Underage Saving Bank System Diagram Documentation

This document provides detailed descriptions and explanations for the four diagrams representing the **Underage Saving Bank System:** Sequence Diagram, Use Case Diagram, State Machine Diagram, and Class Diagram.

1. Sequence Diagram

The **Sequence Diagram** shows the interactions between the key actors (Parent and Child) and the system components as they perform various tasks.

Description

The following key processes are depicted:

- **Sign Up:** Parent creates an account for the child. The system confirms the creation.
- **Set Savings Goal:** The child defines a savings goal, which requires parental approval.
- **Learn and Earn:** The child accesses educational lessons and saves money towards a goal.
- **Track and Reward:** Parents monitor account activity and reward achievements.

Key Components

- **Actors:** Parent, Child
- **System Components:** Underage Saving Bank System, Educational Module
- **Interactions:** Account creation, login, savings goal approval, learning, and reward monitoring.

Benefits

This diagram clarifies the interaction sequence, ensuring the smooth flow of operations and parental involvement.

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2. Use Case Diagram

The **Use Case Diagram** captures the functional requirements and interactions between the system and its users.

Description

It includes the following key use cases:

- **Create Account:** Parent supervises the child’s account creation.

- **Login:** The child securely accesses their account.
- **Set Savings Goal:** The child initiates savings goals.
- **Approve Savings Goal:** Parents approve or reject goals.
- **Monitor Account Activity:** Parents track the child's financial progress.
- **Access Educational Modules:** The child learns financial concepts.
- **Secure Transactions:** The system ensures data and transaction security.
- **Track and Reward Progress:** Parents reward children for achieving savings milestones.

Actors

- **Parent:** Approves goals, monitors activities, and rewards progress.
- **Child:** Sets goals, saves money, and accesses educational content.
- **Admin:** Ensures system security and manages activity.

Benefits

This diagram clearly outlines the functional requirements and highlights parental supervision.

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3. State Machine Diagram

The **State Machine Diagram** models the various states of the system and transitions between them.

Description

It illustrates the following key states and transitions:

- **Registration:** Parent supervises account creation.
- **Logged Out:** Initial state where users need to log in.
- **Login:** Successful login transitions to the "Logged In" state.
- **Set Savings Goal:** Child defines a savings goal.
- **Awaiting Approval:** Parent review and approval/rejection.
- **Active Savings:** Child saves money toward the approved goal.
- **Goal Achieved:** The system transitions to the "Reward" state upon goal achievement.
- **Educational Modules:** Child accesses financial lessons.

Benefits

The state machine diagram provides a clear view of system states and transitions, ensuring a well-defined user journey.

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4. Class Diagram

The **Class Diagram** models the static structure of the system, showing classes, attributes, methods, and relationships.

Description

The following classes and their relationships are depicted:

- **Parent:** Attributes include `name`, `email`; methods include `monitorAccount()`, `approveSavingsGoal()`, and `rewardChild()`.
- **Child:** Attributes include `name`, `age`, `savingsBalance`; methods include `setSavingsGoal()`, `accessEducationalModules()`, and `saveMoney()`.
- **Account:** Attributes include `accountId`, `balance`; methods include `createAccount()`, `deposit()`, and `withdraw()`.
- **SavingsGoal:** Attributes include `goalName`, `targetAmount`, `currentAmount`; method `isAchieved()`.
- **EducationalModule:** Attributes include `title`, `description`; method `accessLesson()`.
- **Security:** Methods include `encryptData()` and `validateTransaction()`.

Relationships

- **Parent and Child:** One parent supervises multiple children.
- **Child and Account:** Each child has one account.
- **Child and SavingsGoal:** Children can set multiple savings goals.
- **Child and EducationalModule:** Children can access educational content.
- **Account and Security:** Account operations are secured by the system.

Benefits

This diagram provides a comprehensive view of the system's structure, ensuring a well-organized and scalable architecture.

Conclusion

These four diagrams provide a complete and structured visualization of the **Underage Saving Bank System**, encompassing interactions, functionality, states, and architecture. Together, they help in understanding, developing, and maintaining the system efficiently.