# Homework 1

Your Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Student ID:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**1. Understanding Concepts related to DB**

**a). Compare and introduce the differences between relational data models and ER data models (10 points)**

**b). Explain the differences: strong entity, weak entity, associative entity (10 points)**

**c). Why we use index? What are the differences between primary key and unique index? (10 points)**

**3. (70 points) Given the following tables:**

**Customer Table [assume email is unique for each customer]**

CustomerID, Name, Age, Gender, Email

**Order Table**

OrderID, CustomerID, OrderDate, OrderTotal, OrderPayment

**OrderItems Table [describe items in an order. Note that there may be several items in a single order]**  
OrderID, ItemID, ItemQuantity, ItemUnitPrice

1). (15 points) For each table, list the following keys: super key, candidate key, primary key, secondary key, foreign key

2). (20 points) List relationships between Customer and Order, Order and OrderItems, and explain why. Note: you do not need to draw the diagram

3). (35 points) Assume we have another table – Item with attributes (ItemID, ItemName, CostPrice, SalePrice, AmountInStock), complete DB conceptual design (based on all of these entities) by using ERD with Crow’s foot notations. Note: you can use draw.io to draw ERD and you must provide ERD images (PNG or JPG) in the document