

### **Problem Statement**

The Royal Service Station provides three types of services to its customers: refueling, vehicle maintenance, and parking. That is, a customer can add fuel to the tank in his or her vehicle (car, motorcycle or truck), can have the vehicle repaired, or can park the vehicle in the station parking lot. A customer has the option to be billed automatically at the time of purchase (of fuel, maintenance, or parking) or to be sent a monthly paper bill. In either case, customer can pay using cash, credit card, or personal check. Royal Service Station fuel is sold according to price per gallon, depending on whether the fuel is diesel, regular, or premium. Service is priced according to the cost of parts and labor. Parking is sold according to daily, weekly, and monthly rates. The price for fuel, maintenance services, parts and, parking may vary; only Manny the station manager can enter or change prices. At his discretion Manny may designate a discount on purchases for a particular customer; this discount may vary from one customer to another. A 5% local sales tax applies to all purchases.

The system must handle the data requirements for interfacing with other systems. A credit card system is used to process credit card transactions for products and services. The credit card system uses the card number, name, expiration date, and amount of the purchase. After receiving this information, the credit card system confirms that the transaction is approved or denied. The parts ordering system receives the part code and number of parts needed. It returns the date of parts delivery. The fuel ordering system requires a fuel order description consisting of fuel type, number of gallons, station name, and station identification code. It returns the date when the fuel will be delivered.

The system will track credit history and send warning letters to customers whose payments are overdue.