



## SWIFT Integration and Monitoring System

### Phase 1:

#### Phase 1.1: Requirements and Design (11 Points)

1. **Transaction Processing:** The system must be able to process financial transactions, including credit transfers, interbank transfers, and foreign exchange confirmations.
2. **Message Validation:** The system must validate incoming SWIFT and ISO 20022 messages against predefined rules to ensure data integrity.
3. **Alert Management:** The system must generate and manage alerts for system errors, security breaches, and other significant events.
4. **Reporting:** The system should provide reporting capabilities for transactions, message validation logs, and system activities.
5. **User and Role Management:** The system must manage user accounts and assign roles with specific access permissions to different functionalities and data.
6. **BIC Directory Management:** The system should allow for managing and accessing a directory of Bank Identifier Codes (BICs).
7. **Currency Management:** The system needs to manage currency exchange rates and ensure transactions are processed using active currencies.
8. **Account Management:** The system should handle International Bank Account Numbers (IBANs), including their status and associated account types.

9. **System Monitoring:** The system must log system activities and errors for auditing and troubleshooting purposes.

## Phase 1.2. Functional Requirements (7-10 Points)

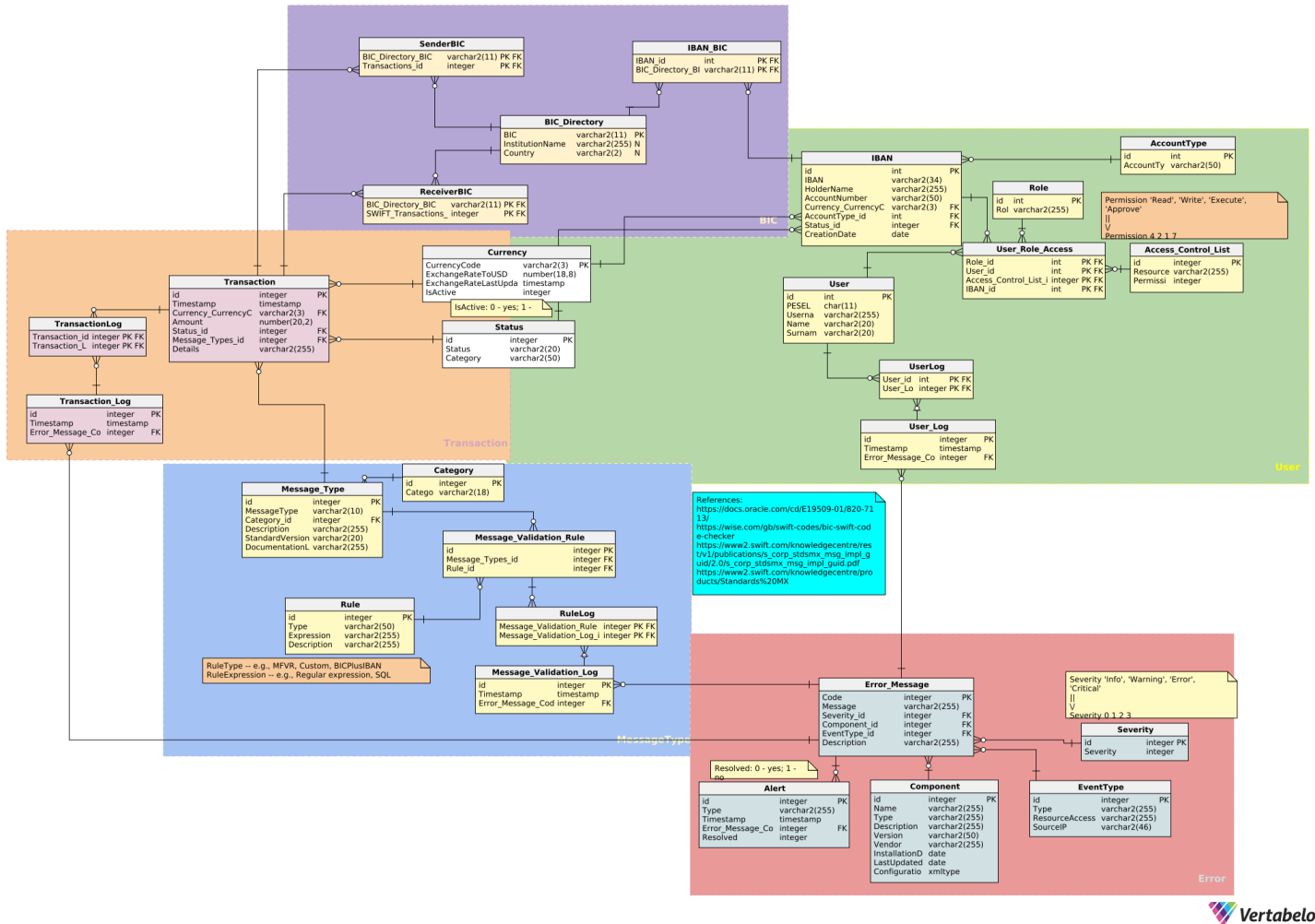
1. **Validate Incoming Messages:** The system shall validate incoming financial messages (MT and ISO 20022 formats) against defined validation rules.
2. **Process Credit Transfers:** The system shall process single customer credit transfer messages (MT103) and update transaction statuses.
3. **Record Transaction Details:** The system shall record all relevant details of processed transactions, including timestamp, currency, amount, and involved parties.
4. **Generate Alerts for Validation Failures:** The system shall generate alerts when incoming messages fail validation rules, including the error message code and timestamp.
5. **Search Transaction History:** The system shall allow users to search and view transaction history based on criteria such as date range, account number, or status.
6. **Manage User Roles and Permissions:** The system shall allow administrators to create and manage user roles and assign specific permissions to access system functionalities and data.
7. **Maintain BIC Directory:** The system shall allow authorized users to add, update, and view BIC directory information.
8. **Update Currency Exchange Rates:** The system shall allow authorized users to update currency exchange rates, including the last updated timestamp.
9. **Log User Login Activities:** The system shall log user login and logout activities, including timestamps and source IP addresses.
10. **Generate Message Validation Reports:** The system shall generate reports on message validation activities, including the number of successful and failed validations and the types of validation errors.

## Phase 1.3. Entity Relationship Diagram (ERD) (Minimum 6 Entities)

[here](#)

PS: link to vertabelo

|  
|  
|  
|  
|  
|  
|  
|  
V



## Phase 2:

### Phase 2.1: Database Implementation and Queries (19 Points)

[Data Definition Language](#) | [Data Manipulation Language](#)

### Phase 2.2. DQL Instructions (10 Queries, 17 Points):

[Instructions](#)