SHELL STAFF COOPERATIVE INVESTMENT AND THRIFT SOCIETY LIMITED

Business Requirements Document

Software Business Solutions Consulting

Delivering Differently

DOCUMENT INFORMATION AND APPROVALS

PROJECT DETAILS

Project Name:	**COOPLAG Online Marketplace Platform**
Project ID:	
Project Manager Name:	**Oluwatosin Adimula**
Lead Developer Name:	**Emmanuel Okeke**

VERSION HISTORY

Version #	Date	Author / Revised By	Reason for change
1.0	14 -10-2020	Adimula Oluwatosin	First Release
1.1	19-19-2020	Adimula Oluwatosin	Updated the document

This document is the Business Requirements Document for the Online Marketplace Platform, and accurately reflects the current understanding of business requirements. Following approval of this document, requirement changes will be governed by the project's change management process including impact analysis, appropriate reviews and approvals.

DOCUMENT APPROVALS

Approver Name	Project Role	Signature/Electronic Approval	Date
Victor Iwenya	Program Manager, SBSC Africa		
Idris Alli	Lead PMO, SBSC		
Oluwatosin Adimula	Project Manager, SBSC		
Kinsley Ogundayo	Project Stakeholder COOPLAG		
Aminat Elekuru	Project Owner COOPLAG		

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1 INTRODUCTION

1.1 PROJECT BACKGROUND/PURPOSE

The purpose of this project is to develop and support a modern user-friendly e-commerce website to power an Online Exhibition/ Virtual trade expo that will be fully integrated with payment gateway to support electronic payments. The website will be accessed by anyone world-wide and accept local and international debit and credit cards. Users should be able to logon from any device- laptop, desktop, tablet or mobile phone to register and make purchases, subscribe to manage stores, upload products and track deliveries. The platform will have interfaces for Vendors (Vendors), Customers and Admin.

The platform will be integrated to CoopMan, Paystack, Flutterwave or Interswitch's Payment Gateway for online payment processing via credit and debit cards.

1.2 DOCUMENT PURPOSE

This document defines the detailed business rules and basic functional requirements of Cooplag Online Marketplace Platform.

1.3 DOCUMENT CONVENTIONS

Although, this document is intended as a set of detailed business rules and specific functional requirements, it is not design centric. Some basic technical information regarding UI layouts have been included with the requirements description. This is to enhance ease of understanding for the intended audience.

1.4 INTENDED AUDIENCE

The primary intended audience for this document are:

AUDIENCE	ROLE	PURPOSE
Cooplag	Business owner	Platform owner and responsible for day-to-day operations.
Software Business Solutions Consulting (SBSC)	Lead PMO, Project Manager UI Designers Business Analyst Application Architect Developers Quality Assurance Team	Responsible for providing technical support during the initial production, integration, deployment, user acceptance testing and post go-live operations

2 PROJECT SCOPE

2.1 SCOPE OVERVIEW

- Design, develop, and deploy a seamless pre-registration for COOPLAG Members, registration and profile management facilities for Customers and Vendors.

- Ability to browse through the products offered by vendors based on the different categories, favourite and best or top selling products and checkout using the different payment options.

- Adequate searching mechanisms for easy and quick access to particular vendor, products and services.

- Seamless reporting and analytical dashboard mechanism for Vendors and Cooplag Users to see the sales of products based on different criteria over a specified period of time.

- Electronic Ticketing System and Raffle Draw capabilities.

- One-stop-shop access to Vendors by Customers.

- Application must have robust security and audit features with capabilities to protect user data from breaches as well as auditability of the platform.

- Continuous application maintenance and support post-implementation.

2.2 PROJECT IN SCOPE

The following features below would be designed and developed for the Cooplag Online Market Place:

USER	SCOPE
Cooplag Admin	The Shell Staff Cooperative investment and Thrift Society Limited, Lagos (COOPLAG) is the provider of the Online Market Place (including API's). As such, they require administrative oversight over the use of the platform and activities of others users of the system. - Manage Customers and Vendors - Manage the Cooplag Members **Deliverables** - Web Interface o Admin User o Vendor Users.

	o Customer Module (Guest and Cooplag Members) • API's 　　o CoopMan eshop Integration 　　o Other Payment Gateway 　　o Logistics/ Shipping Companies API • Electronic Rewards/ Raffle Draws 　　o Consolation Prizes 　　o Custom Star Prize 　　o Main Star Prize
Vendors	This refers to companies providing products and services which will be consumed or purchased by the end users. Vendors are categorized into Sponsors, Partners, Super and Normal **Deliverable** • APIs • Web Platform 　　o Onboard Vendors 　　o Update Vendor Profile Account 　　o Product management 　　o Coupon Management 　　o Reporting and Analytical dashboard 　　o Category Management 　　o Messaging Services
Customer	This refers to the end users who will visit the Cooplag online market place to surf and shop from the amazing and luxurious categories of products offered on the platform. Customers will have access to the Service via: • Cooplag Members will be Authenticated using the CoopMan Authenticator • Create an account on the platform • Update their account and billing details • Checkout their orders • Track their orders • Rate Vendors • Send/receive messages to/from the vendors and admin • Opportunity to win amazing prices based on the "Z" amount of products purchased

2.3 PROJECT OUT OF SCOPE

Any requirements discussed and not listed under clause 2.1 – In scope of project, shall remain out of scope for SBSC.

3   DEFINITIONS, ACRONYMS AND ABBREVIATIONS

Acronyms and Abbreviations	Definitions
Application	Application refers to the entire OMP Application platform that is to be developed as part of the project scope of this BRD.
COOPLAG	The Shell Staff Cooperative investment and Thrift Society Limited Lagos
SBSC	Software Business Solution Consulting
OMP	Online Market Place
Vendors	Companies who will be showcasing their products and services
Customers	End-Users who will surf through the OMP platform to purchase products been offered by the vendors.
COOPLAG Administrator	Administrative oversight over the use of the platform and activities of users on the platform.
NA	Not Applicable
URL	Uniform Resource Locator
H	High Priority
M	Medium Priority
L	Low Priority

4   REFERENCES

- Cooplag 2020 Virtual trade expo software requirement and specification
- Coopman eShop Integration

5   STAKEHOLDERS

Following are the key stakeholders for NIBSS e-Bills project:

Stakeholder(s) Role	Responsibility
Client (COOPLAG)	• Provide timely clarifications to queries. • Provide Sign-Off for each deliverable. • Conduct UAT. • Support and Perform Production Testing.
SBSC - Client Executive	• Help in getting clarification on any doubts from the client. • Liaison with client for each deliverable's sign-off. • Liaison with client to conduct UAT. • Liaison with client to support Production Testing.
SBSC - Project Manager	• Plan the delivery timelines • Plan the activities. • Manage communication with all stakeholders. • Assignment of tasks to team members • Risk and Issues Management • Monitoring the progress • Status reporting • Control Quality
SBSC - Business Analyst	• Define scope, write the BRD and prepare wireframes • Conduct functional and usability testing • Support UAT
SBSC - Developer(s)	• Prepare Architecture documents (HLD and LLD) • Develop the portal as per scope • Peer review code. • Fix Defects/Bugs/Errors/Issues/Suggestions • Support UAT. • Prepare development, testing, UAT environment. • Deploy the portal to go live. • Support and Perform Production Testing
UI Designer and Web Developer	• Design the portal (Front-End and Administration Portal)

	• Develop Mobile Responsive HTMLs for developers.
	• Fix Defects/Bugs/Errors/Issues/Suggestions.
SBSC - Tester(s)	• Prepare Test Plan
	• Prepare Test Cases
	• Prepare Traceability Matrix
	• Report Defects/Bugs/Errors/Issues/Suggestions
	• Support UAT.
	• Support and Perform Production Testing.
COOPLAG Project Team (Business and Technical)	• Support SBSC project team through-out project life cycle
	• Define acceptance criteria and conduct UAT
	• Sign-off solution deployment and launch

6 ASSUMPTIONS AND DEPENDENCIES

6.1 ASSUMPTIONS

- Based on the Solution Architecture designed by SBSC, Client would provide the required tools and artifacts required in line with the architectural design.

- Client will provide proper Knowledge transfer of the existing application architecture and features.

- In case of any existing API's/ Modules reusability, SBSC will verify and confirm if they can be reused.

- Setting up Development, UAT and production environments will be as agreed in the hardware specification section below.

- In case any functionality is dependent on third party services, then cost of all such services will be assumed to be paid by Client. (Payment Gateway, SMS gateway/Service Provider, Hosting, etc.)

- Any additional requirements not stated in this BRD must go through the change order process, which shall require a written amendment signed by both Parties before becoming effective and may have monetary impact.

6.2 DEPENDENCIES

- COOPLAG to provide all backend APIs for third party functionality for front-end application if

any.

- SSL certificates for frontend application/APIs.

6.3 CONSTRAINT

- Project Cost and Timeline.
- Project scope

7 FUNCTIONAL REQUIREMENTS OF KEY MODULES

7.1 PRODUCT SCOPE – WEB APPLICATION

7.1.1 CUSTOMER MANAGEMENT REQUIREMENTS

- **Customer Signup**

The system should be able to capture information of new customers and then go ahead to register them on the platform.

All information required to be captured must be supported by the system

- **Customer Login**

Cooplag needs an efficient system that will help ensure that registered guest customers are able to login using the credentials they provided at the point of registration. Cooplag Members (Customers) will be authenticated into the system using CoopMan authenticator.

- **Forgot Password**

For instances where a user forgets his/her password, the system should be able to do a reset of the account's password and send a notification via email to the registered email of the user.

- **Profile Setup**

The system should support the setup of a customer's profile such that important information such as shipping address, payment methods etc. can be captured.

- **Account Status Notifications**

The system should be able to send notifications to a user upon successful signup as well as instances where password reset activities are carried out.

7.1.2 CATEGORY MANAGEMENT REQUIREMENTS

- **Category Creation**

The application should provide an interface for creating of categories of different types. The categories created will be available on the store frontend.

- **Category Attributes Creation**

The system should be able to support the creation of attributes that are related to each category. For example, attributes like color, volume and so on.

- **Category Management**

The platform should provide an interface where categories can be viewed, edited, updated or deleted with ease.

- **Category Activation & Deactivation**

The application should support activating and deactivation of categories. Activating a category will make it visible on the store while deactivating it will make it not show up on the store.

7.1.3   PRODUCT MANAGEMENT MODULE

- **Product Creation (Single)**

The application should provide an interface for creating of products of different types. It should allow the provision of name, description, setup of prices per product as well as upload of images for the different products. The products created will be available on the store frontend.

- **Product Creation (Bulk)**

The system should also support the creation of products in bulk with the use of a csv file. Upon uploading an already populated csv file with the listing of products, the system should create all the products captured in the file.

- **Product Attributes Creation**

The system should be able to support the creation of attributes that are related to each product. For example, attributes like color, volume and so on.

- **Product Management**

The platform should provide an interface where products can be viewed, edited, updated or deleted with ease.

- **Product Assigning**

The system should support the assigning of a product to a category for easier identification on the store

- **Product Activation & Deactivation**

The application should support activating and deactivation categories. Activating a category will make it visible on the store while deactivating it will make it not show up on the store.

- **Product Review**

The system should support the ability of customers to provide reviews and feedback for each active product on the store. This will help provide Vendors as well as other customers with more information regarding the products been reviewed.

- **Product Activation & Deactivation**

The application should support activating and deactivation of products. Activating a product will make it visible on the store while deactivating it will make it not show up on the store.

- **Product Inventory Tracking**

The application should support tracking of inventory such that real-time information regarding stock levels for each product can be seen.

7.1.4   VENDOR MANAGEMENT MODULE

- **Vendor Signup**

The system should be able to capture information of new vendor and then go ahead to register them on the platform based on the levels the vendor falls under. The different vendor levels comprise of the following:

- o Sponsors
- o Partners
- o Super and
- o Normal Vendors

All information required to be captured must be supported by the system

- **Vendor Application Processing**

The system should provide an interface where Vendor registrations can be carried out to complete the registration process.

- **Vendor Login**

Cooplag needs an efficient system that will help ensure that registered Vendors are able to login using the credentials they provided at the point of registration.

- **Forgot Password**

Where a Vendor forgets his/her password, the system should be able to do a reset of the account's password and send a notification via email to the registered email of the Vendor.

- **Profile Setup**

The system should support the setup of a Vendor's profile such that important information such as Registered address, Bank account information etc. can be captured.

- **Vendor Products and Categories**

The system should be able to allow for the creation of Vendor's products as well as assigning them to categories existing on the store.
Advert placement of the Vendor products on the customer module is dependent on the Vendors Level.

- o Sponsors and Partners top rated products will be featured on the landing page as well as the related product pages of the customer Module
- o Super Vendors promoted and demoted products will be displayed on the landing page
- o Normal Vendors products will be featured on the landing page of the customer Module

- **Vendor Review & Rating**

The system should support the ability of customers to rate and provide reviews for each active Vendor on the store. This will help provide Vendors as well as other customers with more information regarding the how they are performing and what they need to be better.

- **Vendor Activation & Deactivation**

The application should support activating and deactivation of Vendors. Activating a Vendor will ensure that the Vendor as well as Vendor's store is visible on the platform while deactivating will make it not show up on the store.

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- **Account Status Notifications**

The system should be able to send notifications to a Vendor upon successful signup as well as instances where password reset activities are carried out.

7.1.5 SHIPPING MODULE REQUIREMENTS

- **Shipping Method Creation**

The system should support the creation of shipping methods such as Shop pickup, Express Shipping and so on so that customers are able to select which option they prefer at the point of making purchases on the store

- **Shipping Methods Management**

The platform should provide an interface where shipping methods can be viewed, edited, updated or deleted with ease.

- **Price Setup**

The system should support the setting up of price for each shipping method that has been created on the system.

- **Shipping Method Activation & Deactivation**

The application should enable the activating and deactivation of shipping methods. Activating a shipping method will make it visible on the store while deactivating it will make it not show up on the store.

7.1.6 PAYMENT MODULE REQUIREMENTS

- **Payment Method Creation**

The system should support the creation of payment methods such as pay on delivery, pay with card, Credit payment, pay using coopan eshop and so on such that customers or cooplag members are able to select which option they prefer at the point of making purchases on the store

- **Payment Methods Management**

The platform should provide an interface where payment methods can be viewed, edited, updated or deleted with ease.

- **Vendor & Customer Commission Setup**

The system should support the setting up of formula for calculating commissions due to Vendors as well as customers on the system.

- **Payment Method Activation & Deactivation**

The application should enable the activating and deactivation of payment methods. Activating a payment method will make it visible on the store while deactivating it will make it not show up on the store.

7.1.7   ORDER MANAGEMENT MODULE

- **Create Order**

The system should support the placing of an order using the checkout process for a registered user while an interface can also be provided for customer support users to make orders on behalf of customers.

- **View Order**

The system should be able to provide an interface where information regarding order(s) placed by customers can be seen for further processing.

All information regarding the order must be displayed on the system

- **Edit Order**

The system should provide an interface where users with adequate rights can make modifications to customers' order for further processing on the system.

- **Order Fulfillment**

The system should be able to support fulfillment of order to enable the delivery of the order.

- **Track Order**

At every point in time, the status of an order should be tracked. This way, a customer knows where and when the products purchased will be delivered to him/her.

7.1.8   ELECTRONIC TICKETING AND RAFFLE DRAW MANAGEMENT MODULE

- **Electronic Ticket Setup**

The system should support the setup of points, ticket predefined purchase amount as well as algorithm for the accumulation of points per transactions carried out by a customer. Once the predefined amount for purchasing items on the Cooplag OMP is reached, customer should automatically be given an electronic ticket. This in turn qualifies the customer to participate in the raffle draw process where amazing prices can be won.

- **Raffle Draw View Points earned per customer**

The system should be able to provide an interface where information regarding ticket and raffle draw winners by customers can be viewed.

- **Raffle Draw Ticket Creation**

The system should provide an interface where raffle draws can be created electronically. Users upon qualifying for a raffle draw, they are allowed to partake in the draw on a daily basis so as to stand a chance to win one of the amazing products on the Cooplag OMP platform. Items can be won of a daily basis depending on the Raffle draw configuration.

   - o To qualify for the Consolation Prize, Customer should have purchased items worth 50,000 naira
   - o To qualify for the Custom Star Prize, Customer should have purchased items worth 100,000 naira
   - o To qualify for the Main Star Prize, Customer should have purchased items worth 500,000 naira. Also, by default, if a Customers who have purchased items worth over

500,000 naira does not win from the Main Star Prize, Customer wins a consolation prize.

Tickets can be drawn electronically each day or twice a week and can be printed off the system to be drawn manually. We use this to drive traffic to the exhibition.

- **Ticket Creation**

An interface for ticket creation should be made available on the system. Users upon getting a ticket should qualify for a raffle draw depending on the "Z" amount of products purchased. Tickets can be drawn electronically each day or twice a week and can be printed off the system to be drawn manually. Customers will be notified of their winnings via SMS and Email.

- **Track Raffle Draw Usage**

At every point in time, the status of a raffle draw should be tracked. This way, information regarding raffle draw on the store as well as the count of the customers who won them will be made available.

7.1.9 DASHBOARD REQUIREMENTS

Dashboards should be made available for the following users:
- Customer
- Vendor
- Admin

Some of the contents of the dashboard should include:

- Top Selling Products
- Newly Added Products
- Suggested Products
- Product Review, survey and Ratings

7.1.10 CUSTOMER INTERFACE

- **Sign Up/Login**
  - Create a guest customer account on the platform by filling a form
  - Anyone should be able to sign up to become a customer.
  - Cooplag Members are authenticated using CoopMan authenticator while Guest can login to the platform and start browsing through category and product pages.
  - Utilize the forgot password feature to reset password.

- **Manage Customer Account**
  - View customer dashboard as well as notifications.
  - View/edit customer profile.
  - Update certain customer information e.g. delivery information
  - View commissions earned from purchases.
  - View past reviews and feedback provided

- **Categories/Products view**
  - View categories listed on the store
  - View products listing as well as products descriptions
  - View featured and sponsored products based on the different levels of Vendors

- Add items to cart
- View cart and checkout.

- **Manage Orders**
- View information regarding past orders.
- Edit or update orders
- Cancel order
- Track Order

7.1.11   VENDOR INTERFACE

- **Sign Up/Onboarding**
- Create a Vendor account on the platform by filling a form based on the vendor levels and uploading certain supporting documents.
- Anyone should be able to send in an application to become a Vendor.
- Login to the platform and view Vendor application status.
- View/edit Vendor profile.
- Update certain Vendor information.

- **Manage Vendor Account**
- View Vendor dashboard as well as messages.
- View commissions as well as earnings from purchases.
- View and respond to reviews and feedback.
- Advertise their products

- **Manage Products**
- Create products (either individual or in bulk).
- Add and assign them to categories.
- Activate and deactivate products
- Update stock levels for each product

- **Manage Orders**
- View information regarding orders.
- Edit or update orders
- Fulfill order

- **Manage Coupons/Discounts**
- Create coupons or discount codes for customer's use
- Track coupon usage

- **Reporting**
- Generate reports at will. For example, sales reports.

7.1.12   IT REQUIREMENTS

- User creation and management
- Application Change Tracker.

- Track all changes made on the application by all users.
- Setup for SMS Gateway/SMTP

7.2 PRODUCT SCOPE – MOBILE APP

7.2.1 CUSTOMER INTERFACE

- **Sign Up/Login**
  - Create a customer account on the platform by filling a form
  - Anyone should be able to sign up to become a customer.
  - Login to the platform and start browsing through category and product pages.
  - Utilize the forgot password feature to reset password.

- **Manage Customer Account**
  - View customer dashboard as well as notifications.
  - View/edit customer profile.
  - Update certain customer information e.g. delivery information
  - View commissions earned from purchases.
  - View past reviews and feedback provided

- **Categories/Products view**
  - View categories listed on the store
  - View products listing as well as products descriptions
  - Add items to cart
  - View cart and checkout.

- **Manage Orders**
  - View information regarding past orders.
  - Edit or update orders
  - Cancel order
  - Track Order

8 NON-FUNCTIONAL (SYSTEM) REQUIREMENTS

- **Integration and Connectivity:**
  - Connection to Payment Gateway: Integrate with payment integration platform of choice to enable real-time payments for products.

- **Platform Support:** The web platform should have mobile responsive web design and it should be compatible with all devices / operating systems. Mobile app must be cross-platform – Android and IOS.

- **Performance:**
  - Page response time would be less than or equal to 10 seconds.

- The platform must perform adequately 24x7 (operation wise) and have an uptime of 99% availability without any major performance slag or crashes.

- **User access:** The user should be able to access the web platform using a dedicated URL from a browser on desktop or mobile. Mobile app should be available for download via the Google and Apple stores.

- **Application Architecture:** Cloud hosting

- **Language Support:** Single language, English only.

- **Country Support:** Nigeria

- **Browsers Support:**
  Desktop

    IE9+, Chrome 42+, Firefox 38+, Safari 5.17+, Opera
  Mobile
    IE9+, Chrome 42+, Firefox 4.0+, Safari 5.1+, Opera

- **Content Formats supported:** PDF (.pdf), Documents (.doc, .txt, xml, CSV, .xls, JSON), Pictures (.jpeg, .png, Gif)

9 BUSINESS FLOW & USER INTERACTION

9.1 BUSINESS FLOW DIAGRAMS

CUSTOMER SIGNUP & PRODUCT PURCHASE FLOW

Customer Sign Up & Product Purchase Flow
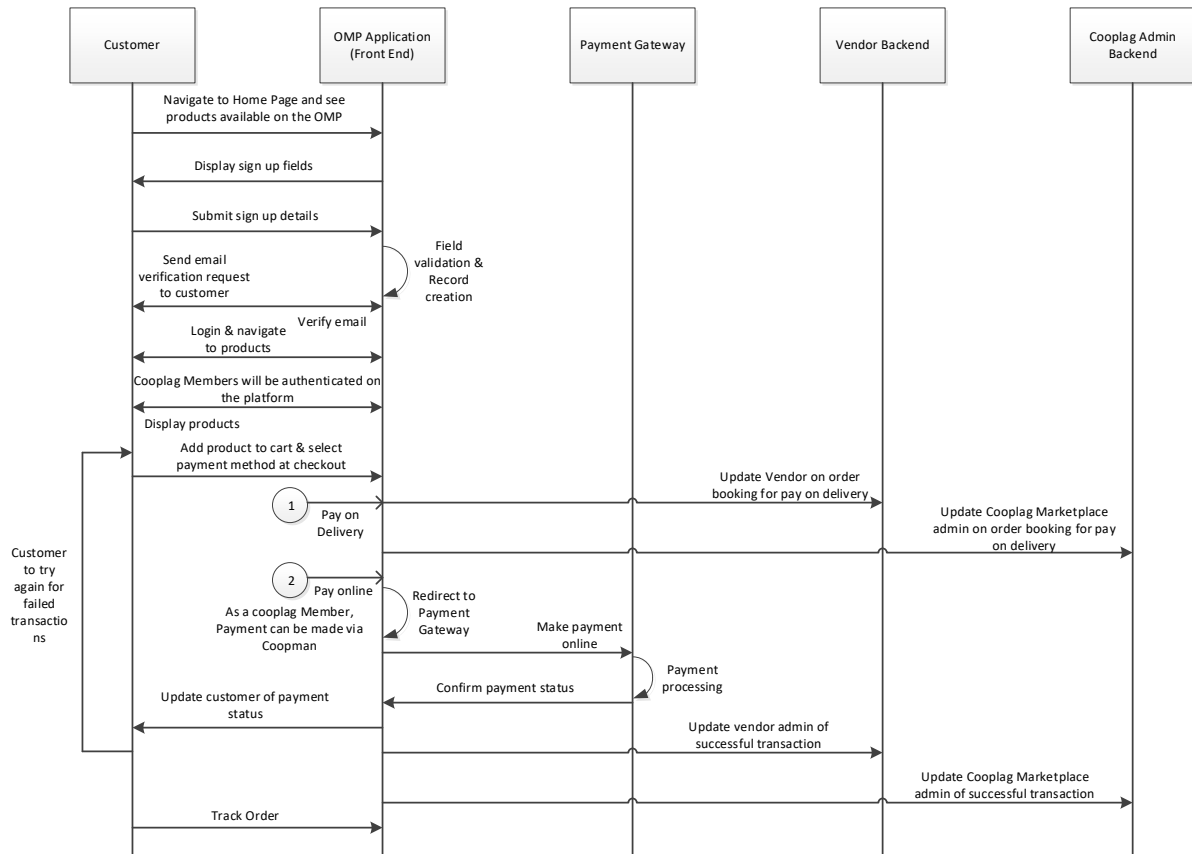
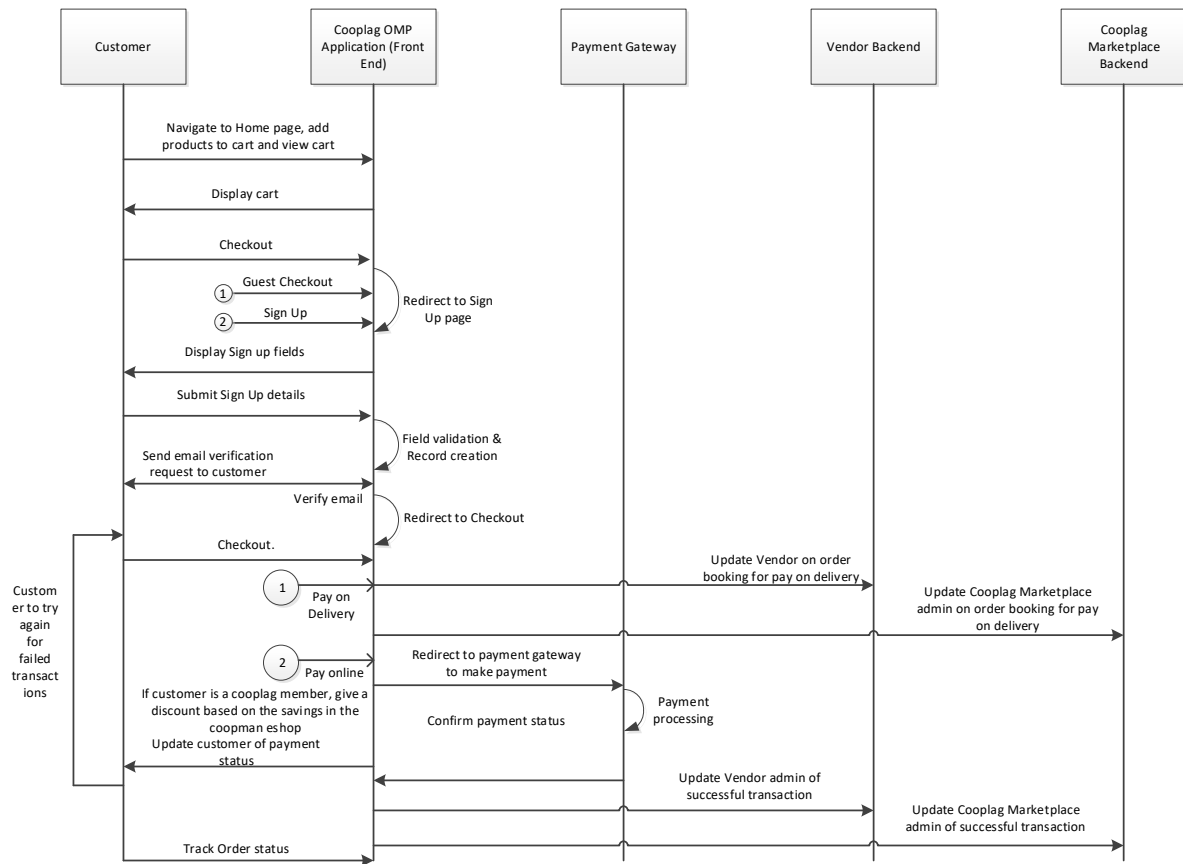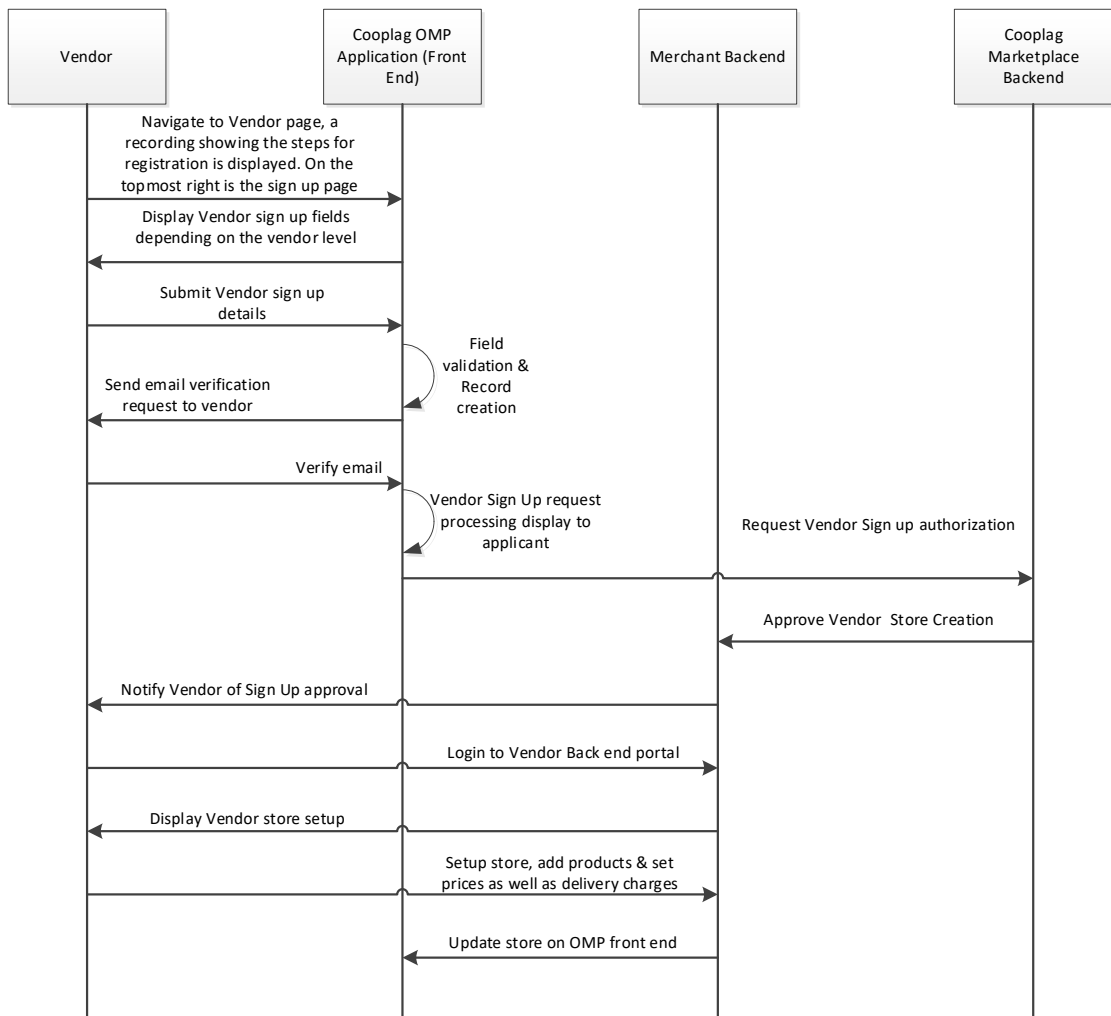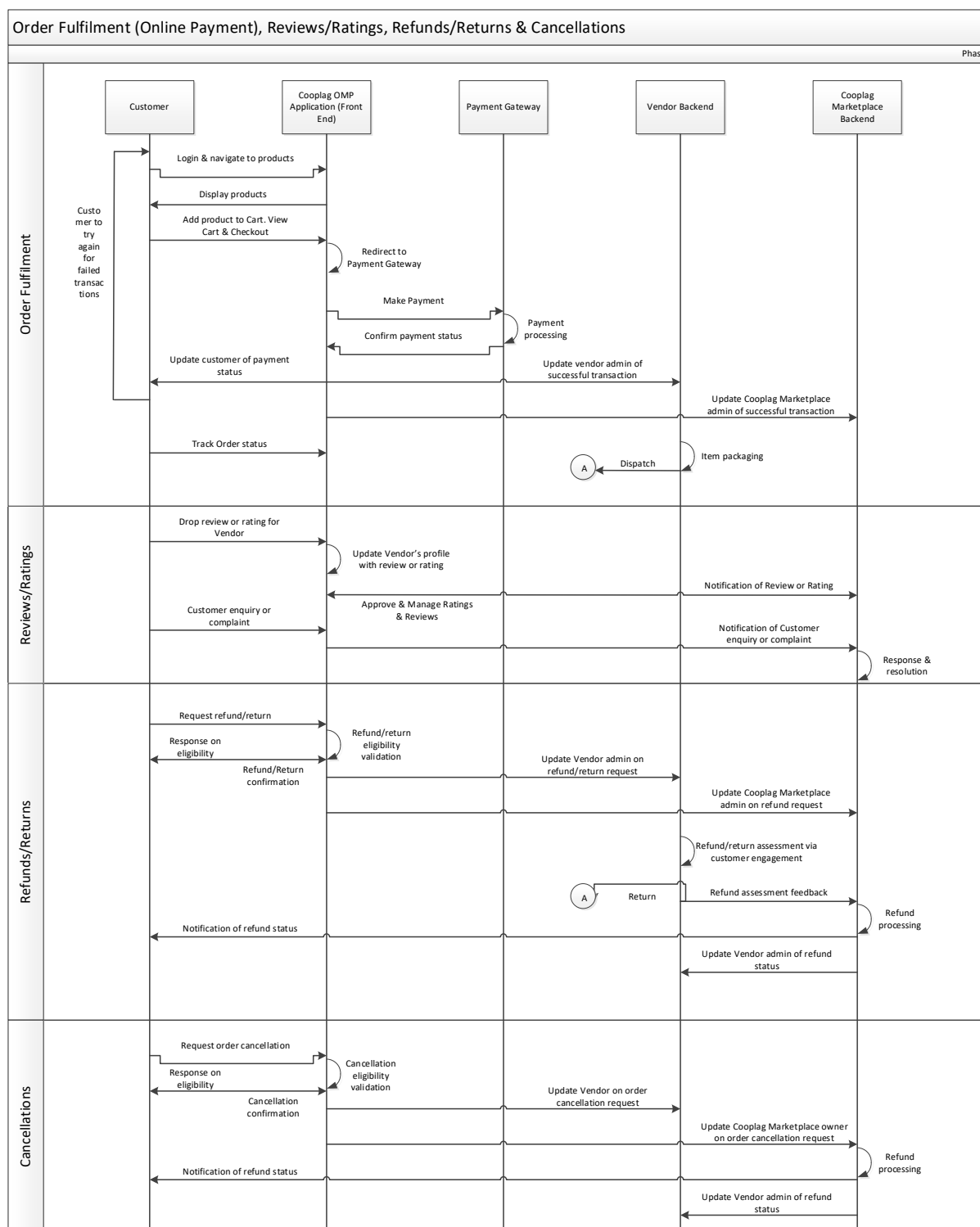## VENDOR SIGN UP AND STORE APPROVAL

Vendor Sign Up & Store Approval

ORDER FULFILMENT (ONLINE PAYMENT)

Order Fulfilment (Online Payment), Reviews/Ratings, Refunds/Returns & Cancellations

Phase

Swimlane actors: Customer | Cooplag OMP Application (Front End) | Payment Gateway | Vendor Backend | Cooplag Marketplace Backend

Order Fulfilment

- Login & navigate to products
- Display products
- Add product to Cart. View Cart & Checkout
- Redirect to Payment Gateway
- Make Payment
- Payment processing
- Confirm payment status
- Update customer of payment status
- Update vendor admin of successful transaction
- Update Cooplag Marketplace admin of successful transaction
- Customer to try again for failed transactions
- Track Order status
- Item packaging
- Dispatch (A)

Reviews/Ratings

- Drop review or rating for Vendor
- Update Vendor's profile with review or rating
- Notification of Review or Rating
- Approve & Manage Ratings & Reviews
- Customer enquiry or complaint
- Notification of Customer enquiry or complaint
- Response & resolution

Refunds/Returns

- Request refund/return
- Refund/return eligibility validation
- Response on eligibility
- Refund/Return confirmation
- Update Vendor admin on refund/return request
- Update Cooplag Marketplace admin on refund request
- Refund/return assessment via customer engagement
- Return (A)
- Refund assessment feedback
- Refund processing
- Notification of refund status
- Update Vendor admin of refund status

Cancellations

- Request order cancellation
- Cancellation eligibility validation
- Response on eligibility
- Cancellation confirmation
- Update Vendor on order cancellation request
- Update Cooplag Marketplace owner on order cancellation request
- Refund processing
- Notification of refund status
- Update Vendor admin of refund status
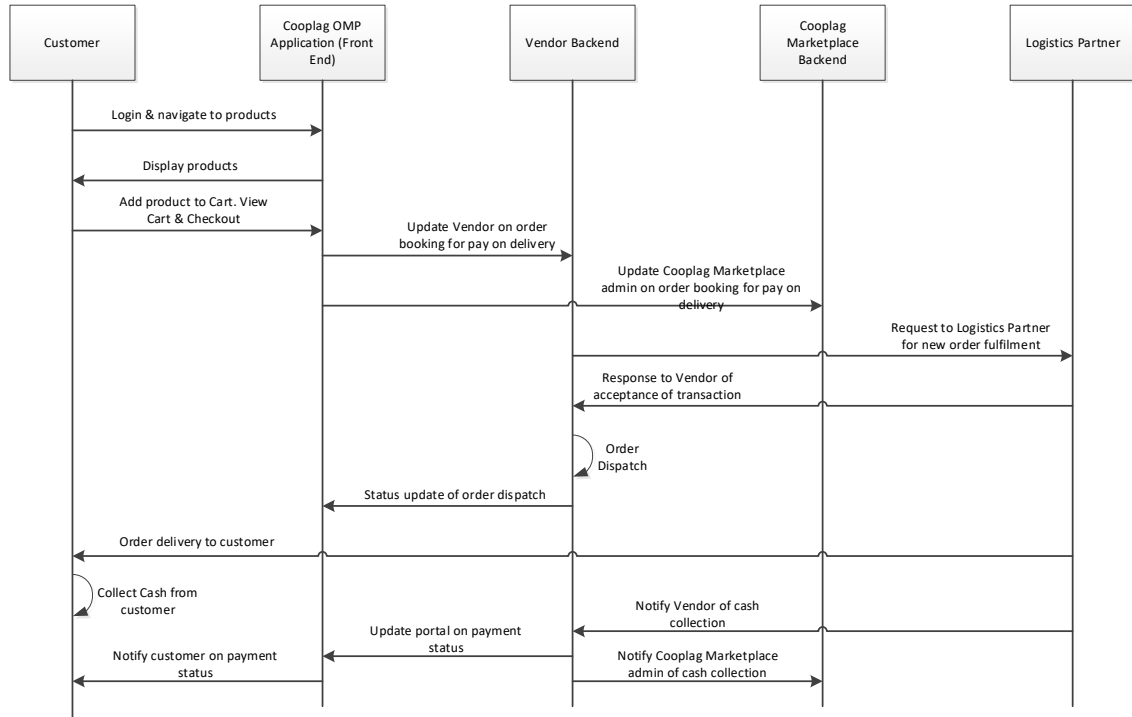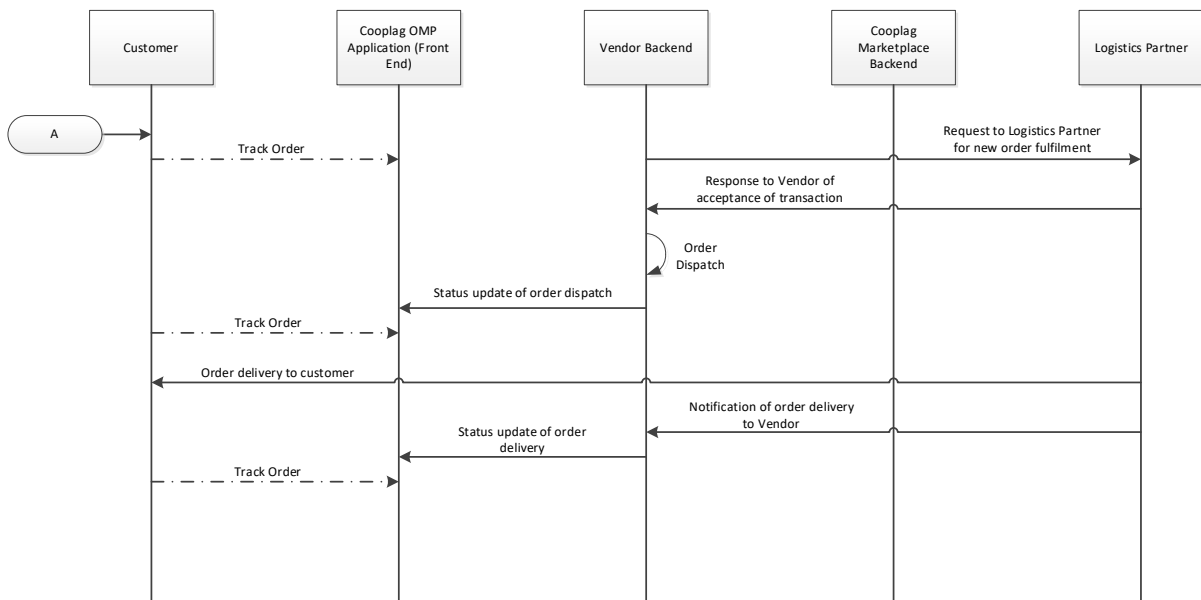
ORDER FULFILMENT (PAY ON DELIVERY)

Order Fulfilment (Pay on Delivery)

Order Tracking

9.2 USER INTERACTION

Roles and Responsibility		Customer	Vendor	Admin
Customer Management	Create/Delete	Y	N	Y
	Update	Y	N	N
	View	Y	N	Y
Category Management	Create	N	N	Y
	View	Y	Y	Y
	Update/Delete	N	N	Y
Product Management	Create	N	N	Y
	View	Y	Y	Y
	Update/Delete	N	N	Y
Vendor Management	Create/Update/Delete	N	Y	Y
	View	Y	Y	Y
Shipping Management	Create	N	N	Y
	View	Y	Y	Y
	Update/Delete	N	N	Y
Payment Management	Create	N	N	Y
	View	Y	Y	Y
	Update/Delete	N	N	Y
Reports	View	Y	Y	Y
Electronic Ticket and Raffle Draw Management	Create	N	N	Y
	View	Y	N	Y
	Update/Delete	N	N	Y
Order Management	Create	Y	Y	Y
	View	Y	Y	Y
	Update/Delete	Y	Y	Y
	Fulfil order	N	Y	Y
User Management	Create	N	N	Y
	View	N	N	Y
	Update/Delete	N	N	Y
Dashboard Management	Create	N	N	Y
	View	Y	Y	Y
	Update/Delete	N	N	Y
Loyalty/Coupon Management	Create	N	Y	N
	View	Y	Y	Y
	Update/Delete	N	Y	Y

9.3 USE CASES

CUSTOMER
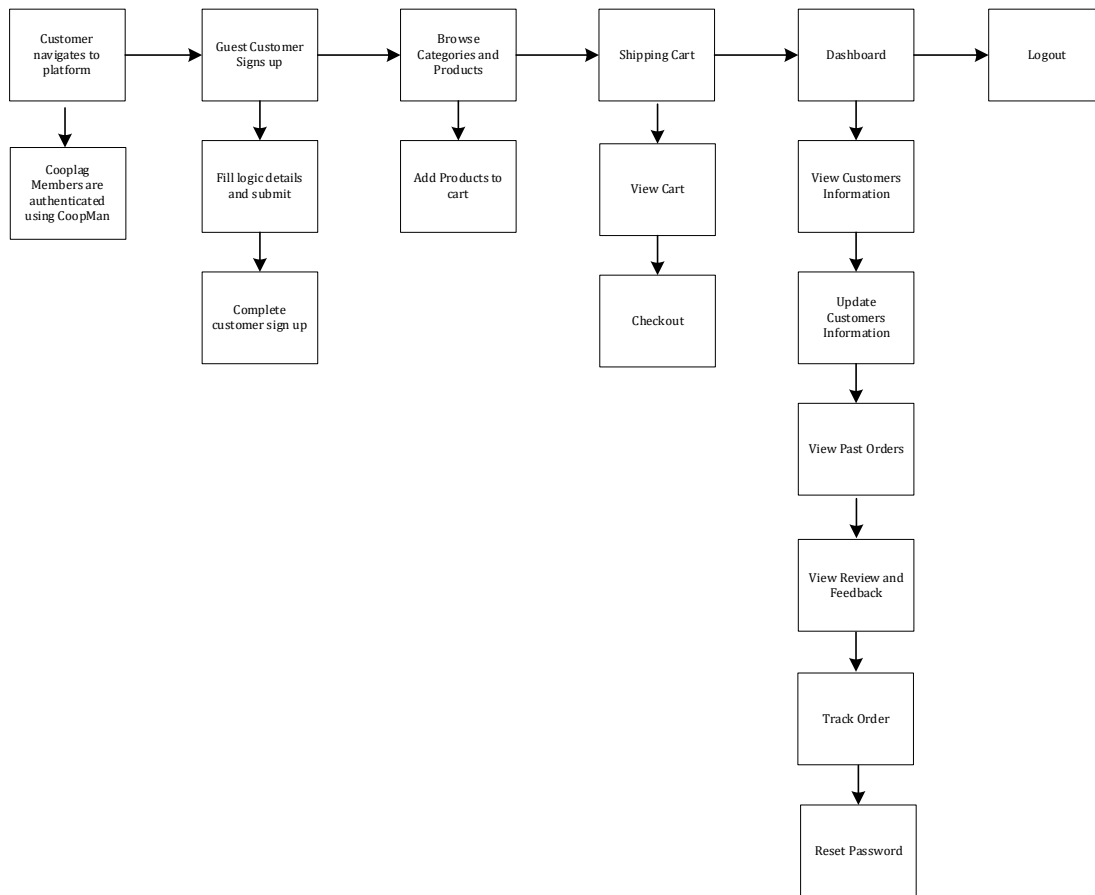
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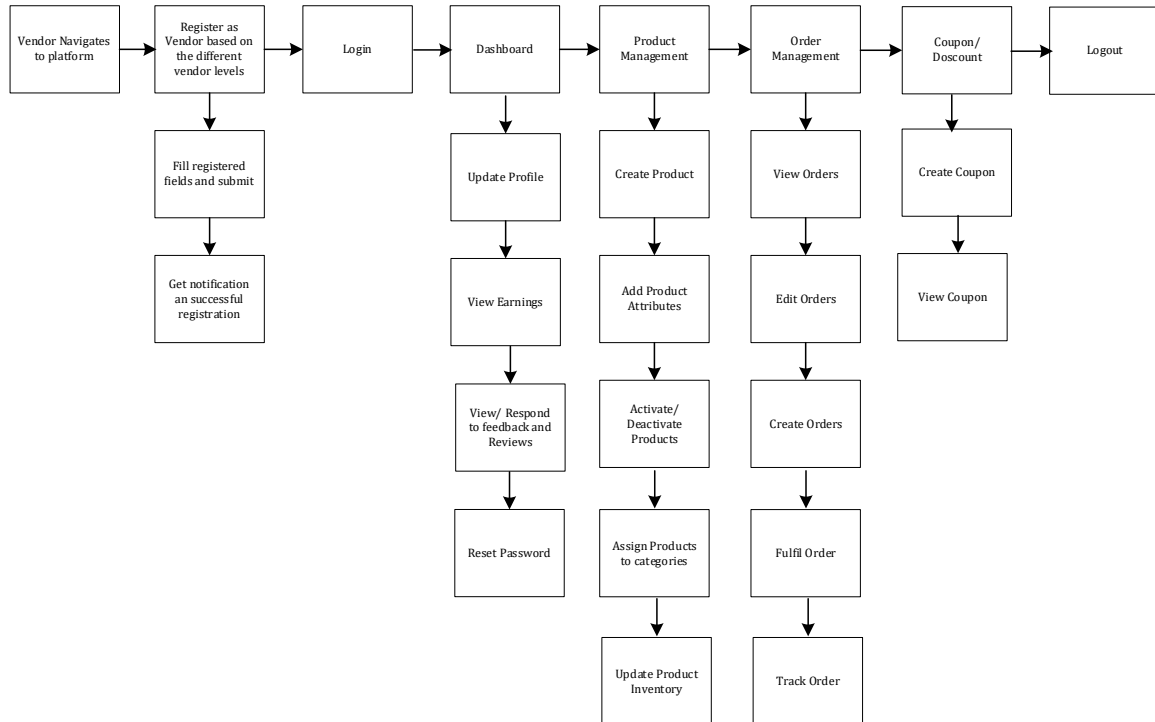
ADMIN
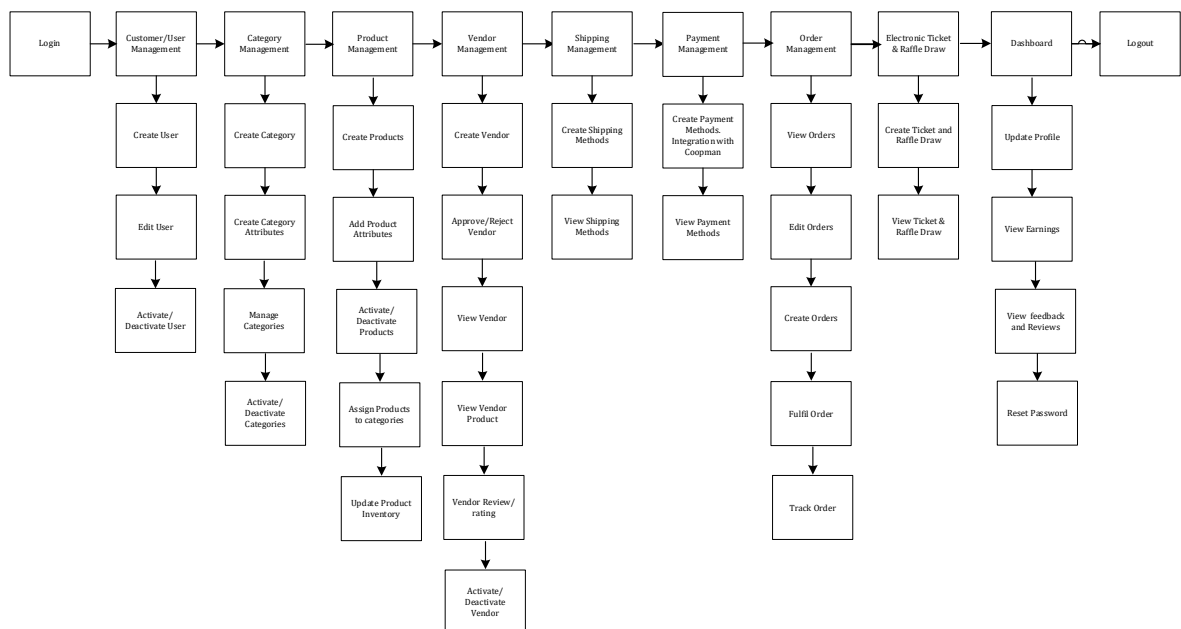
10 BUSINESS REQUIREMENTS

10.1 GENERAL ARCHITECTURE

Definition	Application overview and navigation, screen layouts, default functionalities, and user interface architecture, Header & Footer Information.
Req. Type	Generic Functional, Testable

Business Rules	**GRID FORMAT, SORTING**
	
	• Wherever a grid is displayed, latest information entered / updated will be displayed as a first record and the remaining displayed in a descending order unless otherwise specified.
	• Grid having Name column should display Names as (LAST NAME, First Name Middle Name) one space after every comma.
	• Page Notation: (If Applicable) when the data to be displayed under a grid has many records then pagination will be provided at the bottom right side of the respective grid. Pagination notation should be placed outside the grid. The default number of records displayed under a grid with data will be limited to 10, and should be configurable from backend. On main grid offset - 10 rows, on secondary grid (pop up page grid) - 5 rows.
	• Where ever there are no records found under the respective grids, "No Records" found message needs to be displayed to user without the grid/ grid headers.
	
	GENERAL APPLICATION CONVENTIONS
	
	• **Validation Messages:** In case of application error / validations, respective error / validation messages will be displayed to user where ever and whenever required.
	  ▪ Validation / form submission successful message needs to be displayed to respective users.
	  ▪ Validation successful and failure messages should comply with the design concepts color coding.
	• **Password:** The customer's web browser shall never display a user's password. Application shall always be echoed with special characters representing typed characters.
	  ▪ Number of Characters allowed as a password is (6-12).
	  ▪ Numeric allowed is (0-9); Alphabets are (a-z, A-Z); Special Characters
	  ▪ Password will be Case sensitive.
	  ▪ No blank spaces are allowed.
	• **Mandatory:** The application will represent the mandatory fields with asterisk '*****' symbol in red color next to the field.
	  ▪ Mandatory fields will have respective client side and server-side validation. Non-mandatory will have respective server-side validation.
	• **Text Field Entries:** User should enter a minimum of three characters while capturing data, user details like (first name, last name, address 1, street, zip)

- **Date:** Date will be captured / displayed in the portal in DD/MM/YYYY throughout the application.
  - Date field validation should be applied for correct/valid date and should always be shown in single line.
  - User will select the date by clicking the text field. On selection of a date, the date selected will be displayed in the date text box provided.
  - User can update/modify the date by clicking on the text field and selecting a new date. Once the new date is selected it will be displayed in the respective text box.
- **Time:** time will be captured/ displayed in the Portal in HH: MM (24hour format) throughout the application.
- **Dropdown:** "Select" should be the default value throughout the application while creating/ editing the form, where ever a 'dropdown' control is applicable for user selection on form/ screen load; if there is no value selected by user.
  - Selecting the 'dropdown value Select' should not be considered as a selected value for the respective field. I.e. if a dropdown field is mandatory, then select "select" from the dropdown doesn't mean the respective dropdown value is selected.
  - The dropdown values listed within this document will be the final list, any values to be added to the dropdown list has to be done through the application backend process, unless a master screen is available and defined within this document.
- Application will allow system user to navigate to Home page.

11 TECHNICAL REQUIREMENTS

11.1 HARDWARE REQUIREMENT

Application will be hosted on **_Digital Ocean Cloud Hosting_**

SERVER NAME	CPU	RAM	Hard Disk	Processor
Data Base Server	2VCPU	32 GB	500 GB	2.4 GHz or above Octa core
Application Server	2VCPU	16 GB	250 GB	2.4 GHz or above Octa core
Analytical Server	2VCPU	32 GB	500 GB	2.4 GHz or above Octa core

11.2 SOFTWARE REQUIREMENT

Component	Detail
Framework	PHP Laravel framework 7 (Back-end), Javascript Angular 8 (Front-end)
Mobile	Flutter (Android & IOS)
Database	MYSQL Database, Async Storage, SQL Lite, Room by Android
Hosting Environment	IIS 6 or above, Google Play Store and Apple Store
Operating System	Windows 2008 R2 or above, Android 4.0 & Above, iOS 10 & above
Reporting	SQL Server Reporting Services runtime engine.
Analytics	SQL Server Analytical Services runtime engine.
3rd Party Tools	Any third-party tool required to be integrated with the application for monitoring / tracking / measuring purpose.

11.3 HIGH LEVEL FUNCTIONAL FLOW
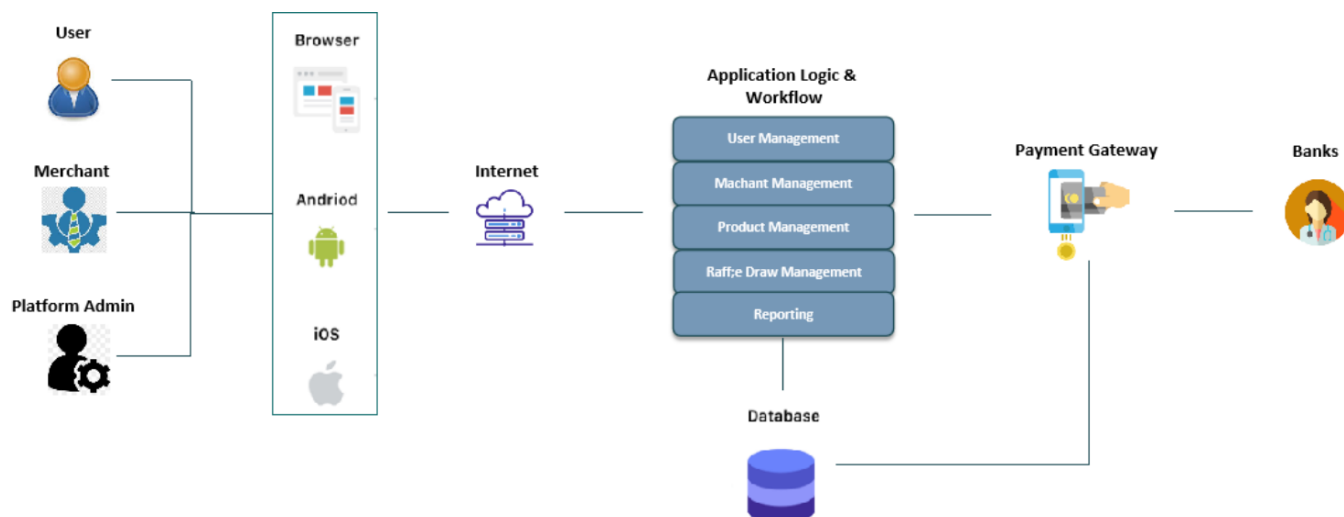
11.4 HIGH LEVEL ARCHITECTURE
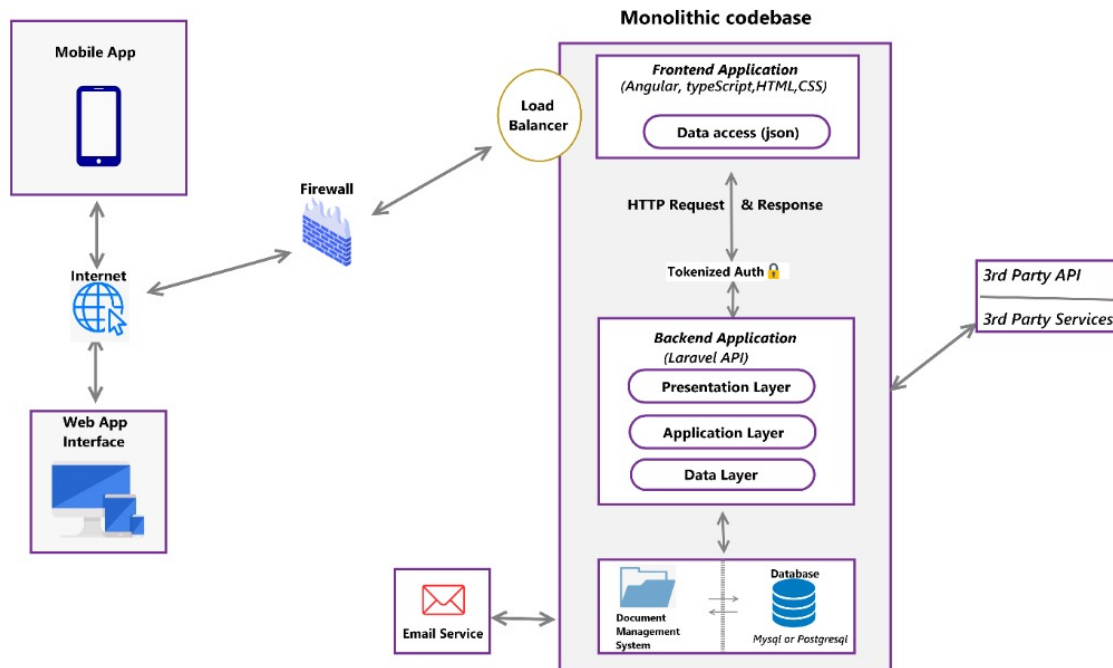
11.5 TECHNICAL OVERVIEW STEPS:

- Request would be placed via browsers/mobile app by the application users to the application through which there would be a connection to application interface (Presentation Layer).
- Presentation Layer will set authentication and authorization by taking user credentials and pass request to Business Layer, if user gets authorized then, Business Layer will take parameters from Presentation Layer and will apply required business rules for validation.
- In the wake of applying business rules, Business Layer will pass information to Data Access Layer.
- Business Logic Layer will be responsible to interact third party Web Service.
- Data Access layer responsibility is to connect the Database and perform required CRUD operation.
- Application would be able to send SMS, Mail alerts.

Note: Additional servers will be required for heavy usage volume of concurrent users. Load Balancer would need to be included in front of presentation layer.

Solution Integration Flows and Interfaces Register

#	Interface Flow	Business Purpose	Comment	Status (Open, WIP or Closed)	Parameters	Protocols	Volumetrics	Response time / SLA	Frequency	Format	Req/ Resp examples
1											
1a											
2											
2a											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											