**NOTES ON USE CASE DIAGRAM AND SEQUENCE DIAGRAM OF MY PROJECT (EASYPAY UGANDA)**

The Use Case Diagram outlines the interactions between different actors (User, Merchant, Administrator) and the system (EasyPay Uganda). It highlights the primary functionalities each actor can perform within the system.

**ACTORS AND USE CASES:**

**User/Customer**:

Login: Enables the user to log into the system.

Make Payment: Enables users to transfer funds to merchants or other users.

Check Transaction History: Allows users to view their past transactions for tracking and budgeting.

Receive Payment Confirmation: Users receive notifications upon successful transactions.

**Merchant**:

Login: Enables the merchant to log into the system.

Receive Payment: Merchants can accept payments from users.

Verify Transaction: Ensures the authenticity and validity of incoming transactions.

Manage Payment Settings: Merchants can configure their payment preferences and limits.

**Administrator/admin:**

Login: Enables the administrator to log into the system.

Monitor System Performance: Oversees the overall health and performance metrics of the system.

Manage User Accounts: Handles user registrations, permissions, and resolves account-related issues.

Update System Features: Implements new features, updates, and security patches to enhance the system.

**Key Points**

**Extensibility**: Additional use cases like "Register Account" for Users and "Generate Sales Reports" for Merchants can be incorporated to enhance functionality.

**Security**: Ensuring that only authorized actors can perform specific use cases (e.g., only Administrators can manage user accounts) is crucial.

**User Experience**: Simplifying use cases like "Make Payment" and "Check Transaction History" ensures a seamless experience for end-users.

**SEQUENCE DIAGRAM**

The Sequence Diagram illustrates the step-by-step interactions between actors and the system during a specific scenario—in this case, when a User initiates a payment to a Merchant.

**Steps**:

User Initiates Payment:

The user selects the merchant and enters the payment amount.

The user authenticates the transaction (e.g., via PIN, biometric).

System Verifies User's Identity:

EasyPay System checks the user's credentials and account status.

System ensures sufficient funds are available.

System Processes Payment:

Deducts the amount from the user's account.

Credits the amount to the merchant's account.

Logs the transaction details for record-keeping.

System Sends Confirmation to User:

A confirmation message is sent to the user via SMS, email, or in-app notification.

Merchant Receives Notification:

The merchant is alerted of the successful payment.

Updates their sales records accordingly.

Notification Service Updates Transaction History:

Both user and merchant can view the transaction in their respective histories.

**Key Points:**

**Authentication**: Verifying the user's identity is critical to prevent unauthorized transactions.

**Transaction Integrity**: Ensuring that funds are accurately debited and credited maintains trust in the system.

**Real-Time Notifications:** Immediate feedback to both users and merchants enhances user satisfaction.

**Logging:** Maintaining transaction logs is essential for auditing and resolving disputes.