ISEM3006 Data Management in Business

Answer to In-Class Exercise – Simple ER

As I mentioned in class, the cardinalities of relationships reflect business rules or how a company operates.

When doing exercise, if it is clear in the question, you should follow it. However, if something is not clear, make **reasonable** assumption and explain it.

In real life information system development projects, always confirm with the users.

a. A monthly statement is sent to one customer, and there can be many monthly statements sent to the same customer. A customer might have received no monthly statement yet.



A monthly statement is sent to exactly one customer.

Customer may have received many monthly statements over time. But, a new customer may not have received any monthly statement yet because after the customer bought the goods, the monthly statement will only be issued at the end of the month.

b. An operator can work on many machines. A newly hired operator may not be assigned to operate any machine yet. Each machine has at least one operator, but can have many. Each machine belongs to exactly one department. But a department can have many machines.



An operator can operate many machines, but a new operator may not have yet assigned to operate any machine.

A machine must have one operator assigned to it, and it may be operated by many operators.

A machine belongs to exactly one department because we will assign it to a department when we acquire it.

A department can own many machines, but some departments (like accounting department or marketing department) may not own any machine. (The later part has not been specified in the question, it is just an assumption. You can also has an answer that a department must has at least one machine and explain it. In real life, ask the people who know the operations.) So, the following answer is also correct.

