Developing use case Diagrams

Remarks: for drawing diagrams, you can use any tool such as visio, rational rose, argoUML, starUML, and etc.

case study 1: a computer system of Preston Hotel

Preston Hotel

Preston Hotel is a large independently-run hotel (i.e. it is not part of a chain) located in the city of Preston.   It offers a variety of accommodation (single, twin, double and suites) all of which offer en suite facilities, a telephone with an outside line and a mini-bar.   The hotel has a bar and a restaurant, where guests may take refreshment and charge this to their room bill. Room service is also available.   Services not offered by the hotel itself (for example, dry cleaning) can be ordered by guests through the hotel receptionist and charged to their room.

The hotel takes both individual and corporate bookings.   Companies need to set up an account with the hotel before making a corporate booking and they are billed at the end of each month for bookings that have been completed since the last invoice was sent.   A typical corporate client is UCLAN; during months such as February and June when examination boards are taking place as many as 30 or 40 guests may be staying at the hotel on the University account; at other times there may be only a few.   A discount is negotiated for each corporate client when their account is set up and is reviewed annually.

When a booking request is made the receptionist first checks whether there is a suitable room or rooms available on the required dates.   For corporate clients, a guaranteed booking is then made.   For individual clients, the Hotel requests credit details before the booking can be guaranteed.   If these are not provided the booking is considered unguaranteed.   In either case, the booking is now considered to be active.   At any point up to when the guests check in, the booking can become guaranteed by the customer providing credit card details.   A booking can be cancelled at any point up to when the guests check in.

When the guest checks in, the booking becomes registered.   At the end of their stay the guest checks out and their booking is completed.   If they are an individual guest they must at this point pay their bill in full, and it becomes paid.   Corporate guests must check out and their booking becomes completed, but is only paid when the monthly invoice is sent to the corporate client.   Booking records are kept on the system for six months before those that are cancelled or paid are archived.

case study 2: a computer system of CarMatch

CarMatch is a franchising company that is being set up to promote car sharing. In many cities, traffic congestion poses a threat to the quality of life as well as causing considerable pollution. Car sharing schemes offer one short-term way of reducing traffic without the immediate investment in public transport infrastructure that is required in the medium to long term. CarMatch seeks to promote car sharing and to provide a service to potential car sharers by matching up people who both live and work near one another. While many people who work together share transport informally, it is more difficult for people who work near one another to find a suitable person to share transport with, and in some very large organizations, even people who work on the same site may not know one another.

CarMatch consists of three layers of structure: the global operation, which is a not-for-profit trust, the central operating company in each country and local franchise operations. Depending on the country in which it is operating, CarMatch's central operation will offer its services to local government and large corporations, which have legal obligations to reduce traffic in some countries or states. It will also publicise its services to the general public. People who join up will pay a small membership fee, which will be refunded if the local CarMatch is unable to match them up with one or more other people who require or are offering transport. The CarMatch franchise will draw up model agreement between the participants, to prevent the money that changes hands to cover fuel costs being treated as taxable income, and advise on the insurance implications of car sharing. It will act as an agent for companies that sell insurance policies that specifically cover car sharing. Research has shown that car sharers are a good insurance risk.

Staff in the local franchises will undergo a compressive training course, which covers the consultancy that they must be able to offer to companies and local government, the legal situation in their own country or state, insurance requirements, safety considerations and how to operate CarMatch's systems. In some countries, regulation of the insurance industry means that franchise staff must also meet the requirements of regulatory bodies.

CarMatch expects to make its money from a combination of membership fees, consultancy income and the commission on insurance sales. A percentage of all income will be taken by the central operation, and the rest kept by the franchise. As road-pricing schemes based on radio communication between vehicles and road-side transponders become more widespread, CarMatch franchises will sell and install the necessary equipment and work with toll authorities and road-pricing schemes to negotiate discounts for members on the basis that they are reducing traffic demand.

CarMatch has a requirement for a computer system that can be used by its franchisees. The aim is to launch the new service with computer support right from the start. In each country there will also be at least one web-server. These web-servers will provide up to date information and insurance brokerage services to franchisees as well as allowing members to register with CarMatch on-line. Information about members will then be downloaded to the franchisee's system in the relevant area. Where there is not a franchise in an area, the central service will try to match members.

Here is a short excerpt from an interview transcript with one of the directors who is setting up CarMatch. Mick Perez is the systems analyst and Janet Hoffner is the director.

Mick Perez: So you're saying that car sharers will be able to register by telephoning the office and speaking to someone who will enter their details into the system.

Janet Hoffner: Yes. Either the franchisee, or more likely one of the office staff will take the call and enter the details into the computer.

MP: Who are the office staff?

JH: Well, there's one or two clerks, a receptionist and a supervisor. They all have a role in the administration of system.

MP: What will they be entering?

JH: Oh, the person's name and address, details of the journeys they want to share, any preferences they have, such as being a non-smoker.

MP: Is that the only way that this information will get into the system?

JH: No, it could also be transferred in from the national web-server.

MP: How will this information be used?

JH: Two ways. Firstly it will be used to match up potential car sharers, and secondly, it will be used to produce a management report for the franchisee showing the number of registrations per week, whether they come from the web-server or by telephone and breaking them down by area.

Here is another brief excerpt from an interview with Janet Hoffner describing what happens when a new car sharer is entered into the system in more detail.

JH: Whether we are entering a new car sharer manually or by transferring the data from the web-server, the processing is the same apart from how we deal with membership payments. If we are entering a new car sharer into the system manually, then we need to process their membership payment at the same time. If their data is being transferred from the web-server, then we process it separately later. When we process the payment, the person normally pays by a regular direct debit but ocassionally also by using a credit or debit card. If it's a direct debit payment, then the data about the payment is stored, and we transfer a batch of payment details to the ABTS system at the end of the month.

MP: What's ABTS?

JH: The Automated Bank Transfer System. It handles electronic payments, okay. If it's a card payment, it's processed there and then.