PlanningandLogicforShopEZProject

**ProjectName:**shopez-one-stop-shop-for-online-purchases

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**Date:**30-08-2025

# PlanningandDevelopment Logic

The**ShopEZ**projectisaMERN-stackbasedfull-stackwebapplicationaimedatdigitizing grocery shopping. It provides users with a seamless experience of browsing, selecting, and purchasing grocery items with secure login, intuitive UI, and efficient backend logic.

# Frontend(React.js+CSS/Bootstrap)

## Login/RegistrationPage:

* + Userscanregisterusingtheirname,email,andpassword.
  + JWT-basedloginandlogoutfunctionalitiesareimplemented.

## Homepage:

* + Displaysallavailablegrocery items.
  + Includessearchbarandcategoryfilters(e.g.,fruits,vegetables,dairy,snacks).

## ProductDetails:

* + Clickingaproductshowsdetailedviewwithprice,quantityselector,description, brand, and Add to Cart button.

## CartPage:

* + Showsitemsaddedtocart.
  + Quantitycanbeupdatedoritemsremoved.
  + Totalamountauto-updated.

## OrderSummary/Checkout:

* + Displaysselecteditems,total amount.
  + PlaceOrderbuttontriggersbackendAPItostoreorderdetails.

## OrderHistory:

* + Displayspastorderswithdate,status(Pending,Delivered),andtotalprice.

# Backend(Node.js+ Express.js)

## Routes Created:

* + /api/users:For registration,login, profile.
  + /api/products:CRUDoperationsforgroceryitems(adminonly),anduser- facing product fetch.
  + /api/cart:Add/remove/updateitemsincart.
  + /api/orders:Placeorder,fetchorderhistory.

## Controllers:

* + Eachroutehasacontrollerhandlingthebusinesslogic.
  + Middlewareforerrorhandlingandauthenticationisappliedglobally.

## Security:

* + Passwordshashedusing bcrypt.
  + JWTissuedonlogin;verifiedforprotectedroutes.

# Database(MongoDBwithMongoose)

## Collections:

* + Users:name,email,password,role
  + Products:name,price,category,brand,image,stock
  + CartItems:userId,productId,quantity
  + Orders:userId,products[],totalPrice,orderDate, status

## MongooseModels:

* + Definedforeachcollectionwithappropriatevalidationsandrelationships.

# Authentication(JWT)

* Tokensaregeneratedonsuccessfullogin.
* StoredinbrowserlocalStorageorcookies.
* Middlewareensuresprotectedrouteslikecheckoutandorderhistory.

# AdminPanelFeatures

* Productmanagement (add/edit/delete).
* Viewalluserorders.
* Updateorderstatus(e.g.,Delivered,Cancelled).

**Tools&Technologies**

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| **Stack Component** | **TechnologyUsed** |
| Frontend | React.js,Bootstrap,CSS |
| Backend | Node.js,Express.js |
| Database | MongoDB+ Mongoose |
| Authentication | JWT,bcrypt |
| Hosting | (Planned)Render/ Netlify |