Fundamentals of Programming II (Exercises)

1. Create a class called Invoice that a hardware store might use to represent an invoice for an item sold at the store. An Invoice should include six data members-a part number (type string), a part description (type string), a quantity of the item being purchased (type int), a price per item (type int) a value-added tax (VAT) rate as a decimal (type double) and a discount rate as a decimal(type double). Your class should have a constructor that initializes the six data members. The constructor should initialize the first four data members with values from parame ters and the last two data members to default values of 0.20 per cent and zero respectively. Provide a *set* and a *get* functions for each data member. In addition, provide a member function named getInvoiceAmount that calculates the invoice amount (i.e., multiplies the quantity by the price per item and applies the tax and discount amounts), then returns the amount. Have the set data members perform validity checks on their parameters—if a parameter value is not positive, it should be left unchanged. Write a driver program to demonstrate Invoice's capabilities.
2. Create a class called Date that includes three pieces of information as data members—a month (type int), a day (type int) and a year (type int). Your class should have a con structor with three parameters that uses the parameters to initialize the three data members. For the purpose of this exercise, assume that the values provided for the year and day are correct, but ensure that the month value is in the range 1–12; if it isn't, set the month to 1. Provide a *set* and a *get* func tion for each data member. Provide a member function displayDate that displays the month, day and year separated by forward slashes (/). Write a test program that demonstrates class Date's capa bilities.