**CDJMM Software Solutions**

Deliverable #2

CS131-02 Fall 2011

September 20, 2011

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1. **Problem Statement:**

The Sacramento State Aquatic Center would like to migrate how they manage their rentals from their current paper system into a computerized system. The check-in process should be fast and as efficient as possible. The customer would check themselves in on a computer and choose the equipment that they want to rent. The system should have an updated inventory of the equipment that is available to rent. After the check-in, the main office should be able to immediately pull up the customer’s name in the system and give the customer a wristband. The wristband would contain a barcode that can be easily scanned to identify what equipment the customer is renting and a time stamp to record the starting time. The customer would then be asked to leave ID and keys at the office then they would then be free to retrieve from the dock and use what they rented. When the customer checks back in, their wristband would be scanned to confirm that they have returned what they rented and to also record the time of return. The system would then be able display how much the customer needs to pay.

There are some constraints to this new computerized system that will need to be taken into account. First, there is specialized equipment that can only be rented by customers who have taken a class or lesson. Second, there are some boats that have restraints on the number of seats, and also on the combination of adults and children. Third, there must be a way to check the validity of Sac state students, alumni, facility and staff in order to receive discounts. Lastly, the station where the customers have to check-in would have to be outside because of space limitations.

1. **Software/System functional requirements:**

* The system would require customers to enter their Name, Phone, Address in a database. Their profiles are then saved in the database so that it may be retrieved for future equipment rentals.
* Minors must be listed with parents in the database.
* Birthdates of every rider must be entered.
* Include the current waiver in the system, which must be signed.
* Explain that each person 18 and over MUST have a photo ID. The main contact must have a current DL.
* Take them to an equipment rental page, showing the customer all equipment with pictures (list and picture of equipment). Give specifics of equipment (for example: Cabo Kayak and Canoe, that only it can fit two adults and one small child or one adult and two small children).
* Sync to CLASS database, so people that have taken classes or private lesson for a specific piece of equipment will show on their screen for rental.
* Have an inventory of equipment in the system. If a piece of equipment is not available, customer may be added to a waitlist.
* Contains a field where the front office or staff may enter the number of the hook where the customer’s keys and ID are located.
* System must be able to move through screens that are already done. It must be timed, so that it will automatically return to start and display a start over button.
* Direct customer to check in with a key and Ids, receive their wristband, and then proceed to get equipment.
* Scanning system so that customer can scan back in after renting equipment (stops time), and calculates total.
* The system must contain an admin login for inventory and employee control. It will also export to an excel spreadsheet of the daily rental statistics (recaps).
* A simple and reliable system is needed to get customers in and out of the equipment rental line and into nature. That stores customer profile and clearance.

1. **Non-functional requirements:**

* Security: Although this service is a service that will run on an internal system, there is always security risk. DOS attack: Although unlikely, it is possible for someone on the local network to attack the base server for personal gain. (Possible competitor) Solution: Anti-dos software and possible refresh limit from machines. SQL injection: Although this requires the actual site to be up, it is possible that some board “kid” might try to break the system because he/she does not want to be there. Solution: extract all sql comment and command regex and run each input as plain text.
* Usability: The most important part of this software is usability. The purpose of this project is to streamline and speedup the rental process. The easier to use, the faster it will get done. We hope to provide an entertaining platform that makes it easy and fun to rent.
* Reliability: Sticking with the basics will allow us to insure this software’s reliability. Sacramento Aquatic center is not a business that has 24/7 IT support. Although the world of integration is limitless, we have to make sure that the platform is reliable. We can achieve this by using mainstream software and documenting it possible behaviors.

1. **Vagueness or Concerns with project description or requirements:**

* The client doc mentions renters must fill out and sign a contract. If the renter has a group, then must each person fill out the complete contract? Also, what if the group includes minors – should they sign or fill out any part of the contract?
* The client was apprehensive about having electronics near the water, but if we could find a means to lock and secure an “ipad-like” system securely on the ground and away from the water without it being moved by anyone without the key, would she be open to this?
* The client doc lists “Sync to our CLASS system database”. What is CLASS again? What does it stand for? Is it an acronym?
* What is the best way to approach this project in terms of software engineering: should we thoroughly design every detail first and then code, or should we code as we design?
* What is the expected code contribution per member? In other words, if there are two people on a team, is it acceptable for one person to design and the 2nd person to implement the design, or do you prefer both people to do implementation and coding?