**3rd Year Project**

**15% of overall Module**

**Due: Monday 25th March at 5pm**

The aim of the project is to assess your ability to design and construct a database that can be deployed in the AWS environment using WAMP. You are required to design a relational database for the narrative below. The business rules must be developed and implemented via the database and queries as follows:

1. Relational Schema
   1. Tables, choose a Character Set and Collation that best reflects your test dataset.
      1. Relationships between tables could be 1:1, 1:M or Many to Many, where applicable
   2. Attributes : Attribute Constraints
      1. Range e.g. Choose a datatype that best reflects the data
      2. Value e.g. use a SET or ENUM for data entry, where appropriate.
      3. Default e.g. use default initial value, where appropriate.
   3. Primary Keys
   4. Foreign Keys
      1. Constraints, e.g. Restrict, Cascade, Set Null, where, and if, applicable
2. Test Data, MUST include BLOBs for patient images, patient reports, x-rays, etc
3. Queries
   1. CREATE, INSERT, SELECT, UPDATE, DELETE

**DELIVERABLE**

AWS environment configured with the following:

1. Working database (MySQL)
2. Relational Schema (Diagram)
3. Script to build and populate database with test data.
4. Scripts to demonstrate queries.
5. All script files to be saved to your AWS desktop and uploaded to Moodle.
6. Create a user account on AWS for the examiner. Username: Test Password: Test

**Marks will be awarded for**

* + - 1. Database Schema (15%)
      2. Working Data Base (45%)
      3. Valid Queries – Run error free (30%)
      4. AWS configuration and access (10%)

Marks are assigned under the following categories:

1. Functionality
2. Complexity
3. Originality
4. Completeness

**Narrative**

Dr Mary Mulcahy runs a dental practice in a small town. She can treat most cases, although a few specialist cases are referred to larger practices in Cork city where the required expertise and equipment are available.

Patients ask Helen, the office secretary, for appointments, either by post, phoning or dropping in. She arranges a suitable appointment by referring to the appointments diary unless they owe over a certain amount, or for too long, as seen from the patient's chart. She writes the new appointment into the diary and, if it is the patient's first visit, she makes a new chart for the patient and puts it into the charts filing cabinet. Appointment details are also written into the patient's chart.

Sometimes patients contact Helen to rearrange or even cancel appointments. Re- arrangements are made by referring to the appointments diary to find a free time, and tippexing out the old time. Cancellations are done by simply tippexing out the appointment in the diary. The details in the patient's chart are also updated with rearrangements and cancellations (late cancellations are charged a €10 late cancellation fee).

Every Tuesday morning, Helen checks the appointment diary and makes a list of all next week's appointments. She sends a reminder to all the patients (finding their addresses in their charts), enclosing an appointment card containing the appointment and treatment details with the reminders. Next, at about 2.30 p.m. she prepares bills by searching the patient charts to find details of any unpaid treatments. Then she looks up the Treatment Fees guidelines book, which Dr Mulcahy updates from time to time. The bills, itemising all unpaid treatments and late cancellations, are sent to patients in the afternoon post.

Patients pay by cheque, credit card or cash, either by post or by dropping in. The bill or the bill number is enclosed with the payment. Treatments which have been paid for are marked as such in the patient's file so that they will not be billed again. Patients often arrange to make several small payments for a large bill.

When a patient arrives for an appointment, he/she presents the appointment card to Helen. The patient sits in the waiting room until the dentist is ready to see him/ her, whereupon Helen passes the appointment card to Dr Mulcahy so that she can see what treatments are to be carried out. After each visit, Dr Mulcahy completes the appointment card with details of work done and puts the filled card into her "Visit cards out tray". Helen takes the card and arranges appointments with the patient for any required follow-up treatments written on the card, and enters them into the appointments diary. The visit card is then filed in the patient's chart. Sometimes patients make payments "on the spot" before leaving the clinic.

If the patient needs specialist treatment which Dr Mulcahy cannot provide, she writes the name of an appropriate specialist on the filled visit card and the secretary sends a patient referral to the specialist. After specialist treatment, the specialist posts a dental report to Dr Mulcahy, who reads it and files it in the patient's chart.

**Suggested Tables / Entities**

1. Appointment
2. Patient
3. Payment
4. Bill
5. Specialist
6. Treatment