

6. A relational database system is being designed for a university to manage rentals for on-campus accommodation in three accommodation blocks: Clyde House, Hebridean Place, Lothian Way.

The system will store rental details in three separate tables: *Student*, *Accommodation* and *Rental*.

Sample data to be stored in these tables is shown below.

Student				
studentID	firstName	surnameName	email	courseID
SJME3456	Stephanie	Jones	stephanie@zmail.com	ME3456
JRCS4455	James	Ritchie	jgritchie@coldmail.com	CS4455
...

Accommodation		
accomID	accomBlock	costPerMonth
HEB24	Hebridean Place	450
CLY56	Clyde House	425
LOT24	Lothian Way	475
...

Rental			
startDate	endDate	studentID	accomID
03/09/2022	17/12/2022	SJME3456	CLY56
17/09/2022	28/05/2023	JRCS4455	HEB24
...

The following constraints apply to the university accommodation rental system:

- the system being developed will only store details of students who rent on-campus accommodation
- all accommodation is identified by a unique accommodation ID
- all students are identified by a unique student ID formed by concatenating the student's initials with their courseID
- accommodation that is being refurbished is not available for rental.

- (a) Draw the entity-relationship diagram for the university accommodation rental system. Your diagram should clearly indicate:

- the cardinality of each relationship
- the relationship participation for each entity
- whether each entity is strong or weak.

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- (b) Describe a potential problem with the primary key of the *Student* entity and suggest how this problem could be resolved.

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