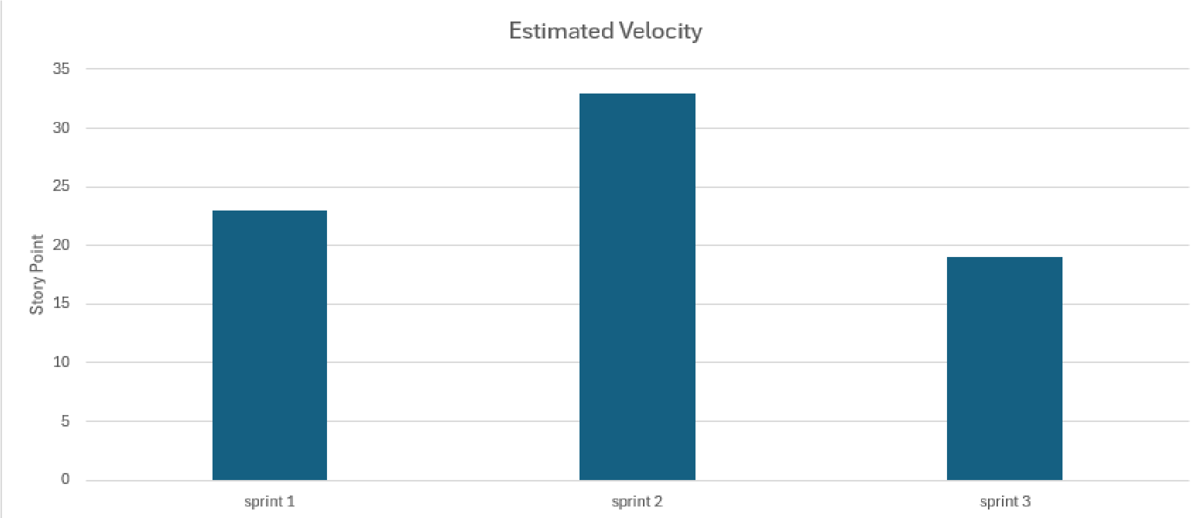
Action Plan:

- Include responsive testing checklist in future sprint midpoints
- Conduct design QA before the final week of the sprint

6. Conclusion

Over the course of three sprints, the team demonstrated steady progress in both feature development and collaboration. Sprint 1 focused on user onboarding and package browsing, laying the foundation for the CheapDeals platform. Sprint 2 built upon this with key ordering and payment features, while Sprint 3 completed the MVP with CSR support and backend logic integration.

Each sprint showed increasing team coordination, improved task estimation accuracy, and a maturing Scrum workflow. The team's velocity stabilized between 19–23 story points per sprint, indicating sustainable performance. Stakeholder feedback throughout the process affirmed that the product aligned with user needs, and the system is now ready for final polishing.



Estimated Velocity for Next Sprint:

The projected **estimated velocity for Sprint 4 is 20–22 story points**. This sprint will focus on:

- Final bug fixes
- UI polishing
- QA testing
- Deployment preparations

Individual Report:

Module COMP1807 – Agile Development with Scrum was an eye-opening experience that reshaped my approach to teamwork, software development, and iterative design. Throughout the course, I not only gained expertise in building mobile and web applications, but also gained a deeper understanding of how Agile teams work effectively on real-world projects.

Before this course, I had very little experience working in a structured Scrum environment. By the end, I can confidently say that I understood how to break down complex requirements into user stories, plan and execute sprints, manage the backlog, and deliver Minimum Viable Products (MVPs).

Our team consists of five members: Tran Huu Hoang Tuan (Full-stack Developer, Scrum Master), Nguyen Vi An (Full-stack Developer, QA), Pham Duy Quang Huy (Full-stack Developer), Nguyen Anh Khoa (Full-stack Developer, UI/UX) and Huynh Khoi Nguyen (Full-stack Developer, UI/UX). Right from the first sprint, we worked together to define roles and assign tasks. We started by analyzing the customer problem – CheapDeals.com needed a system to replace inefficient phone interactions with customers with a responsive app and CRM system.

My main contributions include:

- Creating the backlog through user stories and running 3 sprints.
- Participating in Planning Poker discussions to accurately estimate user stories.
- Testing the interactions between frontend and backend APIs, especially account information and order submission.
- Collaborated with the QA team to ensure that the completed features met the acceptance criteria.

Team Contribution Assessment:

- Tuan (Scrum Master) demonstrated leadership, ensuring effective meetings and tasks were completed on schedule. He also handled complex backend logic such as authentication and payment APIs.
- An contributed heavily to testing the user interface (UI) and identifying major usability bugs across devices. He also analyzed user requirements into user stories, organized planning poker estimations, created backlogs through user stories, and ran 3 sprints using Jira
- Huy designed the use case scenarios table
- Khoa provided visual flow of the application and CSR portal, provided visual UI mockups, and frontend code.
- Nguyen – Serves as a bridge between development and interface planning, ensuring features like search, cart updates, and dynamic filters work reliably.

Work contribution breakdown

Team/Group Name : 1

Team member name	Student ID	Individual overall work contribution (%)	Additional notes on task description	Signature
Student: Tran Huu Hoang Tuan	GCS230462	20%	Coding and deploy the demo. Scrum process, review all sections and support another member to finalize result.	Tuan
Student: Nguyen Vi An	GCS230205	20%	3 sprint, MoSCoW, review and support another sections	An
Student: Huynh Khoi Nguyen	GCS230231	20%	Figma UI Design, Developement, review and support another sections	Nguyen
Student: Nguyen Anh Khoa	GCS230224	20%	Figma UI Design, Developement, review and support another sections	Khoa
Student: Pham Duy Quang Huy	GCS230135	20%	Use case scenarios, review and support another sections	Huy
				Total 100%

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Declaration of AI Use

I have used AI while undertaking my assignment in the following ways:

1. To develop research questions on the topic – NO
2. To create an outline of the topic – NO
3. To explain concepts – YES
4. To support my use of language – NO
5. To summarise the following articles/resources – Yes