For this assignment you will work in pairs. You will design the class together, then one person will implement the Coin class, one person will implement the main program that uses it. Make sure you test the program when the two parts are put together.

1. Design a class named Coin (use a UML diagram).

The Coin class should have the following member variable:

• A string named sideUp . The sideUp member variable will hold either “heads” or “tails” indicating the side of the coin that is facing up.

The Coin class should have the following member functions:

• A default constructor that randomly determines the side of the coin that is facing up (“heads” or “tails”) and initializes the sideUp member variable accordingly.

• A void member function named toss that simulates the tossing of the coin. When the toss member function is called, it randomly determines the side of the coin that is facing up (“heads” or “tails”) and sets the sideUp member variable accordingly.

• A member function named getSideUp that returns the value of the sideUp member variable.

2. create a game program that uses the Coin class. The program should have three instances of the Coin class: one representing a quarter, one representing a dime, and one representing a nickel. When the game begins, your starting balance is $0. During each round of the game, the program will toss the simulated coins. When a coin is tossed, the value of the coin is added to your balance if it lands heads-up. For example, if the quarter lands heads-up, 25 cents is added to your balance. Nothing is added to your balance for coins that land tails-up. The game is over when your balance reaches $1 or more. If your balance is exactly $1, you win the game. You lose if your balance exceeds $1.

What to turn in:

One person turns in the class implementation (.cpp, .h files)

One person turns in the main program (.cpp) and the UML design (.jpg)

Let me know in the text box who your partner is