University of Canberra

Faculty of Science and Technology Semester 1, 2024

**Database Design 5915 and Database Design G 6672**

**Assignment 1**

**This assignment is worth 40 marks constituting 20% of the total marks for this unit.**

**Due date: Friday Week 7 of Semester 1, 2024 at 11:55 pm**

**1. General Information**

The marking of this assignment is based on following instructions, providing correct solutions, and demonstrating knowledge of the unit materials.

Complete each question and submit your solution to this assignment on time to the Canvas site of this unit. Your answers to the assignment questions must be easy to read, neat, and easy to understand and address the question.

Be sure to maintain regular back-ups for any models or material prepared with the aid of software. Loss of files will not be accepted as an excuse for the non-completion of this assignment. Marked assignments will be available from the Canvas website of this unit.

**2. Problem Description**

The Smart Community Garden (SCG) was established recently. It has several offices in Canberra. SCG requires your team to design a database system for the SCG. SCG database will record and store all data about each of its customers including their first and last name, postal address (i.e., street number, street name, suburb, postcode, city and state), gender, and types of plants a customer is interested in growing. The name (first and last name), contact telephone number, and address (street number, street name, suburb, postcode, city, state) of the customer's next of kin are also stored in the SCG database.

Details of SCG offices are stored in the SCG database. These details are: office number, address (i.e., street number, street name, suburb, postcode, city, state).

SCG offers several types of plants. Plants are managed under the SCG plant section. There are several types of plants that SCG grows. Details of all plants that SCG offers for sale are stored in the SCG database and these details include: plant name, plant number, and plant price. When a customer joins SCG, he or she is assigned a customer number, and his/her details are recorded. Every customer is provided with a customer number and a sheet of paper describing the rules relating to SCG.

SCG has several staff members. For each staff member, the following data is stored in the SCG database system. The staff details stored in the SCG database are: staff first and last name, staff number, position, gender, date of birth, section number that he/she works in, internal telephone number, and office number. SCG consists of a few sections. These are: the information section, plant section, customer support section lost-stolen card section. The detail of each section is stored in the SCG database. The data stored about each section in the SCG database include: section name, location, email address, and telephone numbers. Each section has several telephone numbers and up to three email addresses.

SCG offers several courses. A customer can enrol in up to 6 courses at a given time. Customers can enrol in courses or purchase plants from SCG. The details of all courses offered by SCG are stored in the SCG database. The details stored about courses in the SCG database are: course number, course name, start date, end date, and course fee. An invoice is issued for customers who enrol in a course or purchase a plant. Each invoice has a unique invoice number. The data about invoices for enrolling in a course includes the invoice number, course number, course duration (start date and end date), payment due date, amount to be paid, client’s full name, and name of staff who issued the invoice.

The data stored about invoices for purchasing a plant includes the invoice number, plant number, plant name, payment due date, amount to be paid, client’s full name, and name of staff who issued the invoice.

Each customer is required to make a payment for his/her invoice. The details of each payment by each customer for an invoice are stored in the SCG database. These details are: payment number, customer number, invoice number, the amount paid, and date of payment. For each payment, a receipt that lists details of the payment made is provided to the customer and it is recorded in the database. Receipt details stored in the SCG database include: customer number, receipt number, date of payment, amount paid, invoice number, and payment number.

SCG provides small community gardens to people interested in having a small garden to plant herbs or flowers, but they live in areas that have no gardens (such as apartments). The details of all gardens rented by SCG customers are stored in its database. These details are: customer number, garden number, garden location, garden type, rental fees per month, garden rental start date, and garden rental end date. An invoice is issued for customers who rent a garden. The data stored on each invoice includes the invoice number, garden number, payment due date, amount to be paid, customer's full name, and name of staff who issued the invoice. Each customer is required to make a payment for his/her invoice. The details of each payment (payment number, customer number, customer name, invoice number, amount paid, date of payment) are stored in the SCG database. For each payment, a receipt that lists details of the payment made is provided to the customer and it is recorded in the SCG database. Receipt details include: customer number, customer name, receipt number, date of payment amount paid, and invoice number.

SCG has two seminar rooms. Seminar room details are stored in the SCG database. The details of seminar rooms stored include: seminar room number, location, size, and price. Customers can book seminar rooms. Details of SCG clients who book seminar rooms are stored in the SCG database. These details are: customer number, customer first and last name, seminar room number, booking start date , booking end date for which a seminar room is booked. The hiring of seminar rooms costs $130 per day for customers.

Customers need to make a payment for any seminar room that they book. Details of all seminar bookings and payments are stored in the SCG database. Data stored about seminar room booking by customers are stored in the SCG database. These details are: seminar room number, seminar room location, customer number, amount to be paid, date of booking, and the date for which the seminar room is booked. Seminar room booking payments are stored in the SCG database. These details are: seminar booking number, customer number, invoice number, payment amount, and date of payment.

SCG has a Sunday Market Sale once each month in their car park to sell their plants. The details of Sunday Market Sales are stored in the SCG database. These details are: Sunday Market Sale number, parking number, staff number of all staff that work at Sunday Market Sales, date of the Sunday Market Sale, and the details of plants sold at each Sunday Market Sale.

**3. Requirements**

For the scenario above:

1. Identify entity types and their attributes, including the primary keys and any foreign keys for each entity.
2. Compile the E-R diagram of the above system based on the entities you have identified. Make sure that you include multiplicity for relationships on your ER diagram.

You need to include with your solution the details of all assumptions that you have made for the SCG database.