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DATABASE DEVELOPMENT WITH PL/SQL GROUP B

Project Title: TradeUp — Smart Product Exchange & Top-Up Marketplace

TradeUp is an innovative online marketplace designed to help customers access products they desire even when they cannot afford the full purchase price. Unlike traditional e-commerce platforms where users can only buy or sell items, TradeUp introduces a hybrid model that allows customers to **exchange their existing products** and **top-up the difference** to acquire a more valuable item. This approach significantly improves affordability, encourages sustainable reuse of goods, and expands business opportunities for sellers.

The system brings together standard online shopping features—such as browsing, ordering, and secure payments—with a unique exchange mechanism powered by automated valuation logic.

Database Schema

TradeUp uses a relational database structure implemented in **PL/SQL**, supporting efficient transactions and robust system integrity.

1. USERS TABLE

Holds all platform users.

User_id (PK), username, password, email, user_type (customer / seller / admin)

2. PRODUCTS TABLE

product_id (PK), namedescription, price, condition, owner_id (**FK → USERS.user_id**)

3. EXCHANGE_REQUESTS TABLE

Core feature enabling product swap + top-up.

order_id (PK), user_id (**FK → USERS.user_id**), product_id (**FK → PRODUCTS.product_id**), order_date, order_type (purchase / exchange)

4. PAYMENTS TABLE

Stores payment information for both purchases and top-ups.

Payment_id (PK),order_id (**FK → ORDERS.order_id**), amount,payment_method,payment_date

5. ORDERS TABLE

Handles normal purchases or completed exchanges.

Order_id (PK), user_id (**FK → USERS.user_id**), product_id (**FK → PRODUCTS.product_id**), order_date, order_type (purchase / exchange)

Innovation and Improvement

TradeUp introduces several key innovations that make it stand out from traditional e-commerce systems:

1. Smart Exchange Mechanism

Customers can exchange old products and pay only the difference. This removes cost barriers and promotes equitable access.

2. Circular Economy Promotion

Instead of discarding old items, customers recycle them through trade-ins, supporting sustainability and reducing electronic waste.

4. Improved Affordability

Customers who cannot afford a product outright now have alternative means of acquiring it.

4. Increased Seller Profitability

Sellers attract more buyers and move inventory faster through flexible exchange deals.

5. Transparent and Traceable Transactions

All exchanges, payments are recorded in database for auditing, reporting, and

accountability.

Conclusion

TradeUp offers a modern, flexible solution to customer affordability challenges by combining traditional online shopping with a powerful exchange + top-up system. Through its innovative design, automated valuation, and efficient PL/SQL-backed database, TradeUp provides an inclusive, sustainable, and profitable marketplace for both customers and sellers.