ASSIGNMENT 1 FRONT SHEET

Qualification	**TEC Level 5 HND Diploma in Computing**		
Unit number and title	**Unit 04: Database Design & Development**		
Submission date	9/30/2020	**Date Received 1st submission**	
Re-submission Date		**Date Received 2nd submission**	
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Student declaration I certify that the assignment submission is entirely my own work and I fully understand the consequences of plagiarism. I understand that making a false declaration is a form of malpractice.			
		Student's signature	

Grading grid

P1	M1	D1

☼ Summative Feedback:	☼ Resubmission Feedback:	
Grade:	**Assessor Signature:**	**Date:**
Signature & Date:		

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I. Introduction

After many years established, University of Greenwich gradually is known by many students and parents. More people started to enroll in school, so University of Greenwich has to store a large data of student information. That's why Greenwich is also starting to think about ways to manage information more effectively. To summary University of Greenwich requires staff to design a database to store and manage all information including Attendance.

II. Part1: Database Design

Database Design(P1)

Scenario of the chosen system:

Nowadays when everything gradually become to "Digital", data is an essential part of any fields. For example: business, education, etc. In this report, I decided to develop one of most academic systems to manage the university easier: Attendance System. The reason why I chosen this example because: I think all universities must have this system to manage their' student. Instead using paper to record, using Attendance System will save time as well as be more convenient.

With Attendance system, we have 3 main users: Student, Teacher, Parent and extra user: Staff

For each user, permissions as well as actions can be different.

Before start of class, teacher will take attendance. The teacher also can edit attendance. Student and parent only check attendance, can't edit. Staff can follow up and update information for student.

SRS (System Requirement Specification)

a) User Requirement:

- ✓ Teacher: Allows to take attendance of students, view and edit student's attendance if something wrong.
- ✓ Student: Student can view and check timetable of other classes, location of each class. Student only can view attendance reports, check if information is correct.
- ✓ Parent: Allow to view student information (Timetable, Course, Attendance).
- ✓ Staff: Allow to view attendance status to notify and remind students.

b) System requirements:

- The user interface will be implemented in simple format that satisfies the following conditions:
- Login: All user if accessing in system must have FPT email.
- Logout: After 10 minutes, if no response by user, the system will automatically logout
- Backup: Designed to back up data every day or hour to protect data if the system might be have problems.
- Security: Each user has different interface when logging to protect system.
- Maintain: Easily to use with user. The system can use for a longtime. Easy to maintain ff it encounters an error.

c) Business Rules:

- ➢ The first, staff must create account for all student, parent and teacher.
- ➢ Student have to enter the registration information to activate the account.
- ➢ Student must have one course. In each course, students are only allowed 25% off all slot.
- ➢ Teachers must take attendance for each slot.

Logical design (ERD):

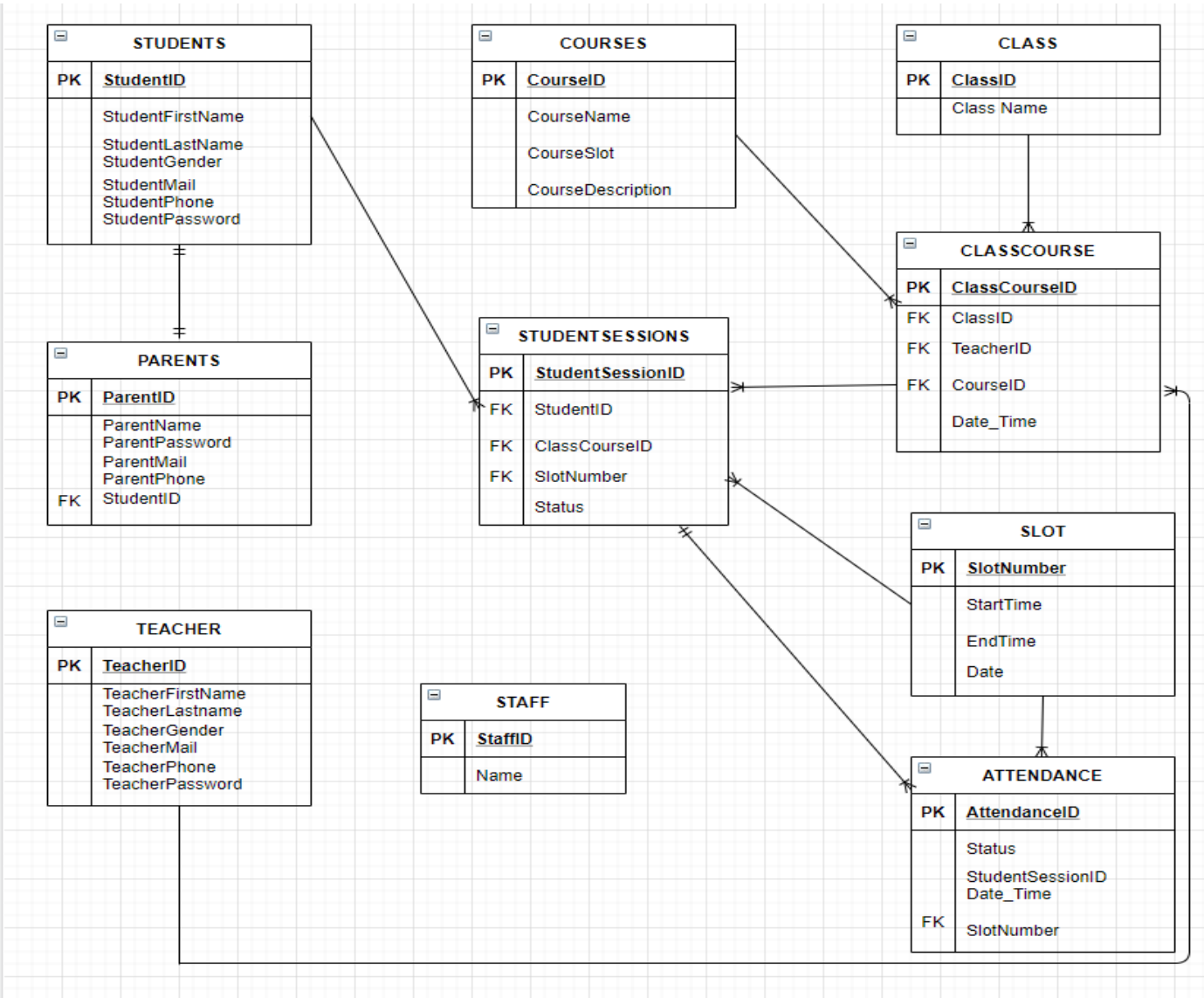

Figure 1: ERD

Explain my ERD

I divided my system consist of the following 10 tables:

The Students, Staff, Teacher and Parents tables contain the corresponding fields to store each user information including: Name, Mail, Phone, Gender, etc. I set Primary Key following ID because it easy to identify and avoid name duplication.

The Courses table is used to store information of each course including: ID, name, description, course slot. The PK is the Course ID to identify the course in addition.

The Class table is used to store list of all class in Greenwich University. I set the PK is Class ID to make sure there are no class have the same name.

The Class Course table contain information of each class: Class Course ID, Class ID, Teacher ID, … I set PK ClassCourseID on this table to identify that information is only a single class. In addition, FK of table are set for Teacher ID, Class ID, Course ID to determine which class, which subject and which teacher is taught. This table linked to the table: Course, Teacher, Class to create a list of Class that teachers request to teach and what course teacher teach.

The Slot table with primary key SlotNumber contain how many slot in 1 day and start-end times of each slot.

The attendance table is used to check attendance status of each student.

The Student Session table is used to store student attendance for each student in each course as well as each slot. This table linked to Student, ClassCourse, Slot and Attendance table. This with primary key is StudentSessionID and 3 foreign key StudentID, ClassCourseID, SlotNumber. All foreign key to determine exactly ID of student, the course with exactly class and slot number.

Data validation and constraint (Including Physical Design)

Table	Name	Data Type	Allow Null	PK/FK	Format/Constraint
Students	Student ID	VARCHAR(9)		PK	GCHXXXXXX
	StudentFirstName	NVARCHAR(20)			First name of student
	StudentLastName	NVARCHAR(20)			Last name of student
	StudentGender	BIT			0 or 1
	StudentMail	VARCHAR(30)			User_name@fpt.edu.vn
	StudentPhone	INT	Y		Phone number of student
	StudentPassWord	VARCHAR(20)			Password email of student
Teacher	TeacherID	VARCHAR(9)		PK	TCHXXXXXX
	TeacherFirstName	NVARCHAR(20)			First name of teacher
	TeacherLastName	NVARCHAR(20)			Last name of teacher
	TeacherGender	BIT			0 or 1
	TeacherMail	VARCHAR(30)			User_name@fpt.edu.vn
	TeacherPhone	INT	Y		Phone number of teacher
	TeacherPassWord	VARCHAR(20)			Password email of teacher
Parents	ParentID	VARCHAR(9)		PK	PXXXXXXXX
	ParentName	NVARCHAR(20)			Name of parent
	ParentMail	VARCHAR(20)			User_name@fpt.edu.vn
	ParentPhone	INT			Phone number of parent
	ParentPassword	VARCHAR(20)			Password email of parent
	StudentID	VARCHAR(9)		FK	GCHXXXXXX
Courses	CourseID	VARCHAR(10)		PK	XXXXXXXXXX
	CourseName	NVARCHAR(50)			Name of course
	CourseSlot	INT			Total slot in 1 course
	CourseDescription	CHAR(50)	Y		Description of course
Class	ClassID	VARCHAR(10)		PK	XXXXXXXXXX
	ClassName	NVARCHAR(50)			Name of class
ClassCourse	ClassCourseID	VARCHAR(10)		PK	XXXXXXXXXX
	ClassID	VARCHAR(10)		FK	XXXXXXXXXX
	TeacherID	VARCHAR(9)		FK	TCJXXXXXX
	CourseID	VARCHAR(10)		FK	XXXXXXXXXX

	Date_time	DATE			YYYY-MM-DD
Slot	SlotNumber	INT		PK	Number of slot
	StartTime	TIME			HH:MI:SS
	EndTime	TIME			HH:MI:SS
	Date	DATE			YYYY-MM-DD
Attendance	AttendanceID	CHAR(5)		PK	XXXXX
	Status	BIT			0 or 1
	StudentSessionID	NVCHAR(5)			XXXXX
	Date_Time	DATE			YYYY-MM-DD
	Slotnumber	INT		FK	Number of slot
StudentSessions	StudentSessionsID	NVCHAR(5)		PK	XXXXX
	StudentID	VARCHAR(9)		FK	GCHXXXXXX
	ClassCourseID	VARCHAR(10)		FK	XXXXXXXXXX
	SlotNumber	INT		FK	Number of slot
	Status	BIT			0 or 1
Staff	StaffID	NVCHAR(5)		PK	SXXXX
	Name	NVARCHAR(20)			Name of staff

User Interface

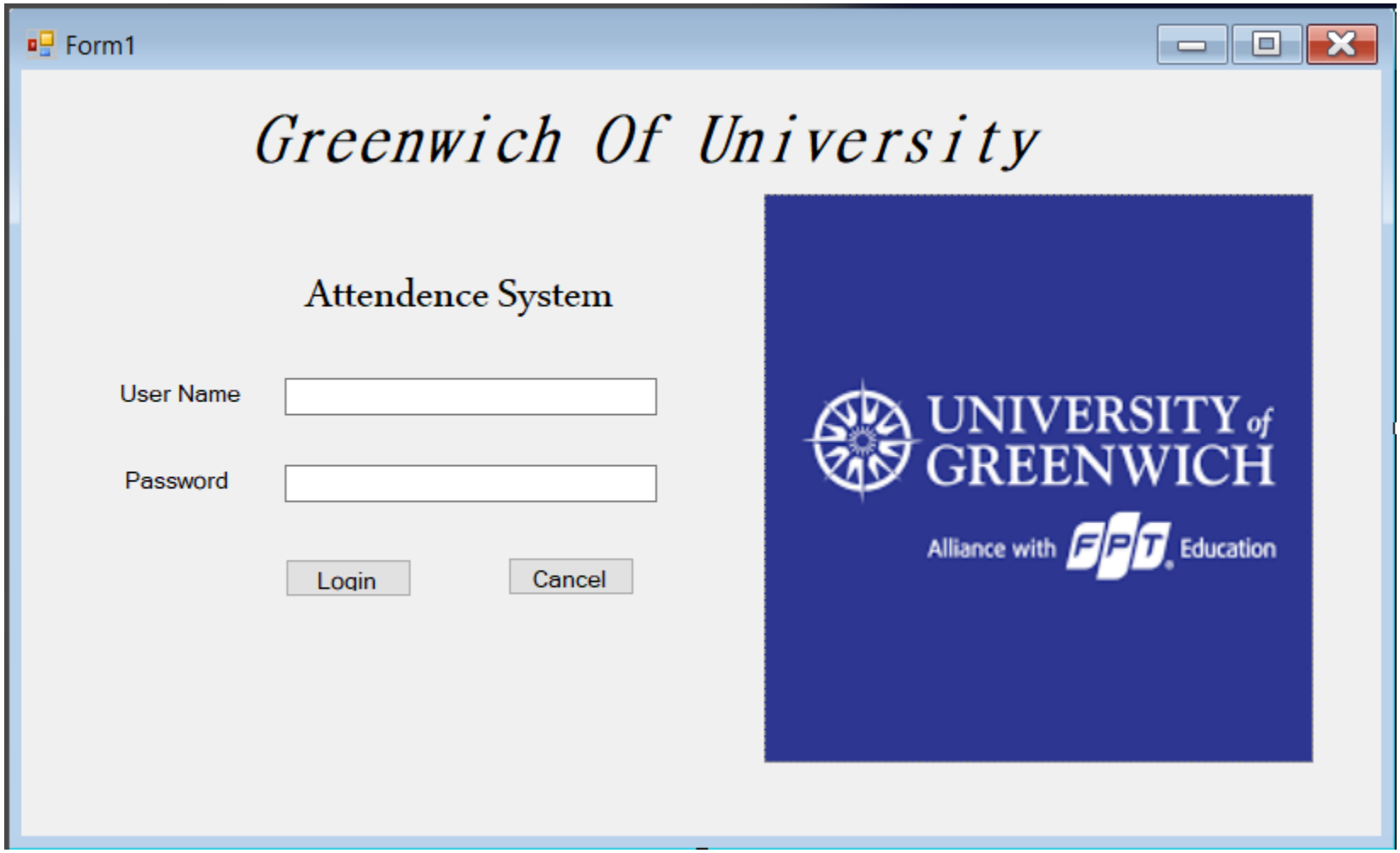

Figure 2: User interface

III. References

Conger, S., n.d. *Hands-On Database*.