**Fall 2023**

**CS 303**

**Programming Assignment 1**

1. Write a class named RetailItem that holds data about an item in a retail store. The class should have the following member variables:

description—a string that holds a brief description of the item

unitsOnHand—an int that holds the number of units currently in inventory

price—a double that holds the item’s retail price

Write a constructor that accepts arguments for each member variable, appropriate mutator functions that store values in these member variables, and accessor functions that return the values in these member variables. Once you have written the class, write a separate program that test this class. (50 points)

1. Design a class that will determine the monthly payment on a home mortgage. The monthly payment with interest compounded monthly can be calculated as follows:

Where

Payment = the monthly payment

Loan = the dollar amount of the loan

Rate = the annual interest rate

Years = the number of years of the loan

The class should have member functions for setting the loan amount, interest rate, and number of years of the loan. It should also have member functions for returning the monthly payment amount and the total amount paid to the bank at the end of the loan period. Implement the class in a complete program.

Input Validation: Do not accept negative numbers for any of the loan values. (50 points)