

## P! : Movie Rental

### Movie Rental Informal Description

The movies are rented out in stores and there are several stores. Each store has a unique distributor that supplies the store with tapes. A distributor may supply more than one store. Each distributor has a name, an address, and a phone number. Each store has a name, an address, and a phone number. For each employee we must keep the following information: working store, a name, a supervisor, an address, a phone number, SIN (social insurance number) and the date when the employee was hired. For each customer we have to keep the following information: a name, an address, and a phone number (if any).

For each rental, we must keep track of which employee served the customer, which movie and which copy (i.e. type) the customer rented, information about payment, the date and the time of the rental, the status (rented, returned\_in\_time, returned\_late), the rate (i.e. the price), and if applicable, due date and overdue charges. About the payment we have to keep which of the employees accepted the payment (does not have to be the same employee who rented the tape), the type of payment (i.e. cash, check, credit card, direct debit – for each type you must provide for relevant information to be kept, e.g. credit card number if credit card is used), the amount of the payment, date + time of the payment, payment status (completed if cash or the money have been received, approved if debit or credit card go through, pending if the check has not cleared yet). About each tape we have to keep information in what condition the tape is and what movie is on the tape. About each movie we have to keep its title, director's name, simple description, the name of a (single) major star, the movie's rating (use numbers 1-5).

## P2: Car Rental

### Car Rental Informal Description

Our company does car rental business and has several locations with different address (address consist of street or rural route with the number, city, province and postal code). The cars are classified as subcompacts, compacts, sedans, or luxury. Each car has a particular make, model, year made, and color. Each car has a unique identification number and a unique license plate.

The cars rented in a particular location may be returned to a different location (so- called drop off). For every car we keep the odometer reading before it is rented and after it is returned. Since we trust our customers, we do not record the defect when the car is rent out and returned back. However, we rent the car with full tank and record the volume of gas in the tank when the car is returned, but we only indicate if the tank is empty, quarter full, half full, three quarters full, or full.

We keep track of which day a car was rented, but not of the time, similarly for car returning. If a customer requests a specific class (say sedan), we may rent the customer a higher-class car if we do not have the requested class in the stock, but we will price it at the level the customer requested (so-called upgrade). Each car class has its own pricing, but all cars in the same class are priced the same. We have rental policies for 1 day, 1 week, 2 weeks, and 1 month. Thus, if a customer rents a car for 8 days, it will be priced as 1 week + 1 day. The drop-off charge only depends on the class of the rented car, the location it was rented from and the location it is returned to.

About our customers, we keep their names, addresses, possibly all phone numbers, and the number of the driver's license (we assume a unique license per person). About our employees we keep the same information (we require that all our employees have a driver's license). We have several categories of workers, drivers, cleaners, clerks, and managers. Any of our employees can rent a car from our company for a 50% discount, if the rental is less than 2 weeks. However, for any longer rental they must pay 90% of the regular price. Every employee works in one location only. We have headquarters in Hamilton. The people who work there are all classified as managers, one of them is the president, two of them are the vice-presidents, one for operation, the other for marketing).

For certain weeks we have promotional rentals that are usually 60% of the regular price, but may be also of different percentage. They always affect only a single class of cars – i.e. we may have a promotion for subcompacts, but during that week we do not have any promotions for compacts, sedans or luxury cars. During some years we can have many promotions, in some we have none. The promotions cannot be applied to the employees.