

## OOP Bank System Project Class Specification

### 1. Classes functioning as common utilities

Name	Description
Database	<ul style="list-style-type: none"><li>• A class that provides functionalities to interact with the database.</li><li>• It provides following functions:<ul style="list-style-type: none"><li>a. Initialize database connection (create engine)</li><li>b. Store configuration information of the database, provide methods of initializing database connections, provide db sessions, and save a new/updated record to the database.</li><li>c. Provide methods to 'new a record' or 'update a record' in a table in the database. All other classes can call these methods to save new/updated records into the database.</li></ul></li></ul>
Utility	<ul style="list-style-type: none"><li>• A class that provides functions that can be called by all other classes or modules.</li><li>• These functions include: setting up loggers, formatting messages, logging information or errors, printing messages to screen, etc.</li></ul>
Sequence	<ul style="list-style-type: none"><li>• A class that provides functionality to generate monotonically increasing numbers, which will be used in many places.</li><li>• It is provided because MySQL doesn't provide object 'sequence' at database level.</li></ul>

### 2. Classes of basic entities

Name	Description
<ol style="list-style-type: none"><li>1. Bank</li><li>2. Employee</li><li>3. Customer</li><li>4. Bankaccount</li><li>5. CustomerAccount</li><li>6. AccountTransaction</li><li>7. CreditCard</li><li>8. CardApplication</li></ol>	<ul style="list-style-type: none"><li>• These are classes which represent the very basic entities, such as customer, account, employee, credit card, account transactions and etc.</li><li>• They provide methods of creation, saving to or retrieving from database for individual entity of a single type.</li><li>• In most cases it won't talk to database directly but sometimes will do, when certain specific functions are not provided by class 'Database'</li></ul>

### 3. Classes of application modules

Name	Description
<ol style="list-style-type: none"><li>1. AccountManager</li></ol>	<ul style="list-style-type: none"><li>• These are higher level classes that interact with different</li></ul>

<ol style="list-style-type: none"><li>2. CustomerManager</li><li>3. TransactionManager</li><li>4. CreditCardManager</li></ol>	<p>bottom level entities and provides system functions the user needs.</p> <ul style="list-style-type: none"><li>• They provide interfaces for human-computer interaction so system can accept commands and input from the users, and send feedback/users to the users.</li><li>• They will call methods provided by classes of the other two types, and never talk directly to database</li></ul>
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