

ASSIGNMENT
BITP 3113 – OBJECT-ORIENTED PROGRAMMING

OOP Bank Sdn. Bhd. wants to develop a wealth management system for its clients. The system keeps track of the assets owned by a client, and then calculate the sum of monetary value of these assets. The assets owned by the client can be categorized into three categories: property, vehicle, and saving. The property can be lands and houses, while vehicle can be cars and motorcycles, and saving can be bank accounts and golds. Each of these assets have different formula to calculate its' monetary value, such as:

1. Land: area times price per meter squares
2. House, car, and motorcycle: market value
3. Bank account: balance times (1 plus interest rate)
4. Gold: weight times price per grams

During the requirement analysis phase, the system analyst has come out with a class diagram, which is to be implemented by you as the system developer. The class diagram can be referred in Figure 1. However, you realized that the class diagram is incomplete since some of the constructors and methods don't throw any exception when its parameters' values are incorrect, therefore you may need to add throws declaration in any constructors and methods you see fit. You are also allowed to add the necessary classes.

Develop a simple system that fully implements the class diagram provided and write a `main()` method to instantiate the objects from user input, store the objects of these classes into a collection (you can use either `Vector` or `ArrayList`), and print the list of these objects in the console. The method to calculate the monetary value of these assets should raise an exception if any of the element of the formula is in invalid value, for example negative value of area for land, negative value of price per grams for gold, etc.

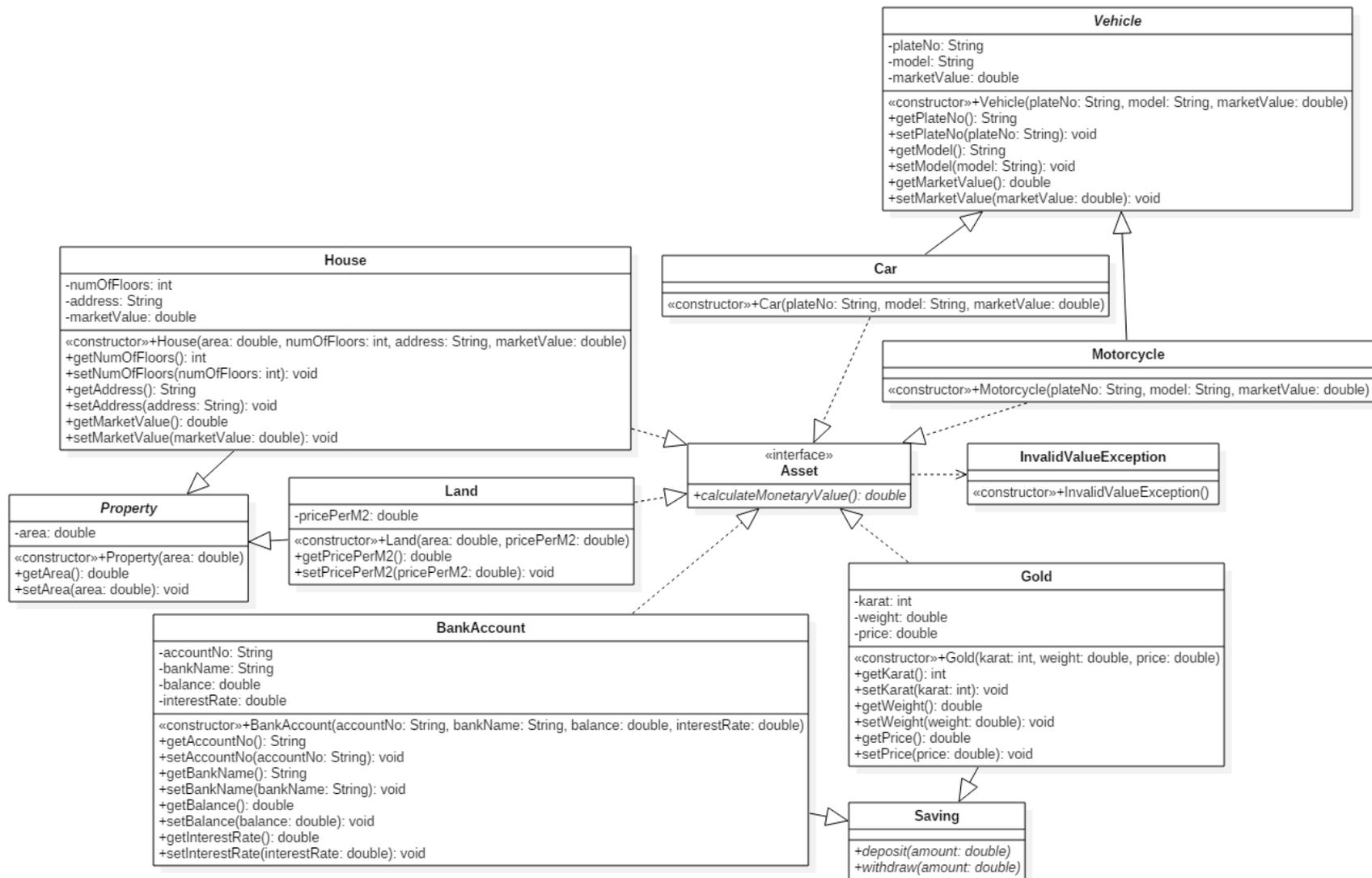


Figure 1: Class diagram of wealth management system