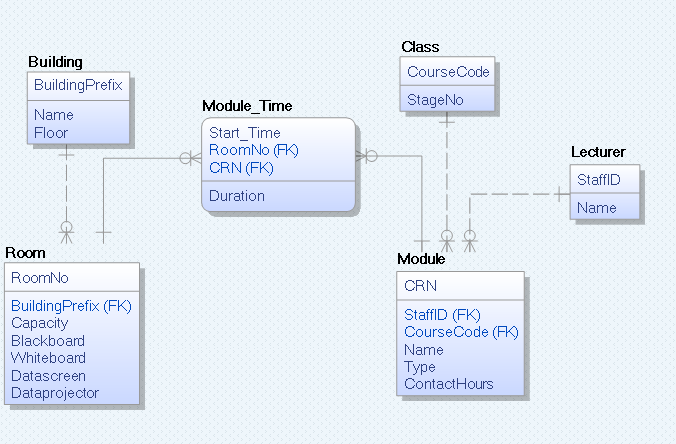
# Database CA – Timetable Schema

## Updated ERD:

Changes that were made to the ERD include...

* Changed integer value types to NUMBER value types
* Adjusted the maximum parameter value length of some of the attributes
* Adjusting date value types to TIMESTAMP value types to allow for precise measurement of time, allowing allocation of rooms at certain times on certain days making it a much more flexible and accurate time management system.



## Specification:

**Adding a lab to a module** – Christine

The frontend of the specification will ask the user to input data for the details of the class/lab. When they input data, the back end will check to make sure the data they enter is correct/doesn’t conflict with data already entered into the system.

The user enters the start time for the lab, the room number, and CRN number and the duration of the module. Before this is inserted into the database, it will check first with the Module table to see if the contact hours are already full. If they are not, it will then check to see if the room is booked at that time.

If the module can take another class and the room is not booked then the information will be inserted into the Module\_Time entity.

**Allocating Lecturer to Module** - Donncha

The lecturer’s details will be inputted into the system providing the lecturer’s StaffID and their name. The lecturer will then be assigned to the module using their StaffID as a way to allocate them to the specific module, with one lecturer being able to be assigned too many modules.

After this process has been complete the next process below will then proceed.

**Allocating Module to Room** – Aadam

Aadam can move a module to a different room, he does this by editing the room number in the module time table. To select the module he has to input the correct CRN number. However the room capacity needs to be less than or equal to the capacity that the user requests(The user enters the desired capacity).

The new room of the module can't clash with another room occupied at the same time.

## SQL Code:

DROP TABLE Module\_Time CASCADE CONSTRAINTS PURGE;

DROP TABLE Room CASCADE CONSTRAINTS PURGE;

DROP TABLE Building CASCADE CONSTRAINTS PURGE;

DROP TABLE Module CASCADE CONSTRAINTS PURGE;

DROP TABLE Class CASCADE CONSTRAINTS PURGE;

DROP TABLE Lecturer CASCADE CONSTRAINTS PURGE;

CREATE TABLE Lecturer

(

StaffID varchar(6) NOT NULL ,

Name varchar(20) NULL ,

CONSTRAINT XPKLecturer PRIMARY KEY (StaffID)

);

CREATE TABLE Class

(

CourseCode varchar(20) NOT NULL ,

StageNo varchar(20) NULL ,

CONSTRAINT XPKClass PRIMARY KEY (CourseCode)

);

CREATE TABLE Module

(

CRN NUMBER NOT NULL ,

Name varchar(30) NULL ,

Type NUMBER NULL,

StaffID varchar(6) NOT NULL ,

ContactHours NUMBER NULL ,

CourseCode varchar(20) NOT NULL ,

NoOfStudents NUMBER Null,

CONSTRAINT XPKModule PRIMARY KEY (CRN),

CONSTRAINT R\_7 FOREIGN KEY (CourseCode) REFERENCES Class(CourseCode),

CONSTRAINT R\_4 FOREIGN KEY (StaffID) REFERENCES Lecturer(StaffID)

);

CREATE TABLE Building

(

BuildingPrefix varchar2(3) NOT NULL ,

Name varchar2(20) NULL ,

Floors NUMBER NULL ,

CONSTRAINT XPKBuilding PRIMARY KEY (BuildingPrefix)

);

CREATE TABLE Room

(

RoomNo varchar2(5) NOT NULL ,

Capacity NUMBER NULL ,

Blackboard varchar2(3) NULL ,

Whiteboard varchar2(3) NULL ,

Datascreen varchar2(3) NULL ,

Dataprojector varchar2(3) NULL ,

BuildingPrefix varchar2(3) NOT NULL ,

CONSTRAINT XPKRoom PRIMARY KEY (RoomNo),

CONSTRAINT R\_8 FOREIGN KEY (BuildingPrefix) REFERENCES Building(BuildingPrefix)

);

CREATE TABLE Module\_Time

(

Duration timestamp NULL ,

Start\_Time timestamp NULL ,

CRN NUMBER NOT NULL ,

RoomNo varchar2(5) NOT NULL ,

CONSTRAINT XPKModule\_Time PRIMARY KEY (Start\_Time, RoomNo, CRN),

CONSTRAINT R\_12 FOREIGN KEY (CRN) REFERENCES Module(CRN),

CONSTRAINT R\_17 FOREIGN KEY (RoomNo) REFERENCES Room(RoomNo)

);

INSERT INTO Lecturer Values

('C8573', 'John Murphy');

INSERT INTO Lecturer Values

('C3857', 'Christopher Bishop');

INSERT INTO Lecturer Values

('C9394', 'Sean Lee');

INSERT INTO Lecturer Values

('A3992', 'Brian Fagan');

INSERT INTO Lecturer Values

('A2266', 'Noel Johnson');

INSERT INTO Lecturer Values

('B1938', 'Desmond Tutu');

INSERT INTO Class Values

('DT228', 3);

INSERT INTO Class Values

('B855', 1);

INSERT INTO Class Values

('DT001', 2);

INSERT INTO Class Values

('DT201', 3);

INSERT INTO Class Values

('B308', 4);

INSERT INTO Module Values

(74839284, 'Client-Server Programming', 1, 'C8573', 2 , 'DT228', 73);

INSERT INTO Module Values

(48673939, 'Data Communications', 2, 'C8573', 2, 'DT228', 72);

INSERT INTO Module Values

(47563682, 'Software Engineering', 2, 'C3857', 1, 'DT228', 73);

INSERT INTO Module Values

(22938388, 'Internet Infastructure', 1, 'C8573', 4, 'DT201', 55);

INSERT INTO Module Values

(12097486, 'Word Processing', 1, 'C9394', 4, 'DT201', 55);

INSERT INTO Module Values

(38495867, 'Chemistry', 1, 'C9394', 3, 'DT001', 29);

INSERT INTO Module Values

(83747728, 'Physics', 2, 'C9394', 3, 'DT001', 30);

INSERT INTO Module Values

(37729273, 'History', 2, 'A3992', 1, 'B855', 60);

INSERT INTO Module Values

(24817273, 'Classics', 2, 'A2266', 1, 'B855', 40);

INSERT INTO Module Values

(38476364, 'Litrature', 1, 'A3992', 4, 'B855', 40);

INSERT INTO Module Values

(12394485, 'Manual Accounting', 1, 'B1938', 2, 'B308', 63);

INSERT INTO Module Values

(93847773, 'Computerised Accounting', 1, 'B1938', 2, 'B308', 66);

--Building INSERTs

INSERT INTO Building (BuildingPrefix, Name, Floors)

VALUES ('KE', 'Kevins Street', '6');

INSERT INTO Building (BuildingPrefix, Name, Floors)

VALUES ('KA', 'Kevins St Annex', '4');

INSERT INTO Building (BuildingPrefix, Name, Floors)

VALUES ('A', 'Aungier St', '5' );

--Room INSERTs

--(RoomNo, Capacity, Blackboard, Whiteboard, Datascreen, Dataprojector, BuildingPrefix)

INSERT INTO Room

Values ('4008', 100, 'No', 'Yes', 'Yes', 'Yes', 'KE');

INSERT INTO Room

Values ('1006', 30, 'No', 'Yes', 'No', 'Yes', 'A');

INSERT INTO Room

Values ('3007', 50, 'Yes', 'No', 'Yes', 'Yes', 'KA');

INSERT INTO Room

Values ('1017', 20, 'No', 'Yes', 'No', 'Yes', 'KA');

INSERT INTO Room

Values ('2008', 80, 'Yes', 'Yes', 'Yes', 'Yes', 'KE');

INSERT INTO Room

Values ('2056', '40', 'No', 'No', 'Yes', 'Yes', 'A');

--Module Time INSERTS

INSERT INTO Module\_Time (Duration, Start\_Time, CRN, RoomNo)

VALUES ('1', '900', '74839284', '4008');

INSERT INTO Module\_Time (Duration, Start\_Time, CRN, RoomNo)

VALUES ('2', '1300', '48673939', '1006');

INSERT INTO Module\_Time (Duration, Start\_Time, CRN, RoomNo)

VALUES ('1', '1700', '47563682', '3007');

INSERT INTO Module\_Time (Duration, Start\_Time, CRN, RoomNo)

VALUES ('1', '1300', '22938388', '1017');

INSERT INTO Module\_Time (Duration, Start\_Time, CRN, RoomNo)

VALUES ('2', '1000', '12097486', '2008');

INSERT INTO Module\_Time (Duration, Start\_Time, CRN, RoomNo)

VALUES ('1', '1600', '37729273', '2056');

CREATE USER coordinator FOR staff;

CREATE USER buildingManager FOR staff;

CREATE USER technician FOR staff;

CREATE USER roomCoordinator FOR staff;

CREATE USER lecturer FOR staff;

CREATE USER schoolCoordinator FOR staff;

grant select, update, insert, drop on ROOM to coordinator;

grant select, update, insert, drop on ROOM to buildingManager;

grant select, update on ROOM to technician;

grant select, update, insert on ROOM to roomCoordinator;

grant select, update on MODULE to lecturer;

grant select, update on Module\_Time to schoolCoordinator;