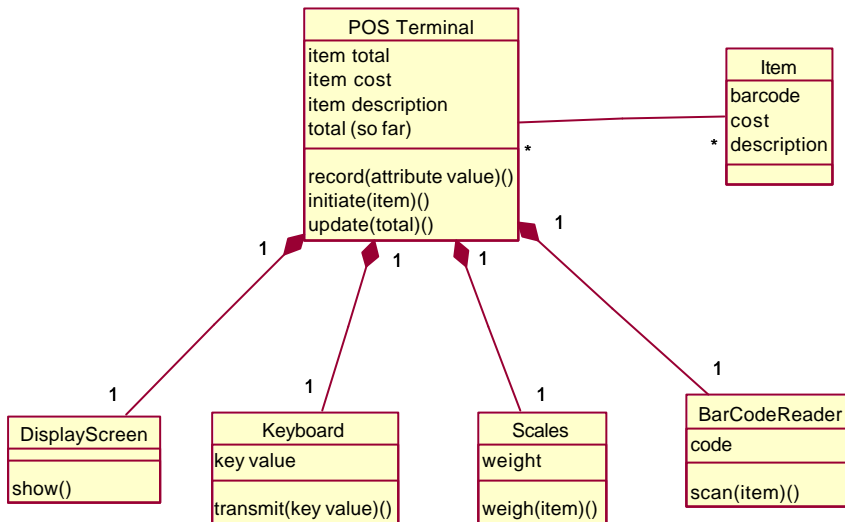


IS352: Advanced Systems Development

Exercise 3

(A) A point of sale (POS) system can be modelled by the class diagram:



Consider the following scenario for this computerized point of sale system:

Press “new customer” key on keyboard to initialize (including setting running total to zero)
For each item the customer has:
 Either scan item code and type in quantity on keyboard
 Or type in item code and weigh item on the scales
 If item code is not valid display shows an error message
 Otherwise display shows item description and price
 Add price to running total
Press “total now” key on keyboard to indicate that there are no more items
Display shows total amount owed

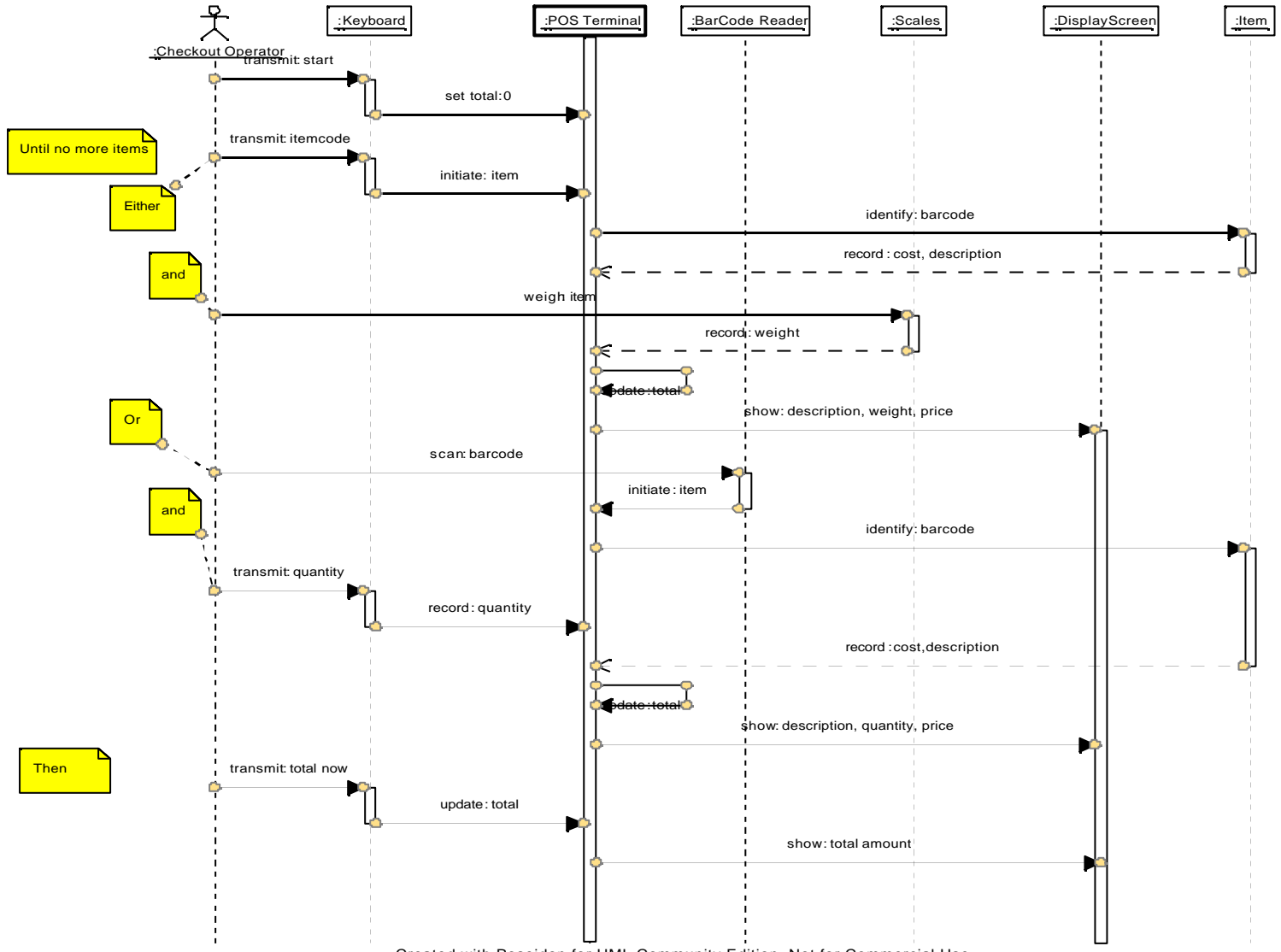
Draw a sequence diagram illustrating the given scenario, using objects from the classes shown in the class model and no others.

1 mark for each message, ½ for the message being between reasonable objects and ½ for the label using an operation given in the question, up to a total of 16 marks

5 marks for dealing with the alternative actions (scales + keyboard / barcode reader/keyboard)

5 marks for the overall logic

Total 26 marks.



(B) Consider the case where the instruments on a vehicle dashboard have to be refreshed periodically. This is shown on a collaboration diagram by a message “display current reading” being sent from an object “Dashboard Monitor” to an object “Instrument”.

Decide whether this message should be shown as:

- (i) A synchronous message
- (ii) A flat (or simple) message
- (iii) An asynchronous message

The message is asynchronous because the Dashboard Monitor “watches a clock” to determine when it is time to update the display, after sending the message it continues with its own processing.

2 marks for the correct answer and 5 marks for the reason, Total – 7 marks