

Problem Statement:

Write a Go program that implements a simple RESTful API for managing bank accounts and their transactions. The API should support the following operations:

Entities:

1. **Account:**
 - **ID:** Unique identifier for the account.
 - **Owner:** Name of the account holder.
 - **Balance:** Current balance of the account.
2. **Transaction:**
 - **ID:** Unique identifier for the transaction.
 - **AccountID:** Identifier of the account related to the transaction.
 - **Type:** Type of transaction (**deposit** or **withdrawal**).
 - **Amount:** Amount involved in the transaction.
 - **Timestamp:** Date and time when the transaction was made.

API Operations:

1. **Create a New Account**
 - **Endpoint:** **POST /accounts**
 - **Description:** Create a new bank account with an initial balance.
 - **Request Body:** JSON containing **owner** and **initial_balance**.
2. **Retrieve Account Details**
 - **Endpoint:** **GET /accounts/{id}**
 - **Description:** Retrieve details of a specific account by ID.
3. **List All Accounts**
 - **Endpoint:** **GET /accounts**
 - **Description:** Retrieve a list of all bank accounts.
4. **Create a Transaction**
 - **Endpoint:** **POST /accounts/{id}/transactions**
 - **Description:** Create a deposit or withdrawal transaction for a specific account.
 - **Request Body:** JSON containing **type** (**deposit** or **withdrawal**) and **amount**.
5. **Retrieve Transactions for an Account**
 - **Endpoint:** **GET /accounts/{id}/transactions**
 - **Description:** Retrieve all transactions associated with a specific account.
6. **Transfer Between Accounts**
 - **Endpoint:** **POST /transfer**
 - **Description:** Transfer funds from one account to another.
 - **Request Body:** JSON containing **from_account_id**, **to_account_id**, and **amount**.

Requirements:

- **HTTP Methods:** Use appropriate HTTP methods (GET, POST).
- **Data Format:** JSON for request and response bodies.
- **Concurrency:** Handle concurrent transactions safely to maintain data integrity.
- **Error Handling:** Gracefully handle errors such as insufficient funds, invalid account IDs, and invalid transaction types.
- **Code Quality:** Write clean, well-structured, and maintainable code.
- **Persistence:** In-memory storage is sufficient; a database is not required.
- **Instructions:** Provide clear instructions on how to run and test the application.