Academic integrity declaration

By submitting work for assessment I hereby declare that I understand the University's policy on academic integrity and statement on the use of artificial intelligence software.

In accordance with these documents, I declare that the work submitted is original and solely my work, and that I have not been assisted by another person (collusion) apart from where the submitted work is for a designated collaborative task, in which case the individual contributions are indicated. I also declare that I have not used any editing tools or sources without proper acknowledgment (plagiarism). Where the submitted work is a computer program or code, I further declare that any copied code is declared in comments identifying the source at the start of the program or in a header file, that comments inline identify the start and end of the copied code, and that any modifications to code sources elsewhere are commented upon as to the nature of the modification.

Quiz 1

- Due Apr 8 at 20:00
- Points 40
- Questions 11
- Available Apr 8 at 19:00 - Apr 8 at 20:00 1 hour
- Time Limit 60 Minutes

Instructions

While you are undertaking this assessment you are permitted to

- make use of any textbook, lecture slides (including soft copies)
- use the course materials and your laptop/PC

While you are undertaking this assessment

- **you MUST NOT p**lagiarise
- **you MUST NOT c**ollude with any other person
- **you MUST NOT** record, broadcast, narrowcast screenshot or make any image of the assessment questions and / or your answers
- **you MUST NOT** make use of any messaging or communication technology (e.g. WeChat, WhatsApp, Facebook private messenger, etc.)
- **you MUST switch off notifications from any messaging apps and / or switch your mobile phone**
- **you MUST NOT** make use of any world wide web or internet based resources such as Wikipedia, stackoverflow, google or any search engine services

- **you MUST NOT** act in a manner that could be regarded as providing assistance to a student who is undertaking this assessment or in the future will be undertaking this assessment
- **you MUST NOT** seek assistance from any other student who is undertaking this assessment or in the future will be undertaking this assessment

Note, the official language of your degree is English so you must answer in English. Answers in **languages other than English** will get the mark of **0**.
This quiz was locked Apr 8 at 20:00.

Attempt History

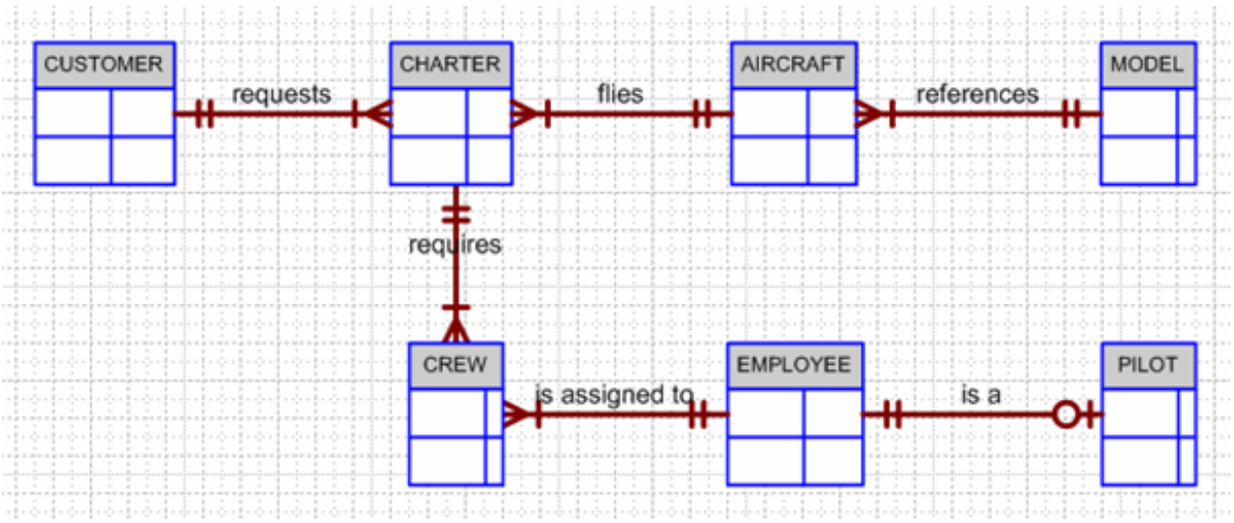
	Attempt	Time	Score
LATEST	Attempt 1	60 minutes	27 out of 40

ⓘ Correct answers are hidden.

Score for this quiz: 27 out of 40
Submitted Apr 8 at 20:00
This attempt took 60 minutes.

IncorrectQuestion 1
0 / 1 pts

Examine the ER diagram below.



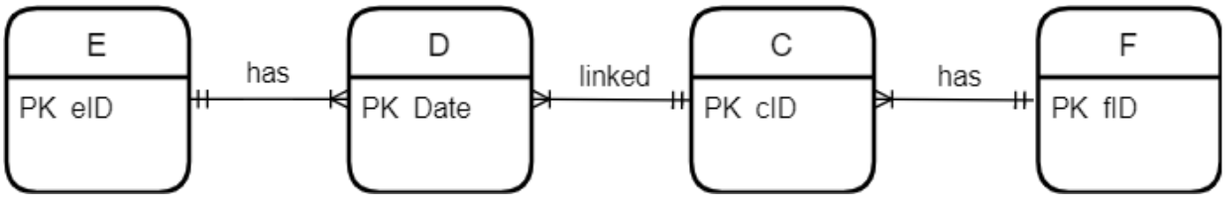
Which one of the statements about this diagram is **invalid**?

- Every employee is a crew member
- Some models do not have aircrafts associated with them
- Every charter must be requested by one and only one customer
- Every aircraft has been chartered at least once

Question 2

1 / 1 pts

Consider the ER model below



When this ER model converted to logical relations, what will be the primary key for the relation D?

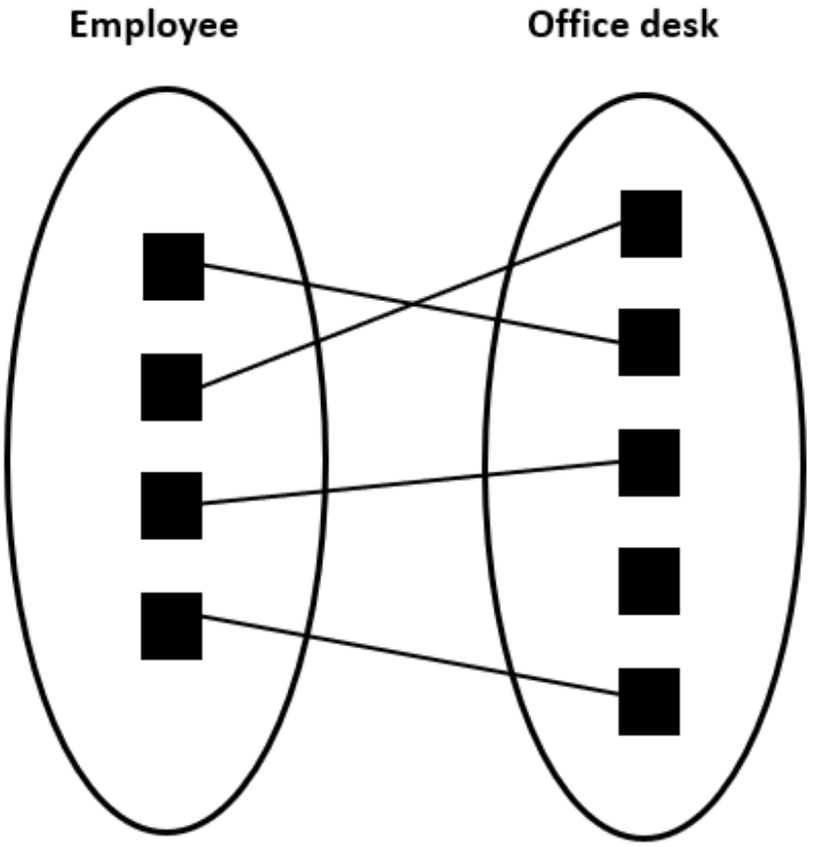
Before answering this question, make sure you identify weak entities first.

- eID, cID, Date
- eID, cID
- eID, fID, cID
- eID, fID, cID, Date

Question 3

1 / 1 pts

The following is a graphical representation of two entity sets in a system keeping track of allocation of office desks to employees.



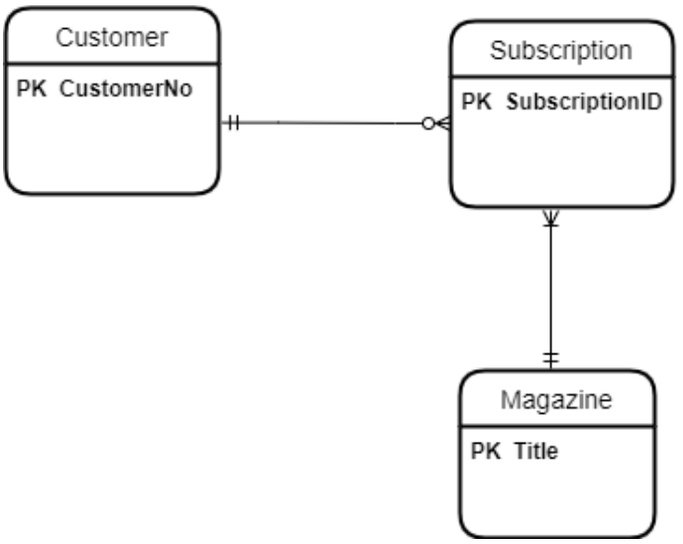
Which of the following statements **best** describes the relationship between Employee and Office Desk?

- An employee occupies one and only one desk and each desk is occupied by one and only one employee
- An employee may have no desk allocated to them, a desk may be unallocated
- An employee occupies one and only one desk and each desk is occupied by at most one employee
- A desk is occupied by one and only one employee but an employee may have no desk allocation

Question 4

1 / 1 pts

Consider the E-R diagram below



Which entity or entities will have foreign key(s)?

- Both Customer and Subscription
- Each of the entities will have at least one foreign key
- Magazine
- Both Magazine and Subscription
- Subscription
- Customer

Question 5

1 / 1 pts

Notation A → B means

- A partially determines B
- B is fully functionally dependent on A
- B is partially dependent on A
- B is a subset of A

IncorrectQuestion 6

0 / 1 pts

What is an entity set?

- An entity set is a list of all values in any row of the table
- An entity set is a group of entities in a entity relationship model
- An entity set is a collection of entities with the same attributes
- An entity set is a group of real world objects in an Entity Relationship model

Question 7

1 / 1 pts

A social club for aged people records their hobbies to help them find likeminded people. So the member record contains first and last name, date of birth, contact phone number and hobby. Hobby is a(n) _____

- multivalued attribute
- composite attribute
- superkey
- foreign key attribute

Question 8

6 / 6 pts

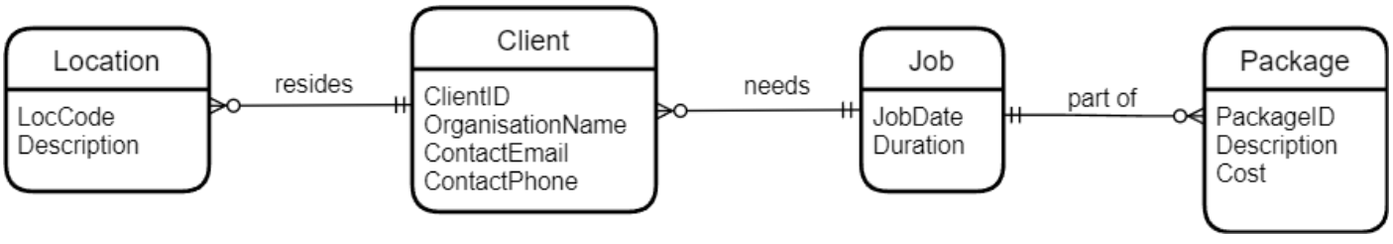
The provider of IT infrastructure support (IT IS) needs to keep track of subscription packages of services, their clients and jobs performed for their client organisations.

For each client they need to record an id, organisation name, contact person email and phone. Each client resides within a geographical location. A geographical location could have many clients.

For each offered subscription package they record an id, description and cost. As part of the subscription package the client may place many repair/maintenance requests.

When a client requires a repair/maintenance job, the date and the job duration must be recorded.

A database developer proposed the following ERD for ITIS.



Would a database based on this ERD be suitable for ITIS? (Yes / No)

If Yes, convert **the Job entity** to the logical relation based on the ERD. Include/specify all PKs and FKs.

Job is a weak entity. True or False?

If No, list at least **two major problems** with this ERD.
Your Answer:

No, first of all, a client can only live in one location, and location may have many clients. So, the the relationship from location to client is one to many. Second, the client may requires a repair job for many times. So the relationship from client to Job is wrong. It should be one to many (from client to Job).

Question 9
6 / 13 pts

Jones Office Share (JOS) has a large building in Melbourne CBD that allows consultants to hire office space by the hour or by day. The offices are often rented to consultants who do not have their own premises.

Each office has a unique office number, seating capacity, and style category. Each style category has a code, a description and hourly rental fee (such as S – Small, L – Large, B – Board Room, T – Training Room, etc).

Each consultant has an id, name and address. Each consultant belongs to a profession type. Each profession type has an ID and a description (e.g. 1 – IT, 2 – Finance, 3 – Stock Market Trader, etc).

Consultants are required to book office space at least 24 hours in advance. When the booking is made, JOS needs to record the start date and time of the hire and the end date and time of the hire, as well as (obviously) who is making the booking and which office is being allocated.

Produce a **logical design** (**relations**) for the case study. You must follow the notation for the relations as shown in lectures, including PK - underline, FK - italics, PFK - underline+italics

Your Answer:

office (<u>office number</u> , seat capacity, style category, description, hourly rental fee)

consultant (<u>id</u>, name, address, typeID, description)

bookingRecord (<u>*id*</u>, <u>*officer number*</u>, <u>start date and time</u>, end date and time of the hire)

- Missing StyleCategory entity. - Missing ProfesisonType entity. - Please don't use spaces or special characters in entity or attribute names.

Question 10
5 / 8 pts

Given the following functional dependencies

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tour guide, tour name--> price
tour name--> tour duration
tour duration --> tour departure time
```

Demonstrate each of these Armstrong axioms: Reflexivity, Augmentation and Transitivity by deriving new functional dependencies. Make sure you provide explanation, not just notation/formulae.

Your Answer:

transitivity: tour name -> tour duration -> tour departure time. Because tour name can determine tour duration, and tour duration can determine tour department time. So tour name can functionally determine tour departure time. This is the definition of transitivity.

augmentation: Because tour name can determines tour duration. Therefore, tour guide and tour name and determine tour guide and tour duration.

reflexivity: tour guide and tour name determine price, tour name determines tour duration and tour duration determines tour departure time.

You need to revisit Reflexivity

Question 11
5 / 6 pts

ARGO Bikes Co has a number of warehouses across Australia where they store parts they order from suppliers. The warehouse relation below depicts spare parts it stores and the preferred supplier for each part.

Below is the Warehouse relation:

Warehouse (whCode, whStreetAddress, State, postcode (PartID, Description, QtyInStock, SupplierID, SupplierName, SupplierPhone))

Convert the non-normalised relation to 1NF. Identify PKs using underlining and FKs using italics.
You may not introduce surrogate keys.

Your Answer:

Warehouse (whCode, whStreetAddress, State, postcode)

sparePart (*whCode*, PartID, Description, QtyInStock, SupplierID, SupplierName, SupplierPhone)

Incorrect PK in sparePart .

Quiz Score: 27 out of 40