Software Requirements Specification (SRS)

Project Title: BlendUp (Online Juice & Smoothie Ordering System)

Module: Server Side Programming – I

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(BlendUp – Online Juice & Smoothie Ordering System)

1. **Business Scenario Outcomes**

1.1 Product Offerings

BlendUp provides a wide range of fresh juices and smoothies to suit the tastes of families, fitness enthusiasts, professionals, and health conscious people. Customers can change the amount of sugar and ice in their drinks and add high quality toppings like honey, protein powder or chia seeds.

Freshness, variety, and compatibility with local crop availability are all offered by seasonal specials. Instances of this include mango smoothies in the summer or avocado mixes during the busiest time of year. Compared to generic meal delivery systems, this emphasis on seasonality and customisation offers a more engaging experience.

1.2 Revenue Model

The revenue model of BlendUp is developed to optimise profits while maintaining the affordability and appeal of its products:

- Per-Item Pricing: A base price for each juice or smoothie.

- Premium Customization: Additional charges for extra toppings, larger sizes, and special blends to increase order value.

- Delivery: Online orders have varying rates of delivery depending on the distance.

BlendUp's multi channel strategy allows them to attract both loyal consumers who are committed to long-term, healthy lifestyle choices and impulsive buyers looking for deals during certain seasons.

1.3 Business Model

The business to consumer (B2C) e-commerce platform BlendUp operates via a responsive web application. In addition to ordering for pickup or delivery, customers can customise drinks, browse menus, and view nutritional data.

Order fulfilment, toppings, promotions, seasonal product revisions, and menu management are all handled by administrators. BlendUp, a specialised platform devoted just to juices and smoothies, has developed a distinctive and specialised brand identity in contrast to broad-spectrum food delivery applications.

1.4 Functional Requirements

- Clients have the ability to create, access, and manage accounts.
- In addition to viewing nutritional information, customers can peruse menu categories.
- Sugar,ice and toppings can be added by customers to personalise their drinks.
- Orders, pickup or delivery options, and safe online payment are all available to customers.
- Admins have the ability to add,edit or remove menu items and seasonal specials.
- Pricing, promotions, and toppings are all under the admin's authority.
- Admins have the ability to monitor,modify and oversee client orders.

1.5 Non Functional Requirements

- Secure session management, input validation and password hashing are examples of security methods that prevent SQL injection and XSS attacks.
- Performance: Able to accommodate a minimum of 100 users at once without experiencing any problems.
- Usability: Mobile-first, responsive UI for smooth navigation and intuitive ordering.
- Scalability: Ability to expand menus, integrate delivery partners, and manage higher traffic during seasonal promotions.
- Reliability: High uptime, with order confirmation and recovery mechanisms for trust in online transactions.

1.6 Competitor & Market Analysis

Competitors like Uber Eats and PickMe Food provide general food delivery, but they lack a dedicated smoothie and juice customization experience. Their menus are generic with limited personalization.

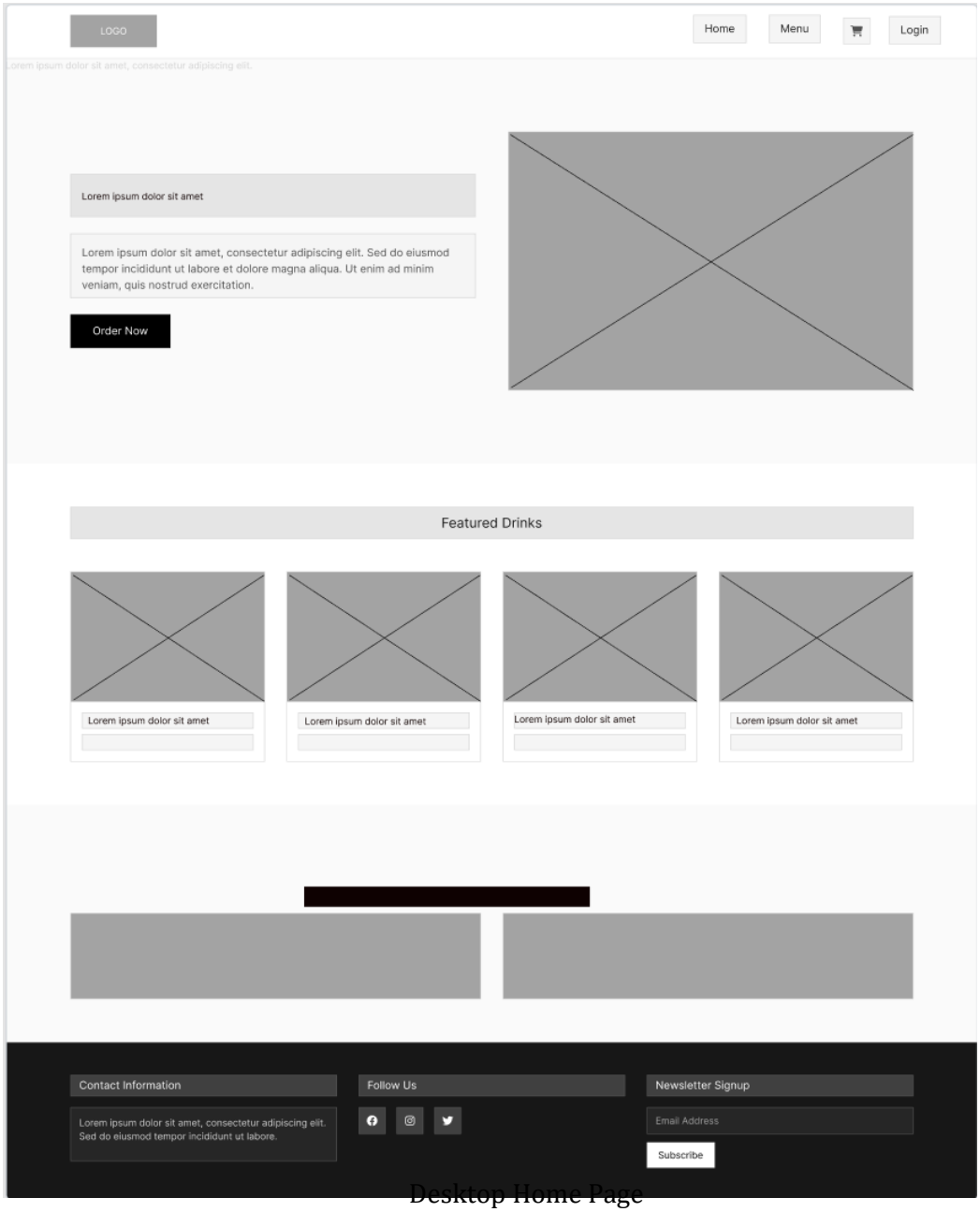
BlendUp differentiates itself through:

- Exclusive focus on fresh, healthy beverages.
- Advanced customization options (sugar, ice, toppings).
- Seasonal menus with locally sourced fruits.
- A strong brand identity around wellness,freshness, and lifestyle.

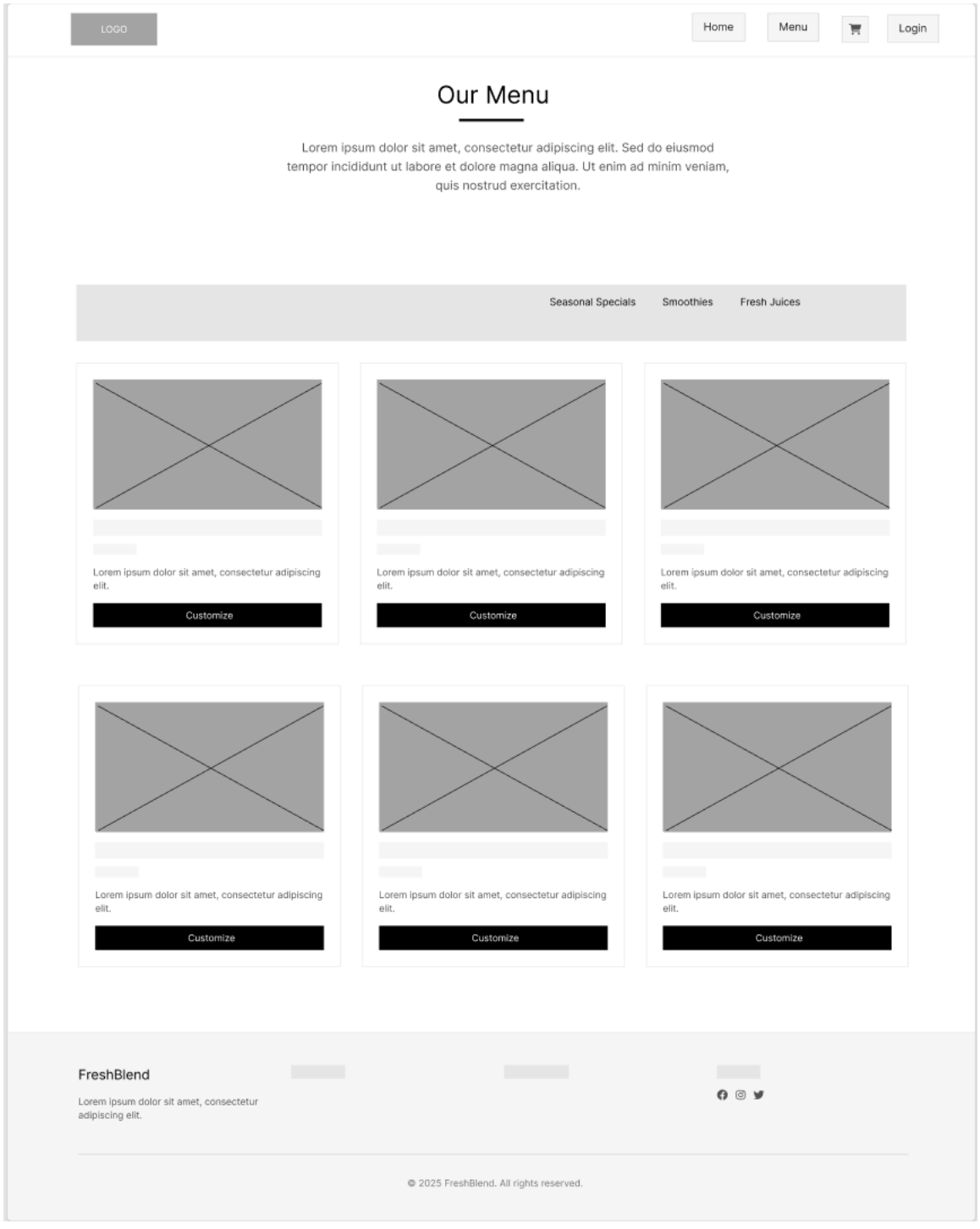
According to market insights, the global healthy beverage market is projected to grow at over 6% CAGR in the next five years,therefore rising demand for customizable and nutritious options. By positioning itself as Colombo's go-to healthy beverage platform, BlendUp aligns perfectly with this trend and creates a clear path to long-term success.

2. Wireframes and UI Mockups

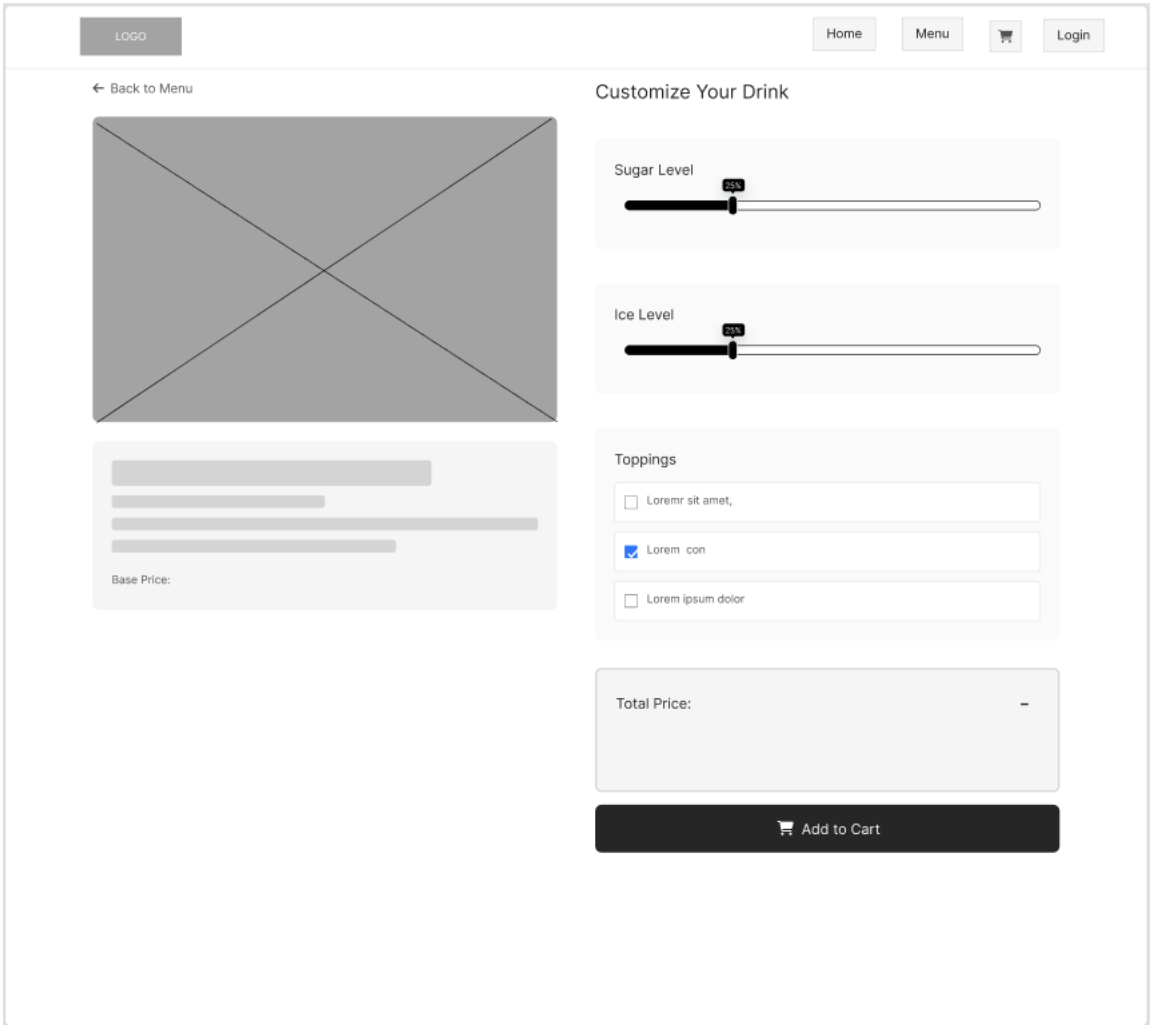
2.1 Wireframes



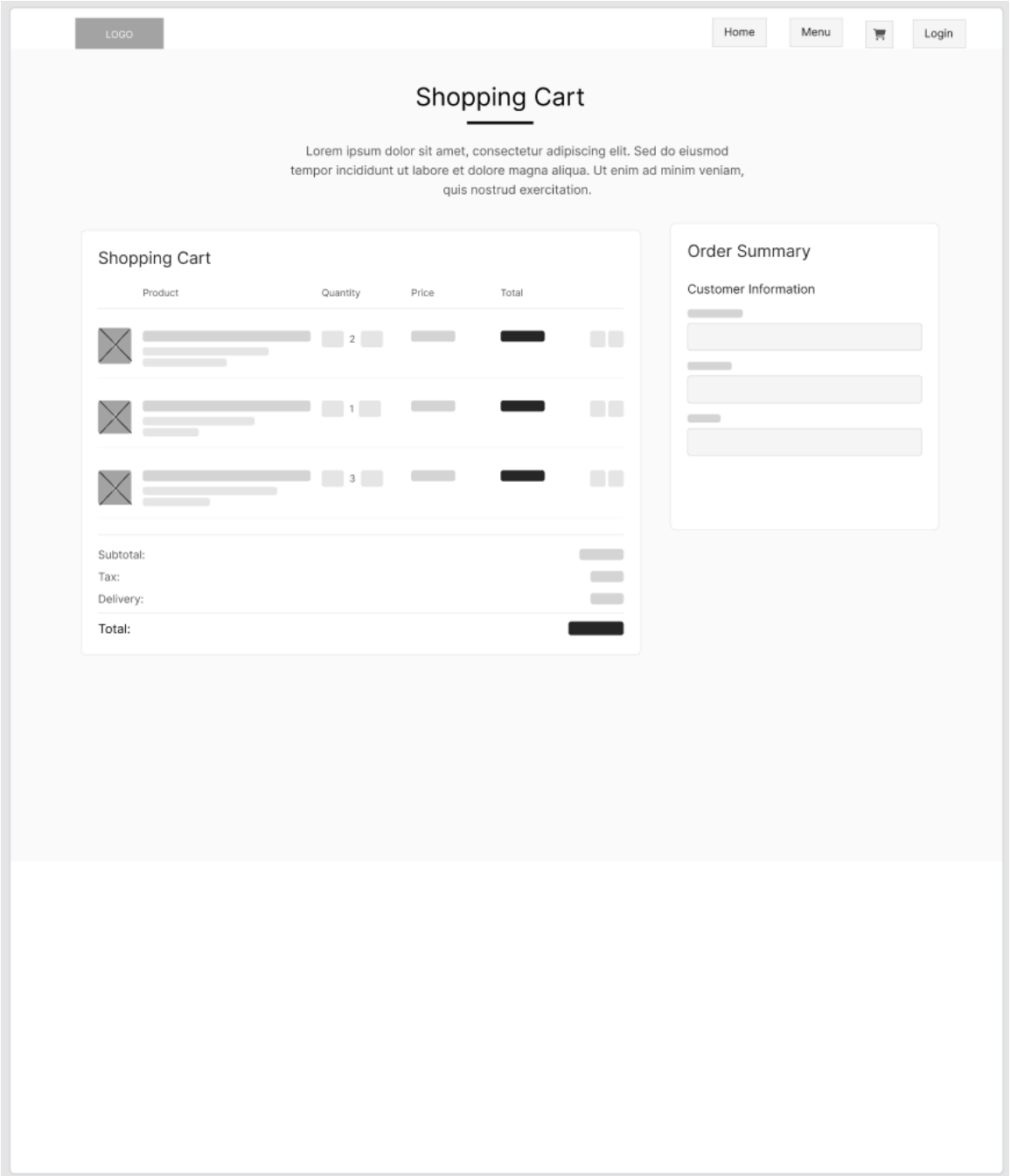
Desktop Home Page



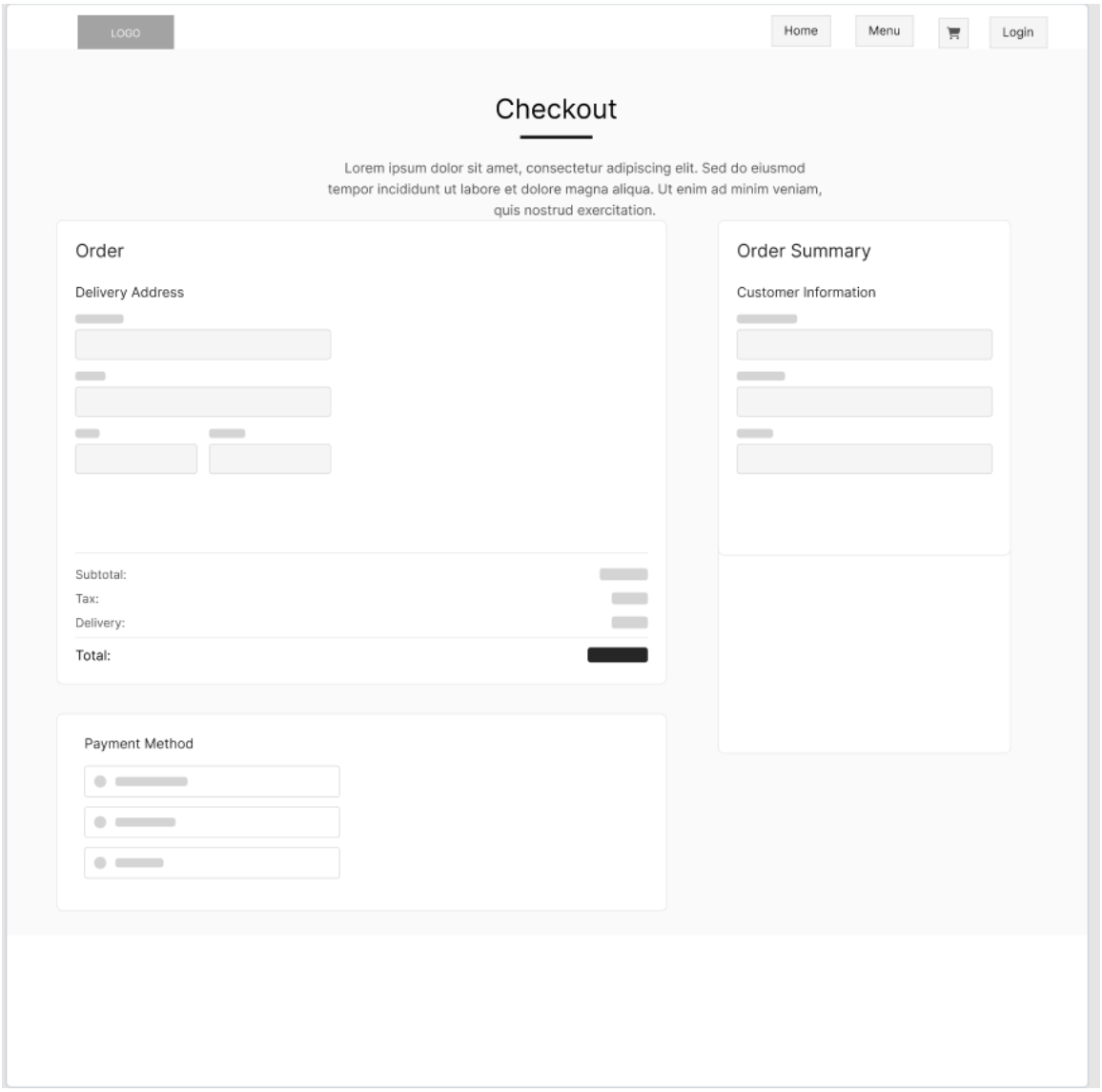
Desktop Menu Page



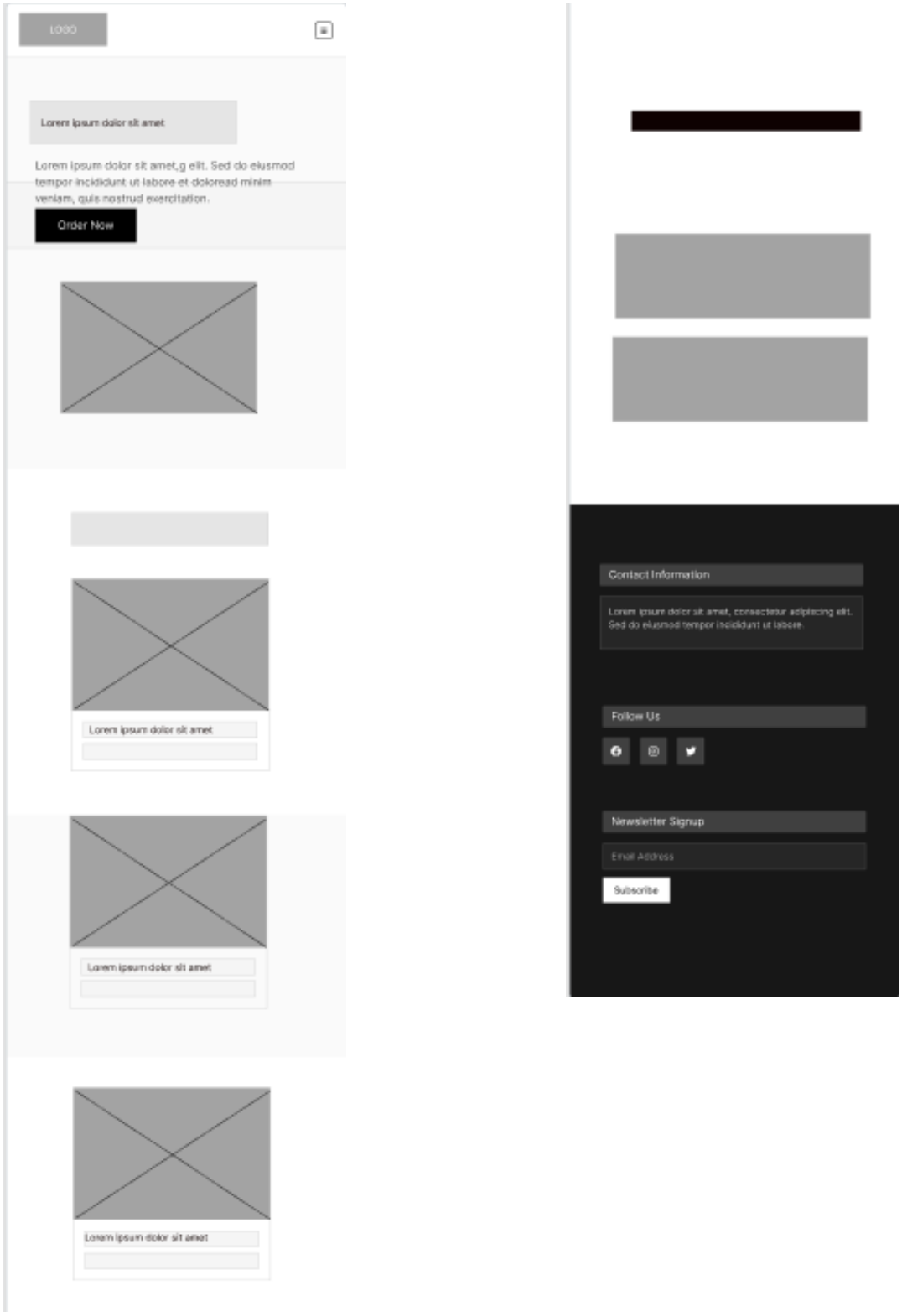
Desktop Customize Page



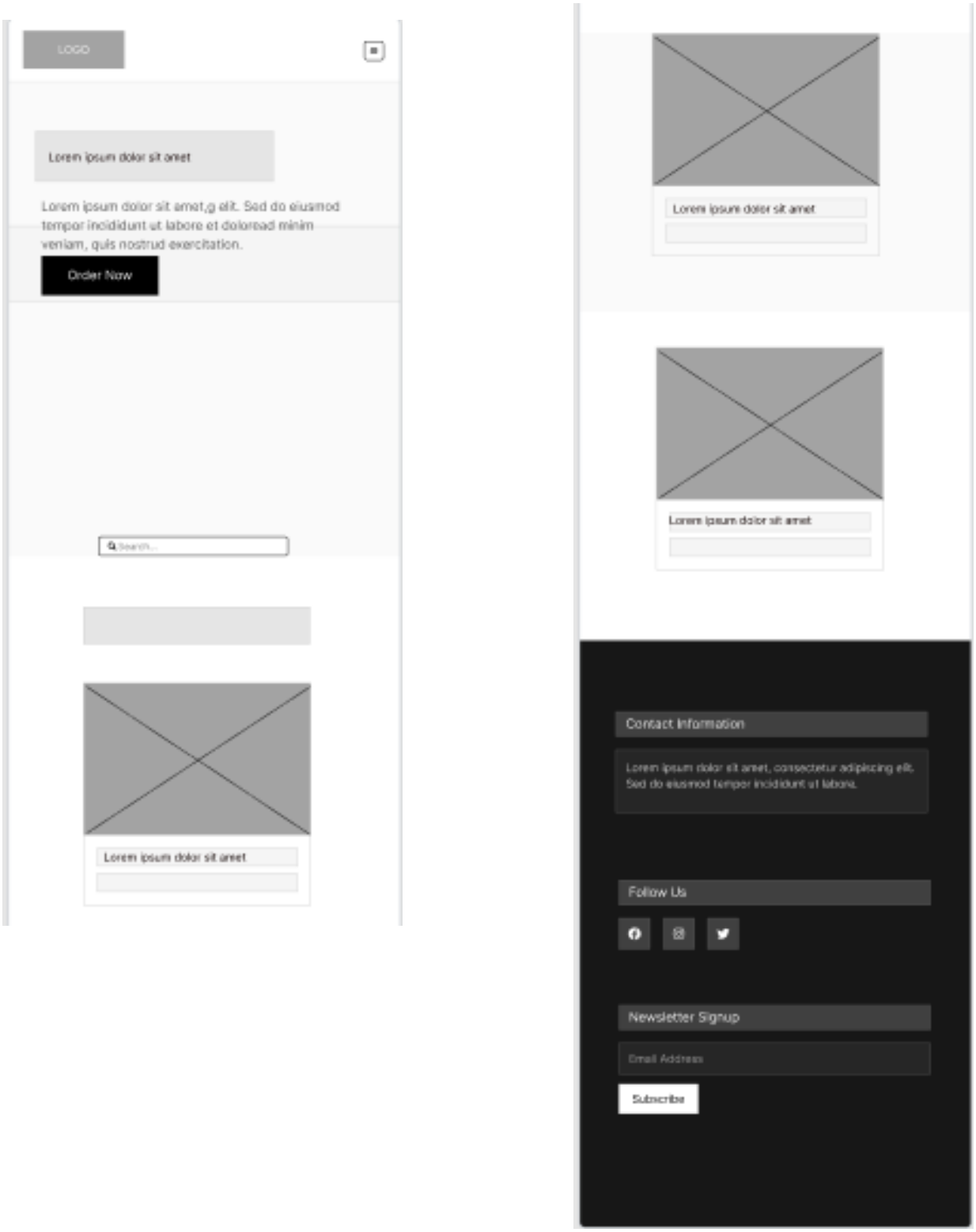
Desktop Shopping Cart



Desktop Checkout

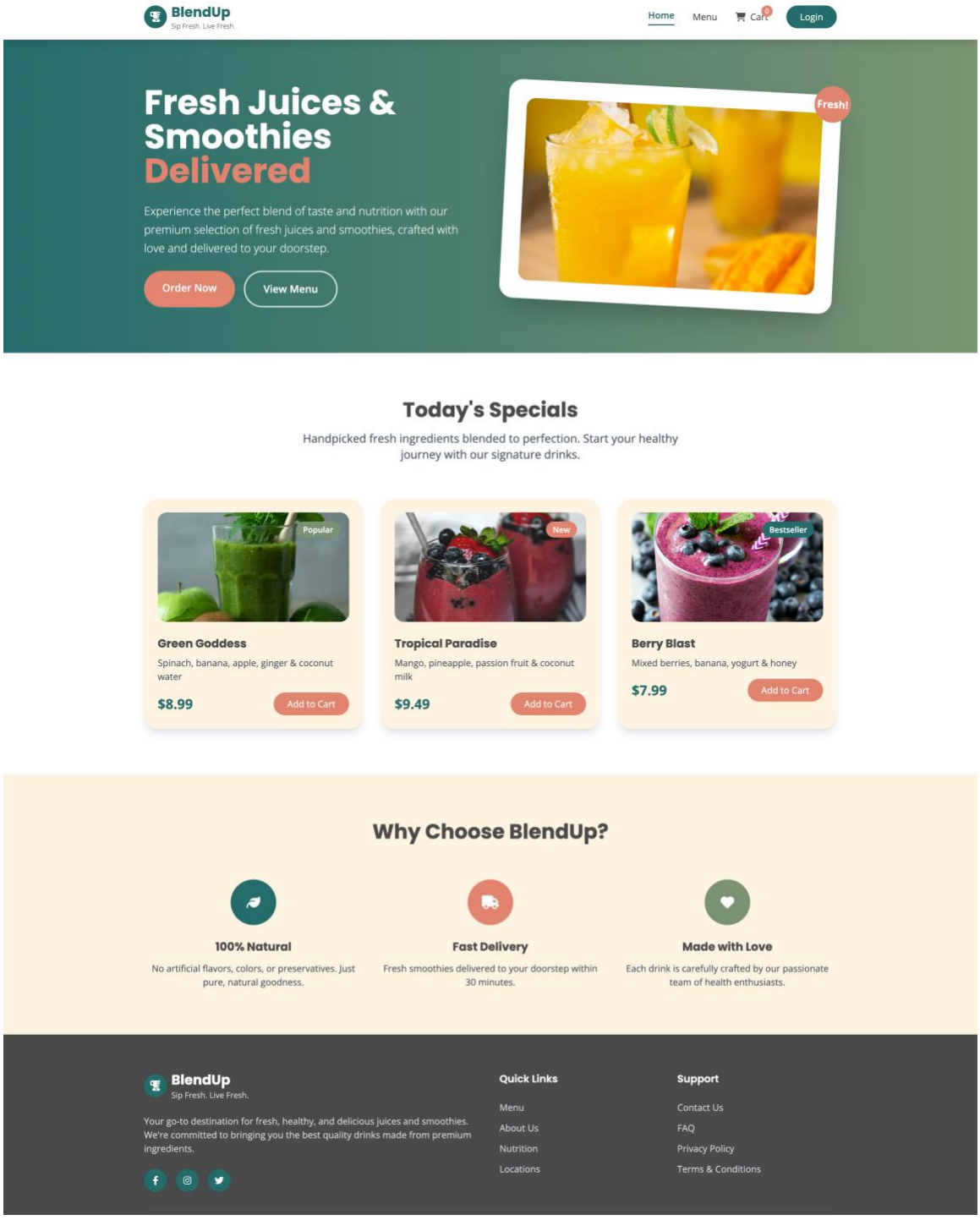


Mobile Home Page



Mobile Menu Page

2.2 UI Mock-ups



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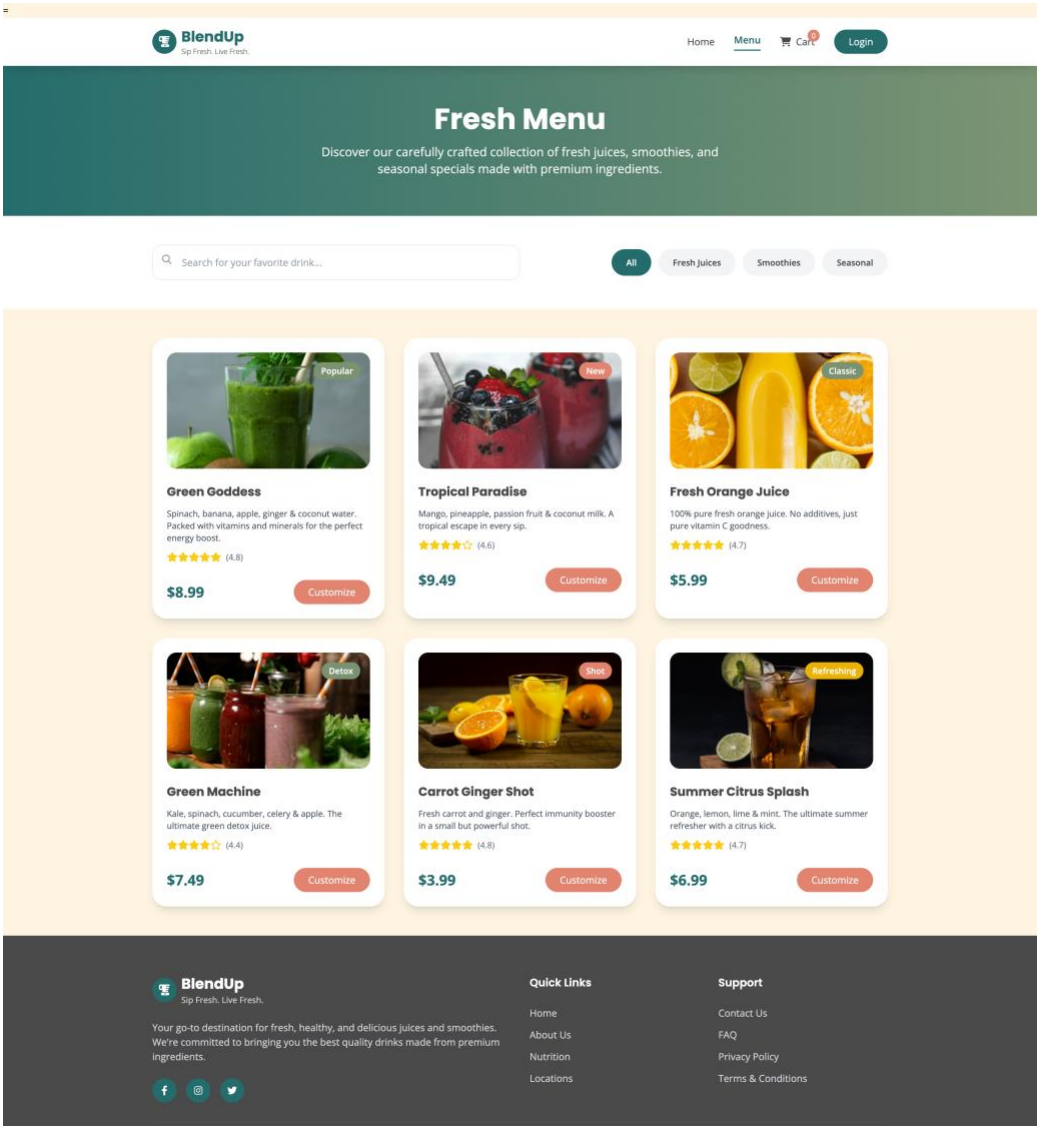
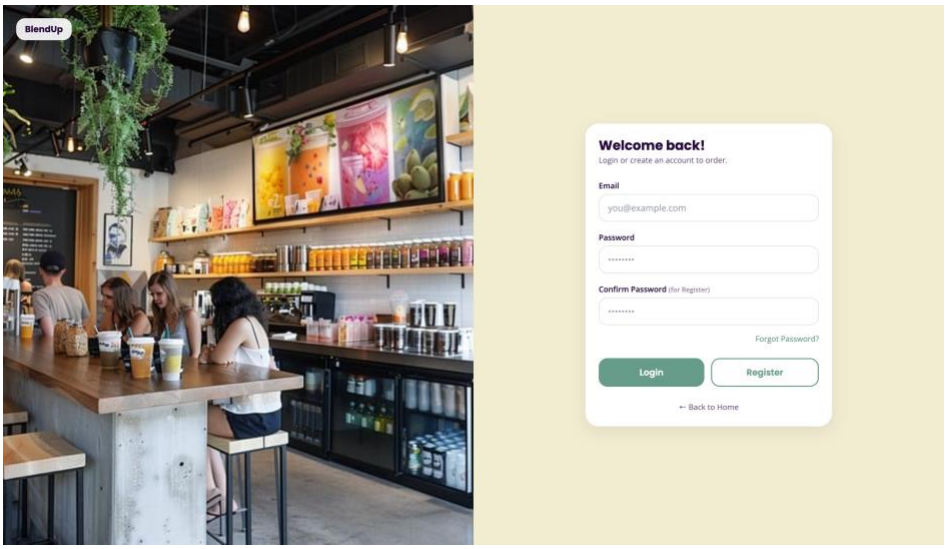
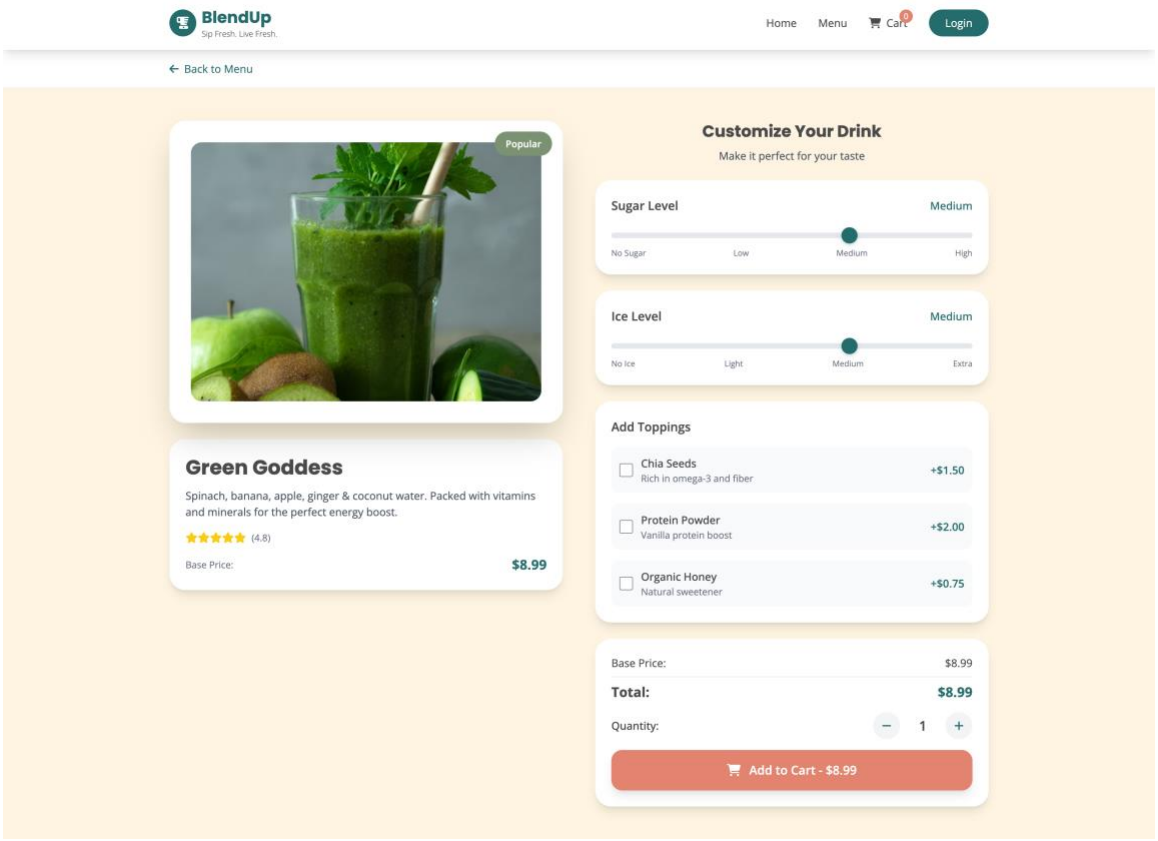


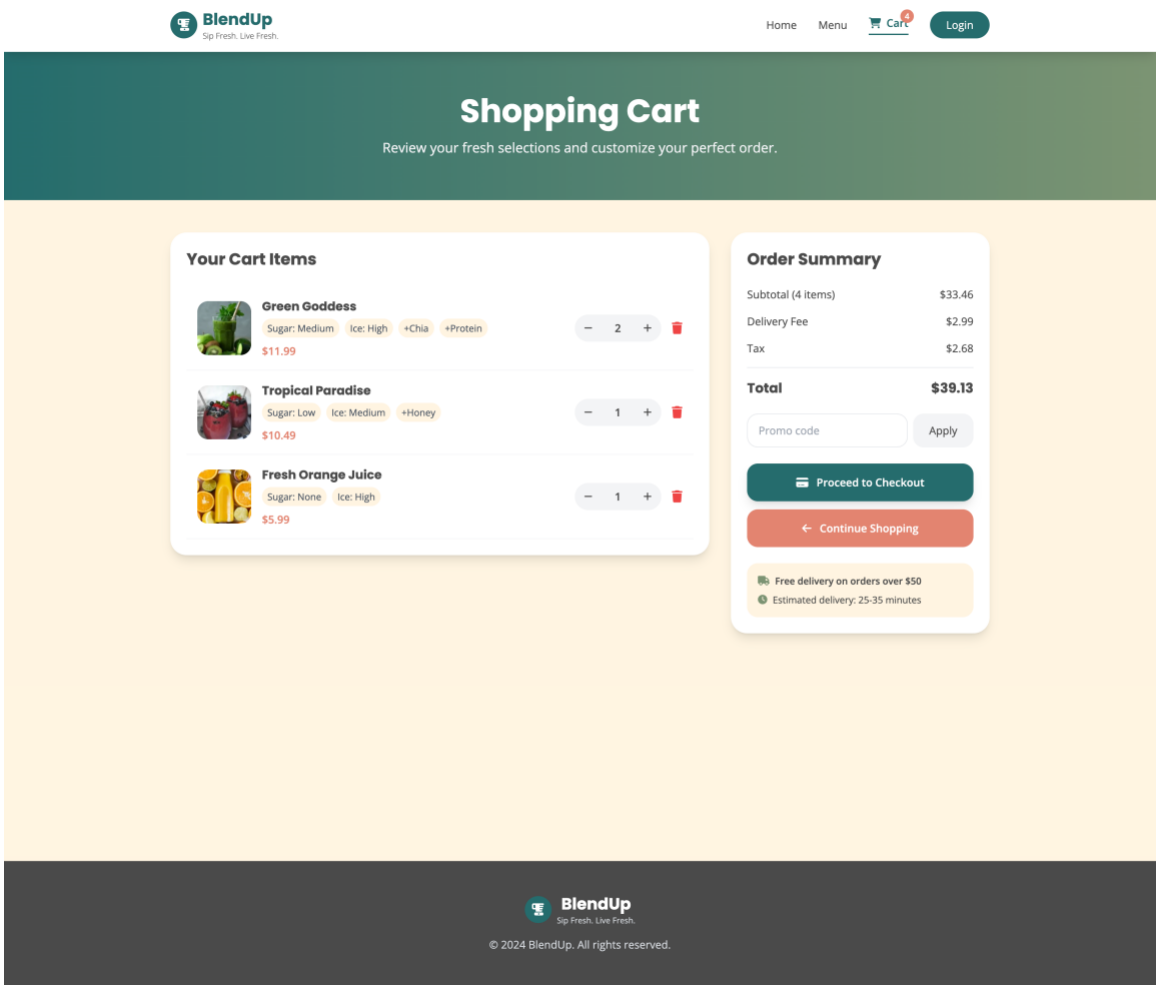
Desktop Menu Page



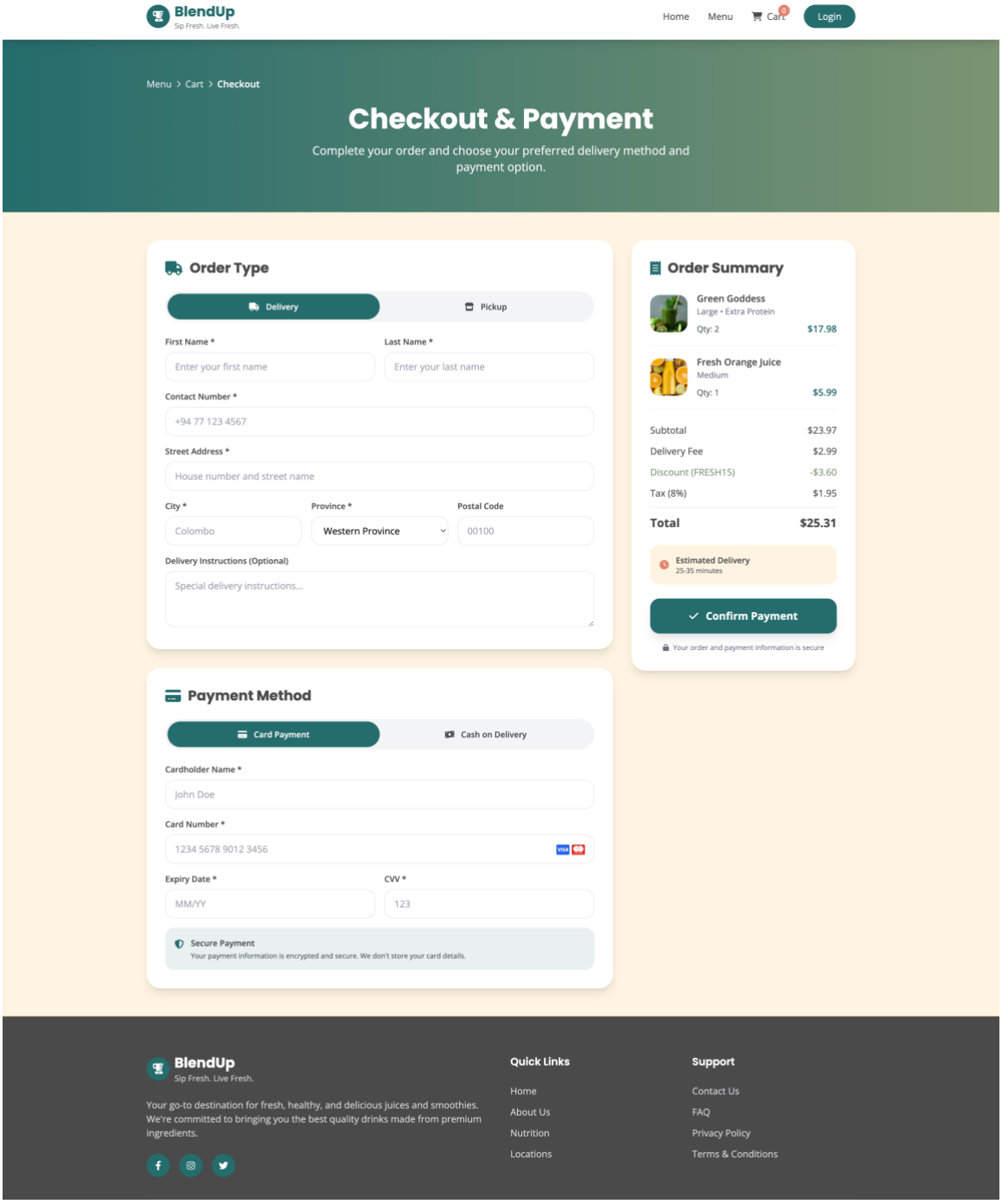
Login Page



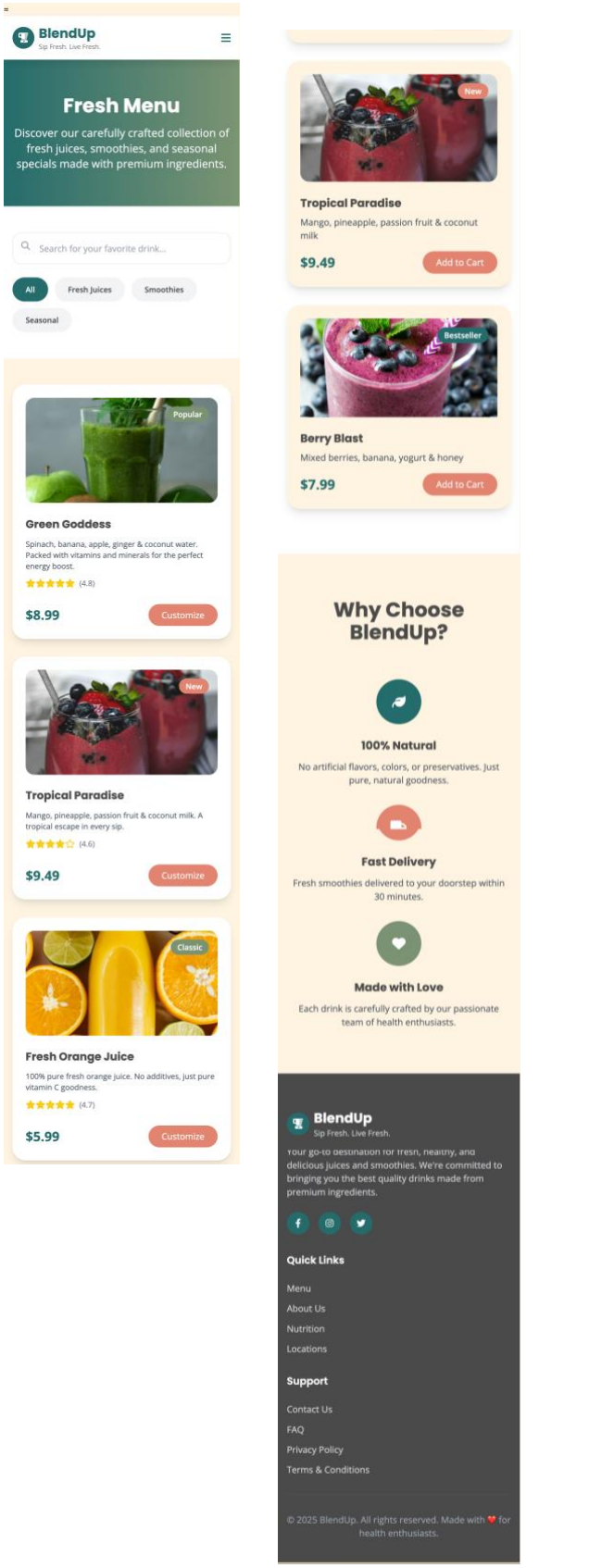
Customize Page



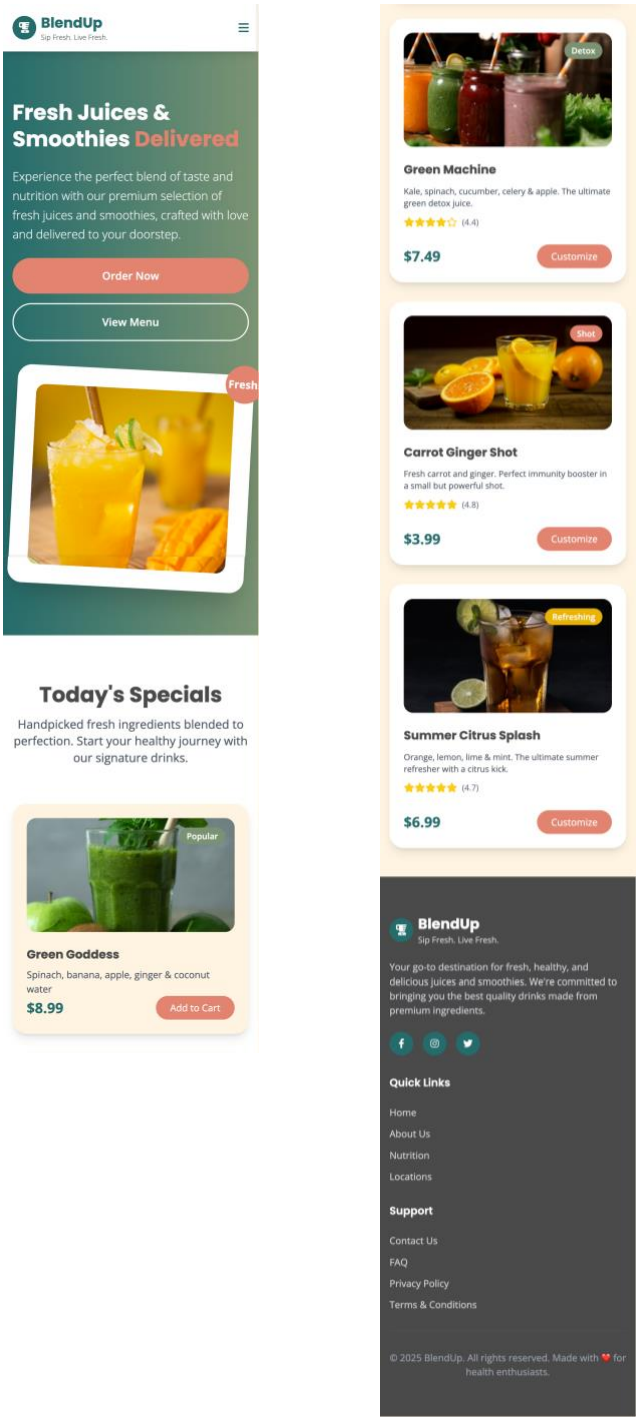
Desktop Shopping Cart



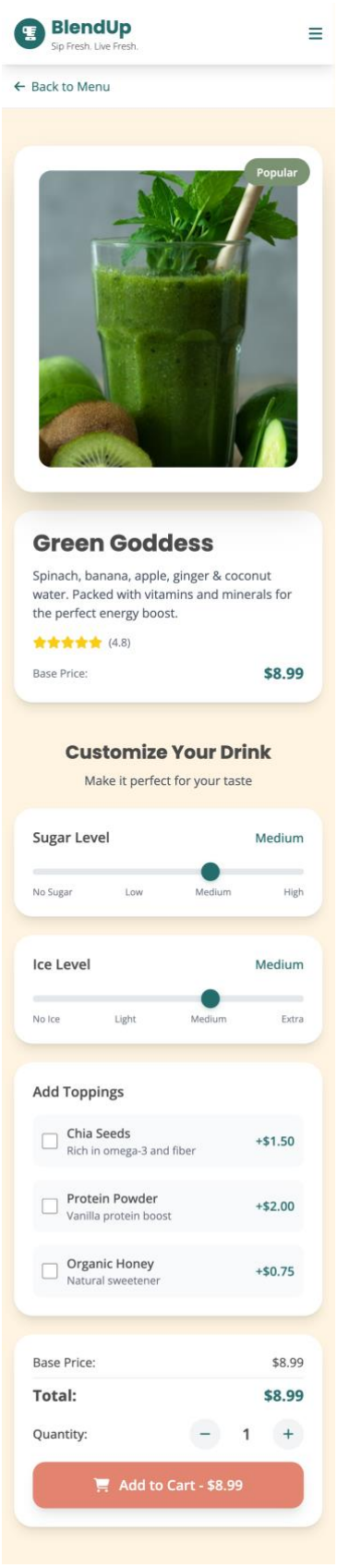
Desktop Checkout Page



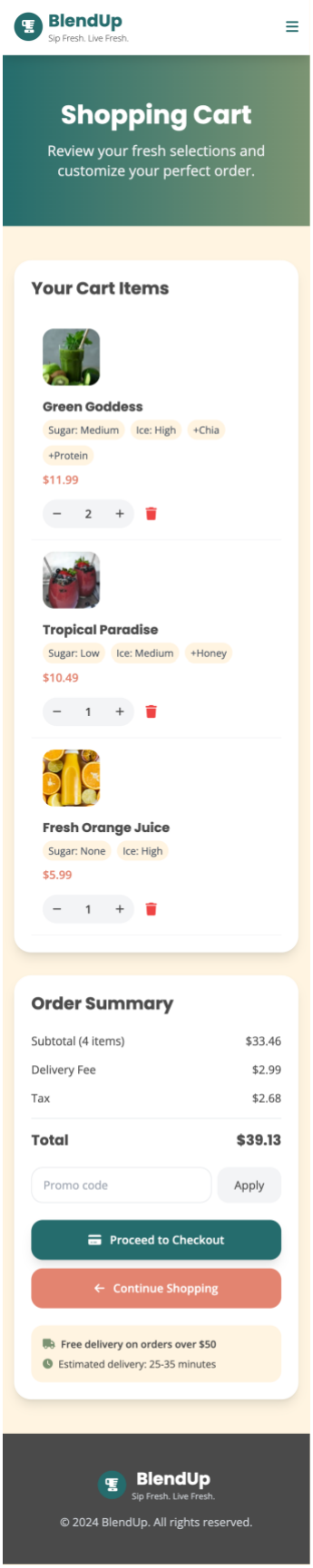
Mobile menu Page



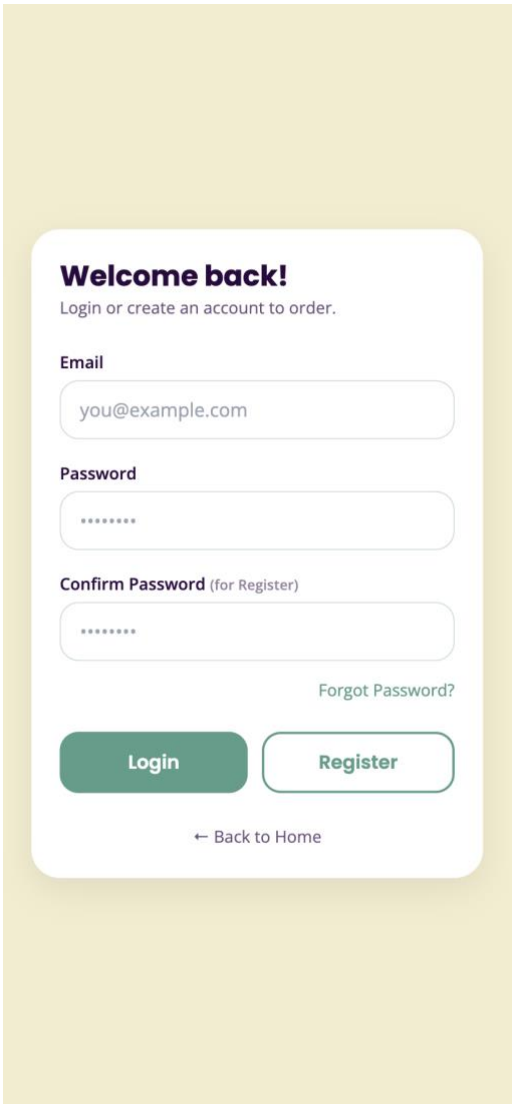
Mobile Page



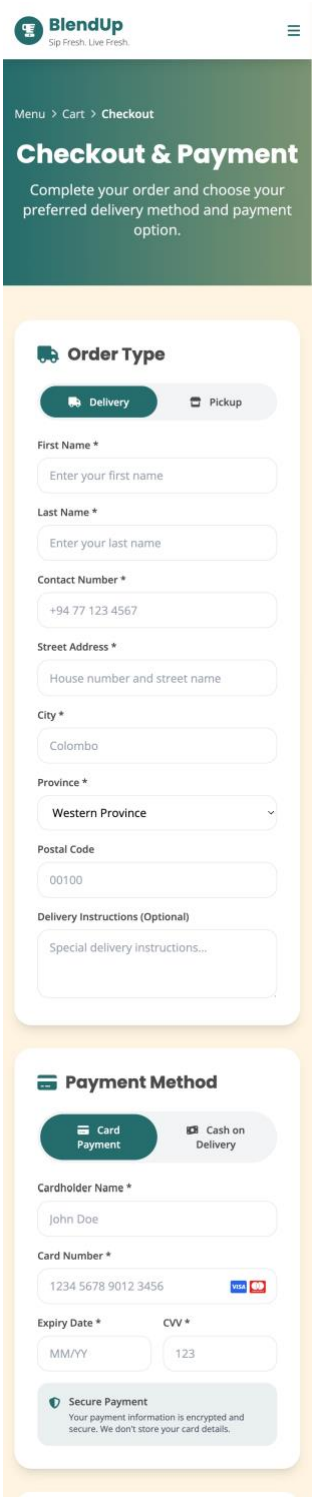
Mobile Customize Page

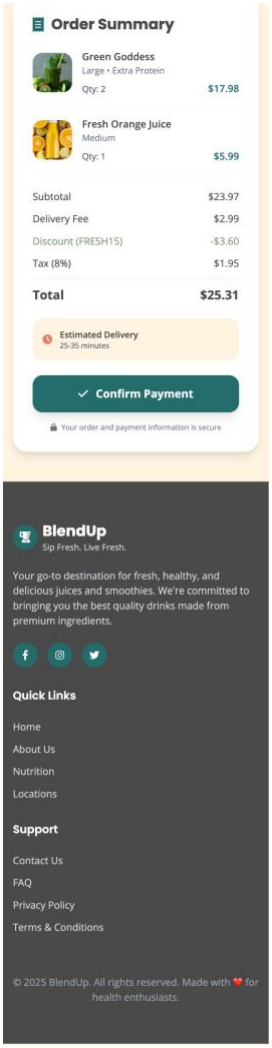


Mobile Shopping Cart



Web Login page

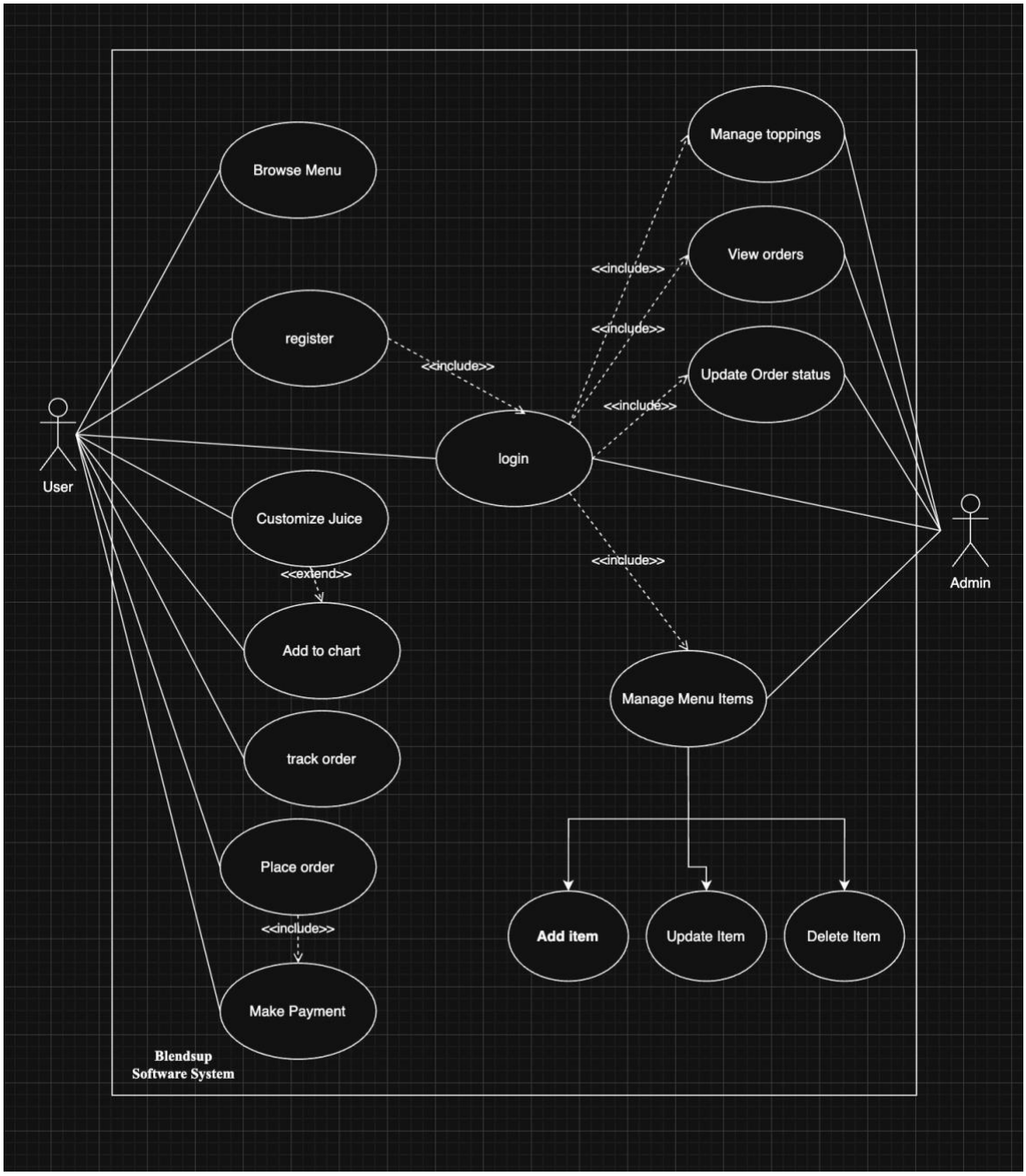




Checkout

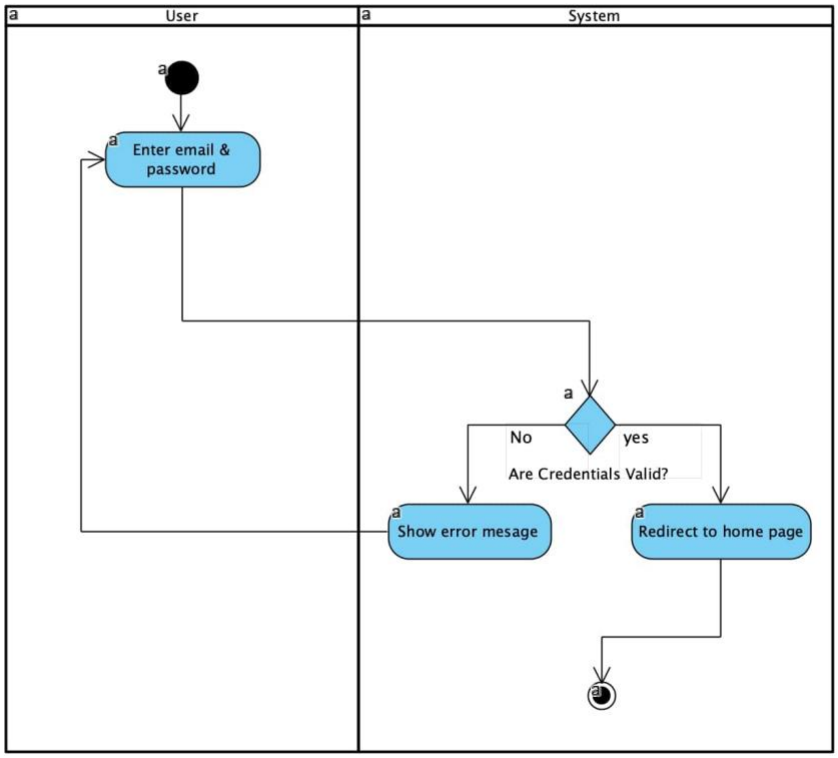
3. UML Diagrams

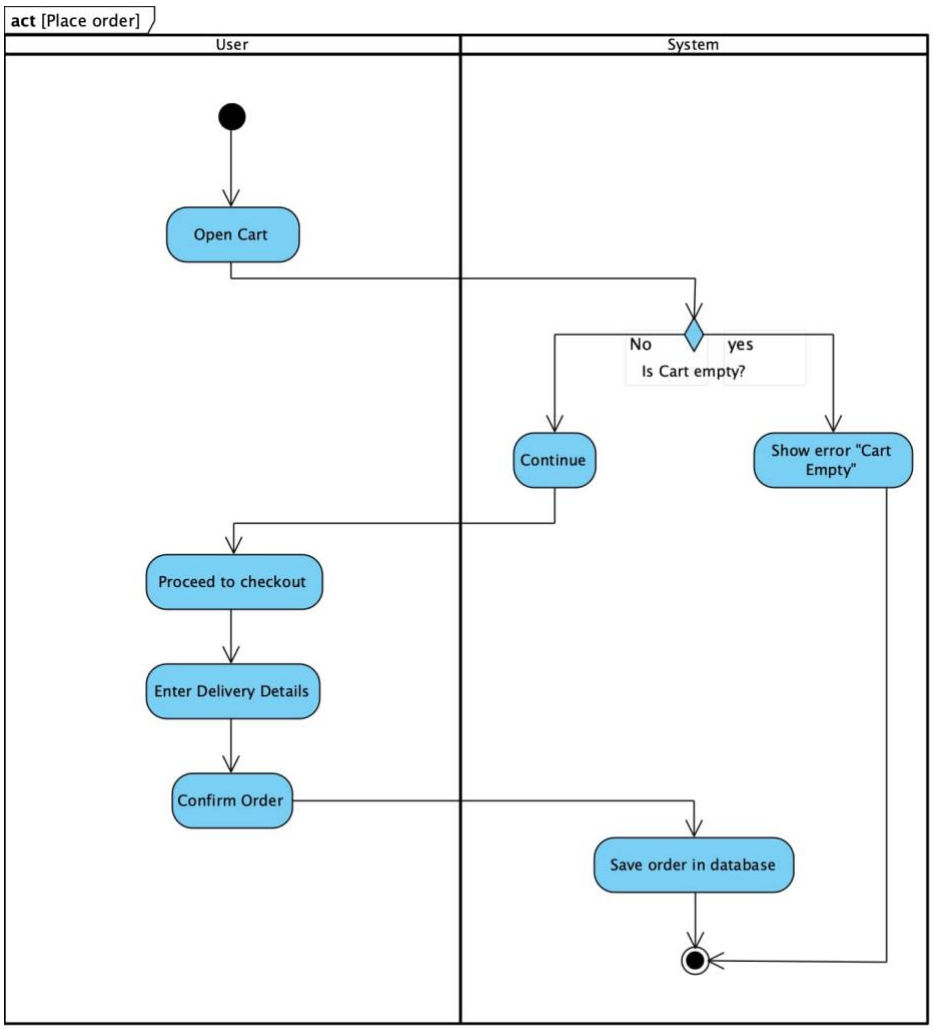
3.1 Use Case Diagram

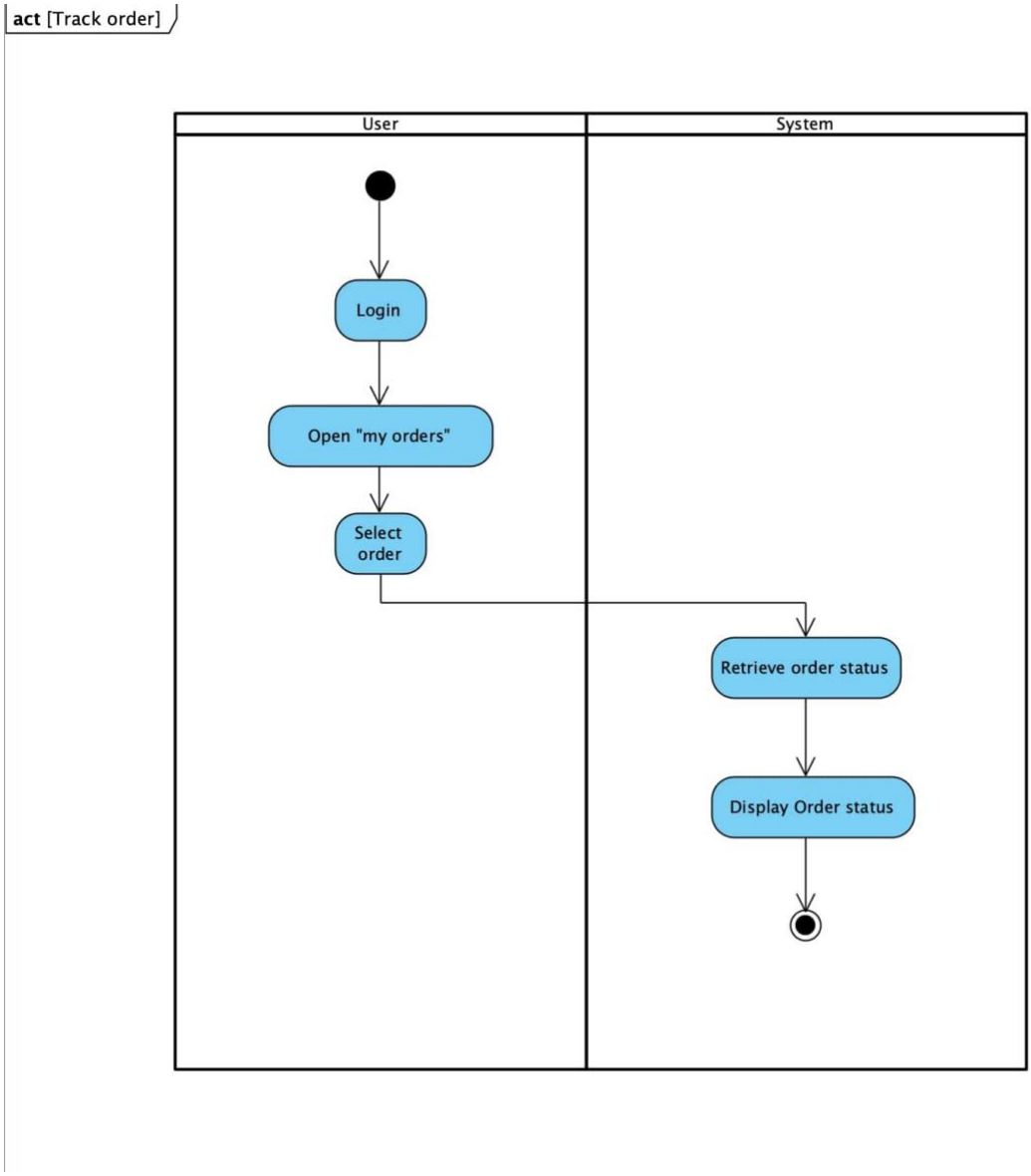


3.2 Activity Diagrams

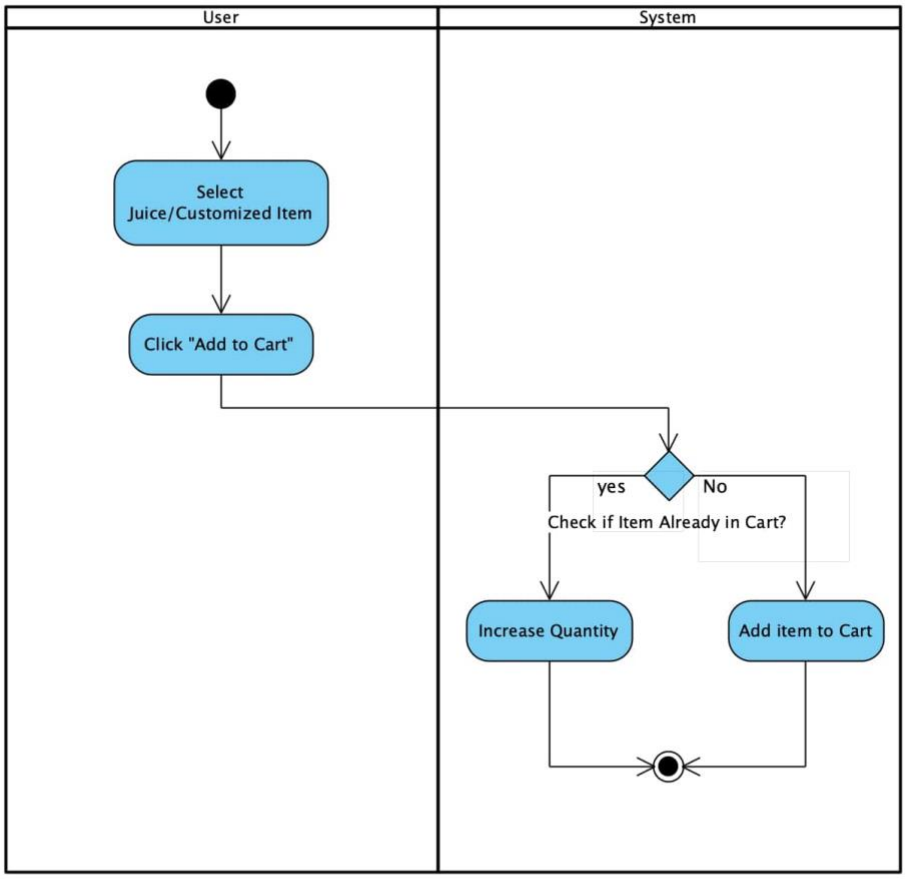
act [Register]



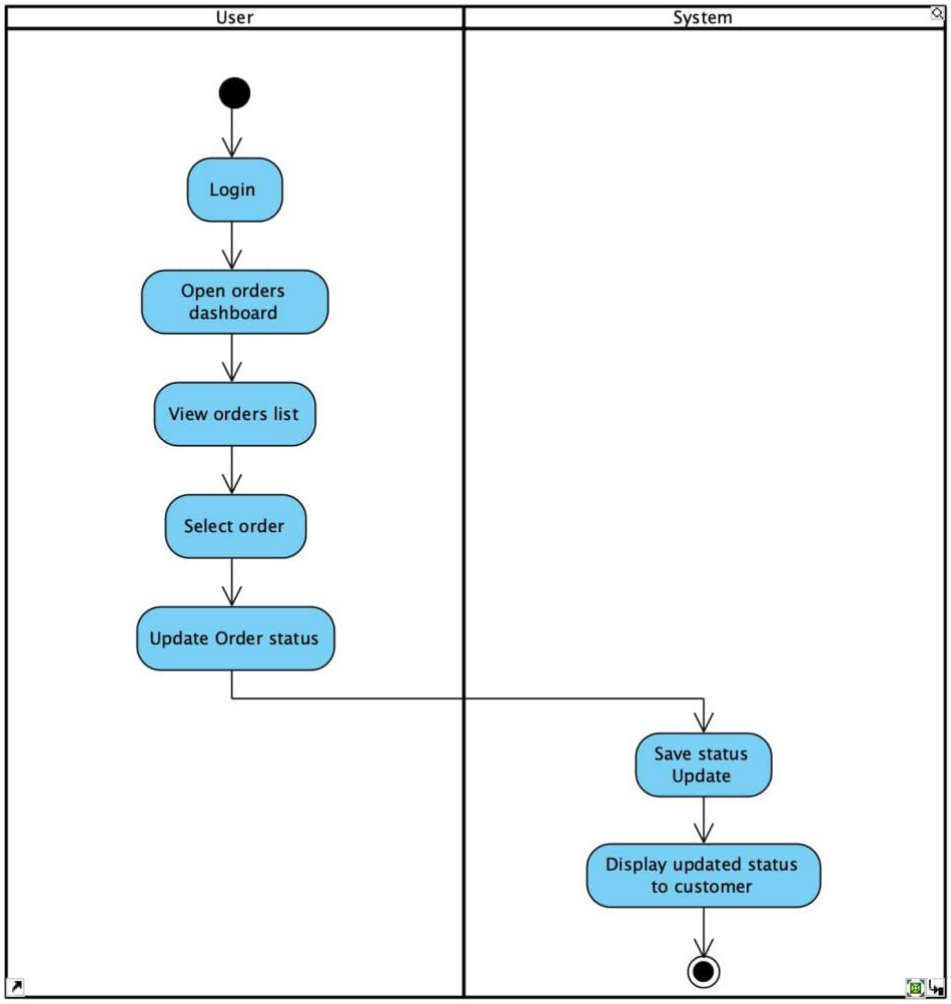

act [Place order]
User
System
Open Cart
No
yes
Is Cart empty?
Continue
Show error "Cart Empty"
Proceed to checkout
Enter Delivery Details
Confirm Order
Save order in database


act [Track order]
User
System
Login
Open "my orders"
Select order
Retrieve order status
Display Order status

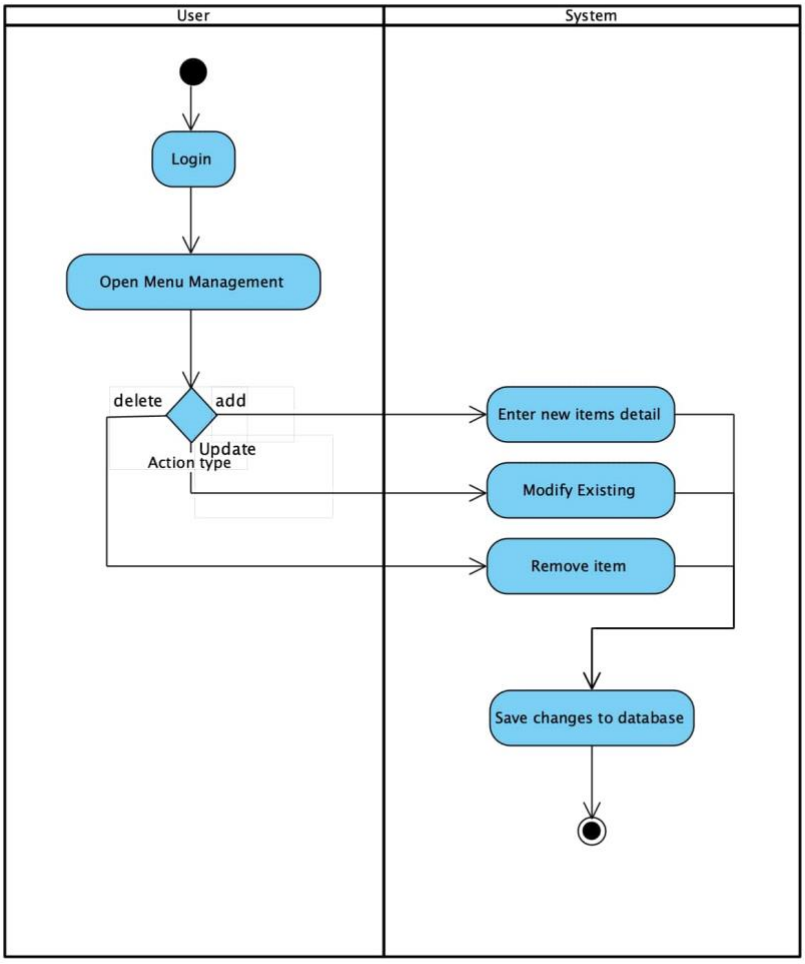
act [Add to cart]



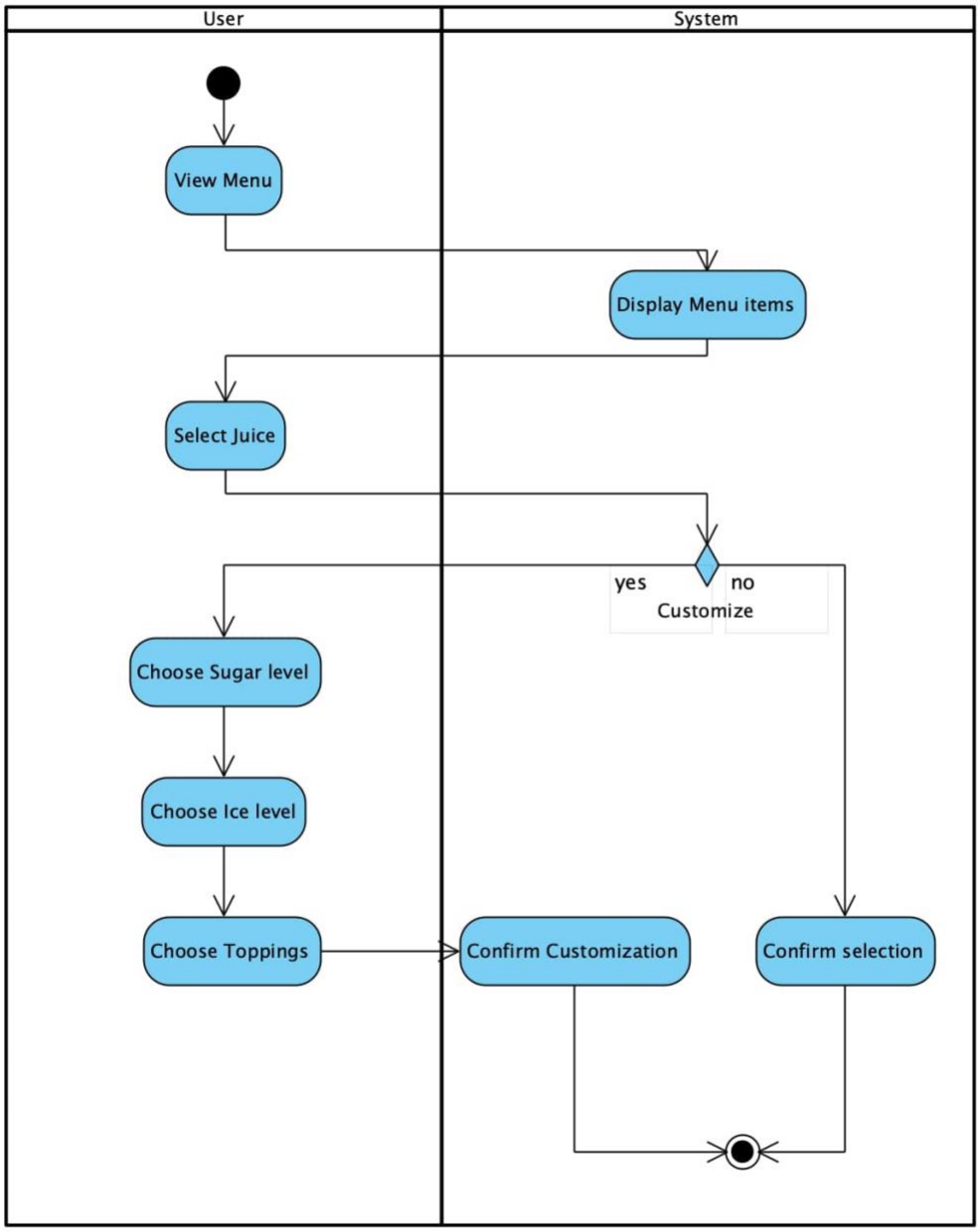
act [Admin Manage Orders]

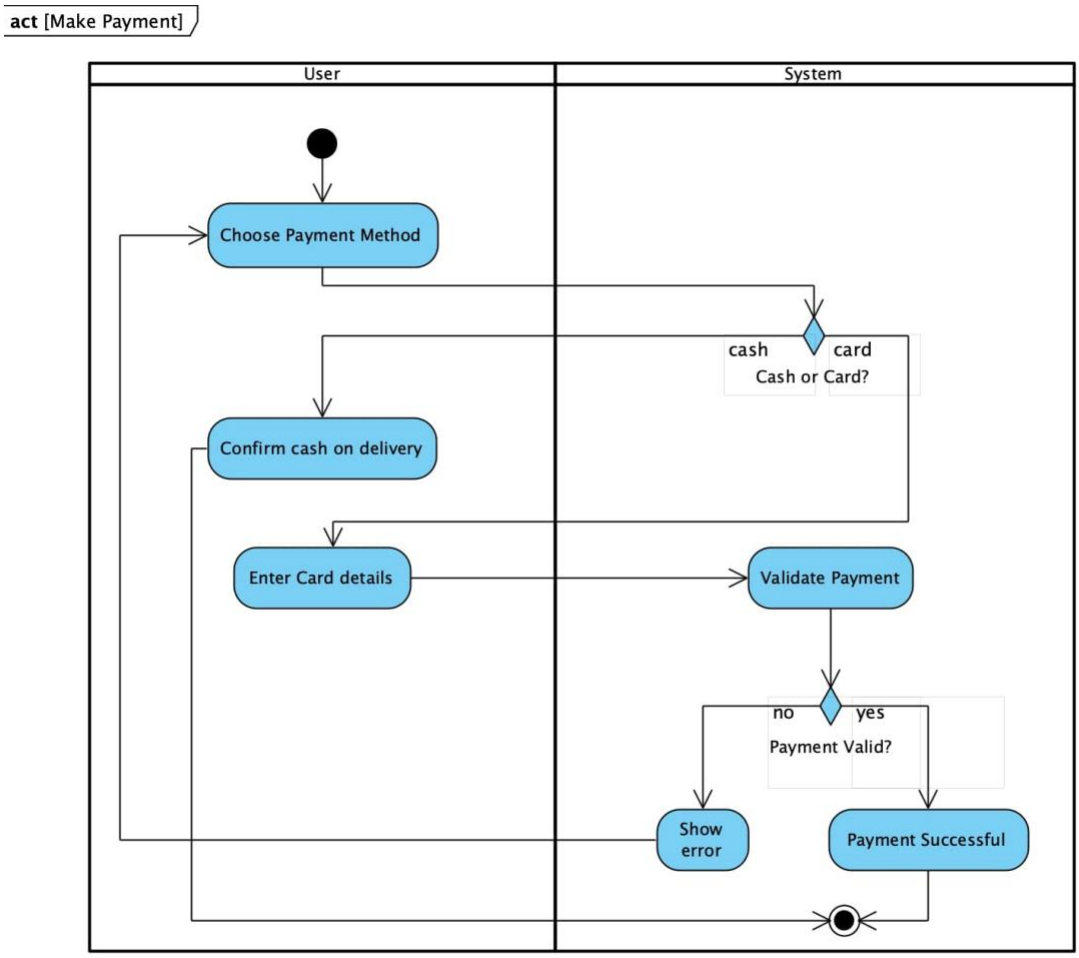


act [Admin Manage menu]

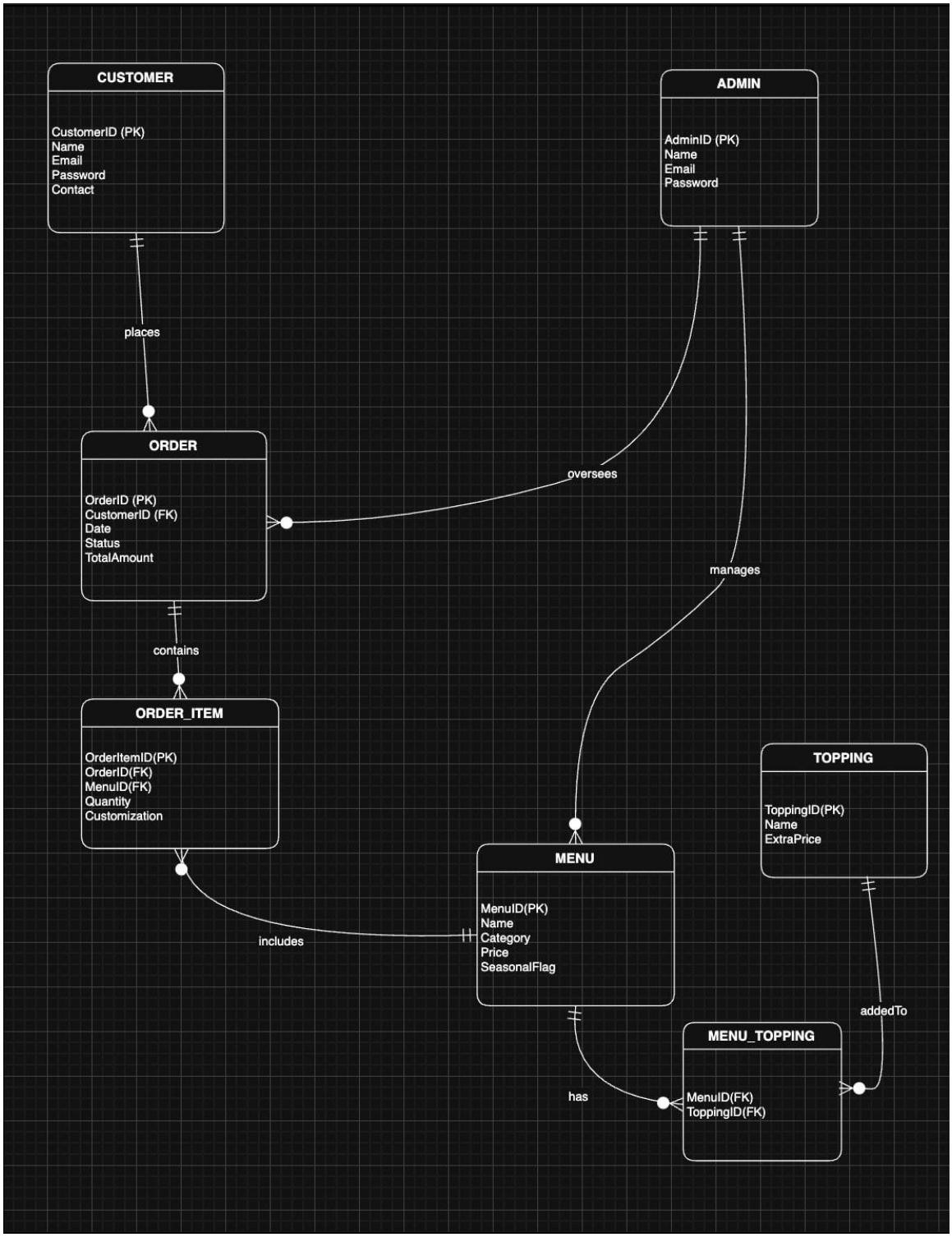


act [Browse & Customize Juice]




act [Make Payment]
User
System
Choose Payment Method
cash
card
Cash or Card?
Confirm cash on delivery
Enter Card details
Validate Payment
no
yes
Payment Valid?
Show error
Payment Successful

3.3 Entity Relationship Diagram



4.Test cases

4.1. Authentication

Test ID	Name	Description	Prerequisites	Expected Output	Actual Output	Status
#AUTH-01	Login - valid	Login with correct email/password	User exists with known password	Redirect to home; session user set; header shows Logout/Cart/Admin(if admin)	Redirected to home	pass
#AUTH-02	Login - wrong password	Login with valid email and wrong password	Existing user	Error message 'Invalid credentials'; stay on login; no session	“Invalid credentials” displayed on top of the form	pass
#AUTH-03	Login - unknown email	Login with email not in DB	None	Error 'Invalid credentials'	“Invalid credentials” displayed on top of the form	pass
#AUTH-04	Login - empty fields	Submit without email/password	None	Client blocks or server returns validation errors; no login	“please fill out this field” pop up	pass
#AUTH-05	Login - SQL injection	Email: a@a.com' OR 1=1 --	None	Input parameterized; login fails; no SQL error	“Invalid credentials” displayed on top of the form	pass
#AUTH-06	Registration - happy path	Register with unique email	None	User created with role=customer; password hashed; auto-login optional	User created and Redirected to home	pass
#AUTH-07	Registration - duplicate email	Register with existing email	Existing account	Validation error 'Email already exists'; no insert	“email already registered”pop up	pass
#AUTH-08	Registration - weak password	Try '123'	None	allowed; Redirect to home/index	Redirected to home (change password recommendation pop up)	pass

#AUTH-09	Logout	Click Logout	Logged-in user	Session cleared; redirected to login/home; header shows Login	Redirected to login/home	pass
#AUTH-10	Access control - /admin/*	Open admin pages as non-admin	Logged-in as customer	Redirect to home/index; no admin UI	no admin UI showed	pass
#AUTH-11	Access control - checkout	Open checkout when not logged in	Not logged	Redirect to login with ?next= checkout	Redirected to login	pass
#AUTH-12	Session fixation	Reuse session ID across login	None	Session regenerated on login (desired)	Even when the page is refreshed user doesn't get logged,till user does it manually	pass
#AUTH-13	Rate limiting (optional)	Attempt 20 failed logins quickly	None	App handles without crashing; optional lockout	Says "Invalid credentials"and works smoothly	pass

4.2. Menu, Search & Filters

Test ID	Name	Description	Prerequisites	Expected Output	Actual Output	Status
#MENU-01	Menu load	Open /pages/menu.php	Drinks exist	Cards render with image/price/category	Cards displayed	pass
#MENU-02	Search query	Search 'orange'	Drinks include orange	Only matching drinks shown	Display drinks with "orange"	pass
#MENU-03	Search case-insensitive	Search 'ORANGE'	Same dataset	Same results as lowercase	Display drinks with "orange"	pass
#MENU-04	Category filter	Click Smoothies	Drinks exist	Only Smoothies shown	Displayed smoothies only	pass
#MENU-05	Category 'all'	Reset to All	Any	All categories visible	Displayed all drinks	pass

#MENU-06	No results	Search random string	Any	UX (empty grid)	Displays no cards	pass
#MENU-07	Image fallback	Drink with empty image_url	One drink without image	Placeholder shown, no broken image	Placeholder shown	pass
#MENU-08	Currency formatting	Check price format	Any	Two decimals with $	Two decimals with price displayed	pass
#MENU-09	Customize link	Click Customize	Any drink	Navigates to customize.php?id=ID	goes to customize page	pass

4.3. Customize Drink

Test ID	Name	Description	Prerequisites	Expected Output	Actual Output	Status
#CUST-01	Load customization	Open customize page	Valid drink id	Shows image, rating, base price	Displays image, rating, base price	pass
#CUST-02	Sugar slider	Move sugar to High	Page loaded	Label updates to 'High'	Label updated to 'High'	pass
#CUST-03	Ice slider	Move ice to No Ice	Page loaded	Label updates accordingly	Label updated to no ice(shows on card)	pass
#CUST-04	Select toppings	Choose Chia & Protein	Page loaded	Total increases by $1.50	Total increased by $1.50	pass
#CUST-05	Unselect all toppings	No toppings	Page loaded	Total equals base price	Total displayed base price	pass
#CUST-06	Quantity increase	Qty 3	Page loaded	Total = (base+addons)*3; button label updates	Total Price updated	pass
#CUST-07	Quantity min boundary	Enter 0 or -1	Page loaded	JS coerces to 1; server also handles	Doesn't allow to go below 1	pass

#CUST-08	Add to cart (POST)	Submit form	Logged-in OR not (cart is session)	Item added with customizations; redirect to cart	Redirected to shopping cart	pass
#CUST-09	Server price integrity	Tamper addon prices in DOM	DevTools	Server still uses backend addon map; final price correct	Even changed when refreshed itll come back to original price	pass
#CUST-10	Invalid drink id	customize.php?id=99999	No such product	Redirect to menu	Redirected to menu	pass

4.4. Cart

Test ID	Name	Description	Prerequisites	Expected Output	Actual Output	Status
#CART-01	View cart	Open /user/cart.php	Items present	List shows correct names, chips, unit price, qty	List displayed correct names, chips, unit price, qty	pass
#CART-02	Increase qty	+ button	Item present	Qty increments; subtotal/total update	Quantity increased and price updated	pass
#CART-03	Decrease qty	- button at qty=1	Item present qty=1	Qty stays at 1 (min 1)	Stays at 1	pass
#CART-04	Remove item	Trash icon	Item present	Item removed; totals update	Asks for confirmation and removed and updated total	pass
#CART-05	Clear cart	Click Clear Cart	Items present	Cart becomes empty	Asks for confirmation and clear cart	pass
#CART-06	Persist cart session	Add item then refresh	Session active	Items persist across pages	Items persists	pass

#CART-07	Edge: Large qty	Set qty=999	Item present	Totals compute correctly; no overflow	Totals calculated correctly	pass
#CART-08	Edge: Float price rounding	Item with addons	Item present	Totals show 2 decimals; tax calc accurate	Totals show rice for 2 decimal places	pass
#CART-09	Unauthorized access	Open cart as new session	None	Empty cart view; no errors	Empty card displayed	pass

4.5. Checkout (Delivery & Pickup, Payments)

Test ID	Name	Description	Prerequisites	Expected Output	Actual Output	Status
#CHK-01	Access checkout with items	Click Proceed to Checkout	Items in cart; logged in	Checkout page loads	Checkout page loaded	pass
#CHK-02	Redirect when empty cart	Open checkout with empty cart	No items	Redirect to cart	Stays in cart	pass
#CHK-03	Delivery required fields	Leave some required fields empty	Delivery selected	Error banner 'Please complete required delivery fields.'	'Please complete required delivery fields' displayed	pass
#CHK-04	Pickup minimal fields	Provide pickup name & phone	Pickup selected	Form accepted; order placed	order placed “thank you msg” displayed	pass
#CHK-05	Switch order type UI	Toggle between delivery/pickup	Page loaded	Correct field groups shown/hidden	Correct fields shown	pass
#CHK-06	Payment - Card fields UI	Select Card	Page loaded	Card field group visible	Card fields shown	pass
#CHK-07	Payment - Cash UI	Select Cash	Page loaded	Card fields hidden; cash info shown	cash info shown “Pay with cash when your order arrives.	pass

					Please have the exact amount ready. “	
#CHK-08	Invalid phone format	Enter letters	Any mode	Validation error (client/server)	“Please enter a valid contact number” displayed	pass
#CHK-09	Place order success	Valid data	Logged in	Order id generated; redirect to confirmation	order placed “thank you msg” displayed	pass
#CHK-10	Order total consistency	Compare cart total vs order total	Valid purchase	Totals consistent; delivery fee & tax applied as designed	Totals consistent; delivery fee & tax displayed	pass

4.6. Order Confirmation & Tracking

Test ID	Name	Description	Prerequisites	Expected Output	Actual Output	Status
#ORD-01	Confirmation page	Post-order arrival	Successful checkout	Thank-you hero with correct order #	order placed “thank you msg” displayed	pass
#ORD-02	Tracking list	Open tracking	At least one order	Cards show id, items, status badge	Cards showed id, items, status badge	pass
#ORD-03	Progress bar mapping	Check % per status	Various statuses	pending≈10%, preparing≈60%, completed/delivered≈100%	Shows as expected output	pass
#ORD-04	Access control	Open another user's	Different user has orders	Only current user's orders listed; no leakage	Only current user's	pass

		order id (if direct link)			orders listed displayed	

4.7. Admin (Drinks & Orders)

Test ID	Name	Description	Prerequisites	Expected Output	Actual Output	Status
#ADM-01	Open Admin index	/admin/index.php	Admin user	Shows Manage Drinks/Orders cards	Displays Manage Drinks/Orders cards	pass
#ADM-02	Add Drink	Create new drink	Admin logged in	Row saved; appears in list & menu	Saved and shown in list & menu	pass
#ADM-03	Edit Drink	Change price/category	Existing drink	Row updated; reflected in menu	Updated and shown in list & menu	pass
#ADM-04	Delete Drink	Delete existing	Existing drink	Row removed; disappears from menu	Deleted and not shown in list & menu	pass
#ADM-05	List Drinks	View all	Any drinks	Table shows name, price, cat, featured	shows name, price, category, featured	pass
#ADM-06	Toggle Featured	Check/Uncheck	Existing drink	is_featured updated; badge changes in UI	Working badge	pass
#ADM-07	Order list	Open manage_orders.php	Orders exist	Orders with user info, status, totals	Orders displayed with user info, status, totals	pass
#ADM-08	Update order status	Change to Out for Delivery/Completed	Order exists	DB updated; visible on tracking	updated; visible on tracking	pass
#ADM-09	Delete order cascade	Delete an order	Order with items	order_items deleted then order; transaction commits	Asks for confirmation and deletes	pass
#ADM-10	Filters search	Filter by search by email/name/id	Orders exist	Correct subset shown	Displayed correctly	pass

4.8. Security & Data Validation

Test ID	Name	Description	Prerequisites	Expected Output	Actual Output	Status
#SEC-01	SQL Injection - login	Use ' OR 1=1 -- in fields	Login form	Safe due to prepared statements; no error	will not work	pass
#SEC-02	XSS - output escape	Inject <script> in name fields	Profile/Cart/ Orders rendering	Escaped via e(); script not executed	<script> tags are rendered harmless, not executed.	pass
#SEC-03	CSRF - state changing forms	POST to cart or admin from external origin	Logged in user	If CSRF not implemented, document risk; otherwise blocked	find_user_by_email() uses a prepared statement and you compare with password_verify() later.	pass
#SEC-04	Direct object reference	Access /admin/manage_drinks.php as customer	Logged-in customer	Redirect to index; no admin content	both admin pages start with if (!is_admin()) redirect(...).	pass
#SEC-05	Price tampering	Manipulate unit price via POST	Network devtools	Server ignores external price on cart.php flows; customize.php recomputes; document outcome	customize.php recomputes add-on totals server-side from a trusted $addonPrices map; place_order() sums from session cart; cart POSTs don't accept a price field.	pass

4.9. Performance, Reliability & Limits

Test ID	Name	Description	Prerequisites	Expected Output	Actual Output	Status
#PERF-01	First paint time	Load home page	Deployed env	Loads under acceptable threshold (e.g., <3s)	Loads immediately	pass
#PERF-02	High load cart ops	Spam +/− buttons rapidly	Item in cart	Totals stay correct; no race conditions	No changes or lag	pass
#PERF-03	DB transactional integrity	Order placement transaction	Cart with items	Either full order+items saved or none	No partial order is stored.The DB stays consistent.	pass
#PERF-04	Large catalog	Seed 40 drinks	DB seeded	Menu loads; pagination not required but page remains responsive	Menu loaded smoothly	pass
#PERF-05	Concurrency admin edits	Two admins edit same drink	Two sessions	Last write wins; no DB errors	No errors shown, both edit is done	pass

4.10. Accessibility & UX

Test ID	Name	Description	Prerequisites	Expected Output	Actual Output	Status
#A11Y-01	Keyboard navigation	Tab through forms/CTAs	Any page	Focusable order logical; visible focus states	Goes in order from each form	pass
#A11Y-02	Alt text on images	Product images alt	Menu/customize	Meaningful alt present (uses drink name)	On menu and customize pages, img tags use alt	pass

#A11Y-03	Color contrast	Buttons and text	UI palette	Meets WCAG AA contrast	The Tailwind theme uses deep teal, muted coral, olive green on white/cream backgrounds. Contrast ratio is sufficient.	pass
#A11Y-04	Responsive layout	Mobile, tablet, desktop	All pages	No overflow; menus accessible	Pages are responsive	pass