**Software Development:**

**Graded Unit**

**DN4N 35**

**Assessment –**

**Proposal Document**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Student** | | Martin Naismith | | | | | | |
| **I.D.** | | 1013403 | | | | | | |
| **Date** | | 17/01/13 | | | | | | |
|  | **Pass** | |  | **Fail** |  | **Remediation** |  |  |
| **Tutor** | | Stewart McDonald | | | | | | |

#### INSTITUTE OF COMPUTING

## Proposal for Graded Unit Project

There is a requirement for a booking system for children’s swimming lessons from 2 months to 12 – 14 years old, for a small business in Fife. The system can be either a standalone application or a dynamic web application to keep track of clients, their swimming standard and the lessons available to clients in Fife and the Lothian’s. I have previously investigated the requirements and the need for this however the intention was to build an Access database, this failed as my knowledge of the workings of MSAccess is still limited the system required me to build a large number of tables into the database with complex business logic which had many rules. My use of Visual Basic in MSAccess has been limited

With the knowledge I now have of Object Orientated design and database structures, I feel that this application could be built in a Java environment for this application, utilising the Java functions for graphical user interface and accessing a database on an apache server, using this method I would use my experience with SQL, however I will need to investigate the JavaSwing, Javadbc and JavaSql further. It could also be built around a dynamic web application using the html as the user interface and again an apache server to host the database this could be produced as a standalone or a web enabled booking system allowing clients to book the course to suit their time table and location. The bookings are presently carried out by phone.

It is my opinion that a standalone application would be cleaner to use than an html fronted application to access the database and the data would be more secure. However the html fronted application could be developed into a web based system that clients can generate their own enquiry, update their details and see the available swimming lessons in their area. It could be hosted on the internet and be part of the company website. There are benefits from using either system.

The initial output required for management purposes from the system is the swimming class bookings and the clients to be attending the classes, providing information to tutors for clients and children attending, their details and emergency contact numbers. This report would tie together data from clients, swimming classes, pools and tutors. However as the system is new additional reports and interrogation tools for the data will be developed in due course as the customer demanded additional functionality. Possible additional functionality will be, to have a bookings projection of which swimming classes have spaces and which classes are full. Future additions may be financial to check payments and costings. Another function will be that re-booking will be generated from existing bookings with details that remain constant and the ability to update certain information.

The setup starts with the enquiry by the client, outline details are recorded which will be used to generate client information and enquiry status. If the enquiry is developed into a booking, booking details will be generated from this. Details will be held for the client, being the main point of contact, their address and phone numbers, their partner as the second contact. The clients’ child/children who will attend the swimming lessons also have information stored in relation to their age, abilities, swimming grades and any health issues or disabilities.

The swimming grades are pre-set and stored in a list of ascending ability, each child is given a grade that can be updated as they progress through the classes. The swimming classes are all graded for one or two levels only. The swimming pools that are used will have contact information associated with them for booking blocks of pool time for the classes and the cost of the block bookings, a historic record of bookings will be kept for each pool. The swimming trainers will be detailed as to their address, contact details, abilities, certificates held and notes, each trainer is allocated swimming classes at a specific pool. The swimming classes are held at set times on a particular day of each week for a duration of 10 weeks. A child is given a place on a swimming class at a particular pool in their area. Using these tables, forms will be needed to input and search the data and for tying together clients’ children with the courses available.

After consideration and initial investigation into the database access, it would appear to be best suited to a Java application with an embedded Javadb database through the Derby interface. There are a few classes that need to be learned including verification of data with JavaRegex, however if I am going to develop a system without some of these functions it will be incomplete. I am interested in increasing my knowledge of Java and using the additional readymade methods available with these additional packages. There is also the argument that the core system could be generated with these additional functions added in future to make the system complete if time constraints dictate the completion and handing over a working package. This could also be constructed as an object orientated application saving the data to a file system. This would negate the need to learn the Javadb side for the development of the system. The benefit of the separate database is the security and the maintenance of the data against corruption.

I will also need to familiarise myself with the GUI development. However I have experience of building forms and interfaces with MS Access which uses visual basic to generate the interface. I believe using JavaSwing to build the forms and interfaces will be similar. I have made some interfaces using the coded method and would expect the JavaSwing to be simpler to align and format the environment. The learning curve for the web based application could be just as fraught with trying to develop the security when holding sensitive data. In a standalone application there is more control over the data security.