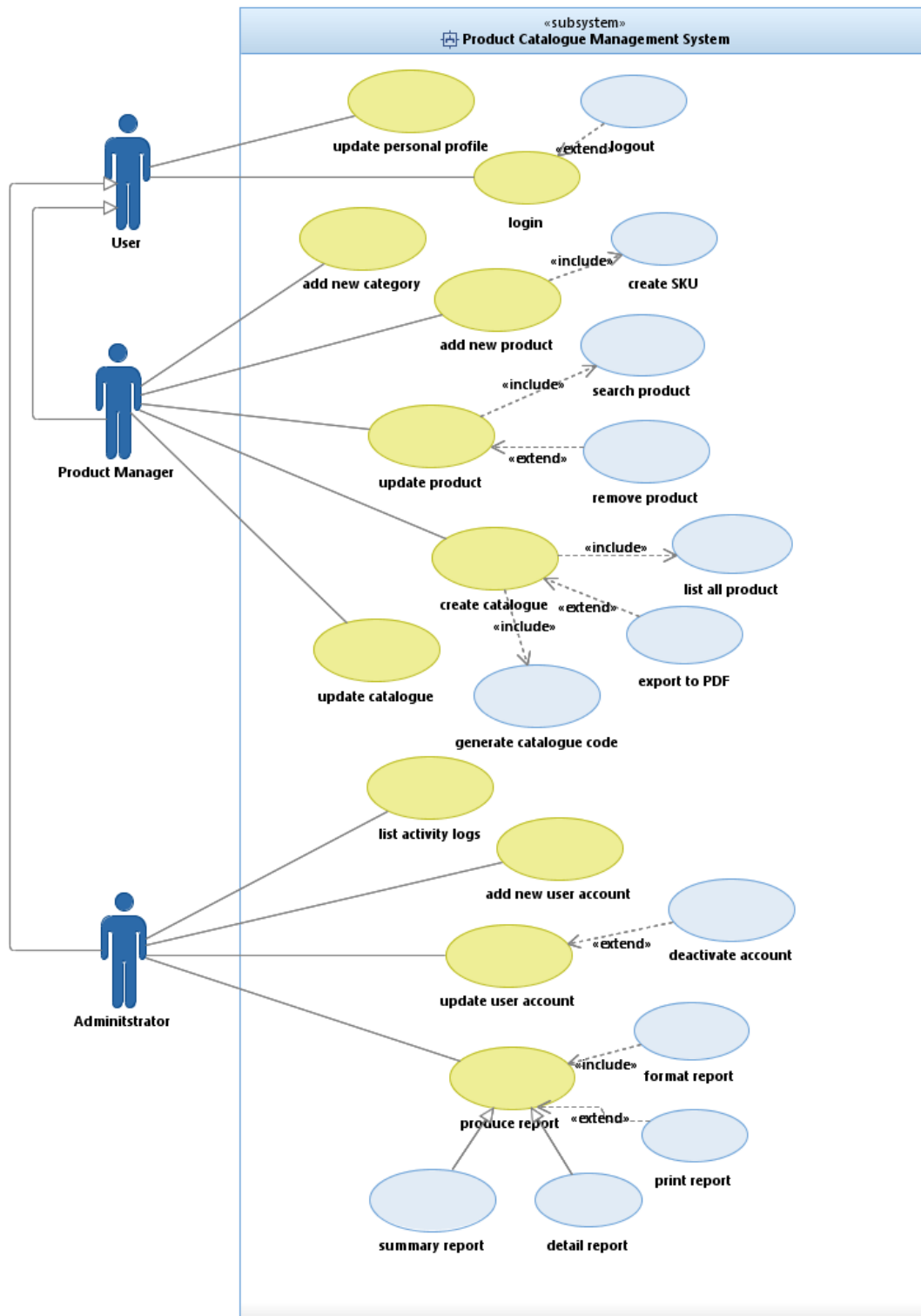


The following are the **suggested** answers/design/diagram for the questions.

Question 1

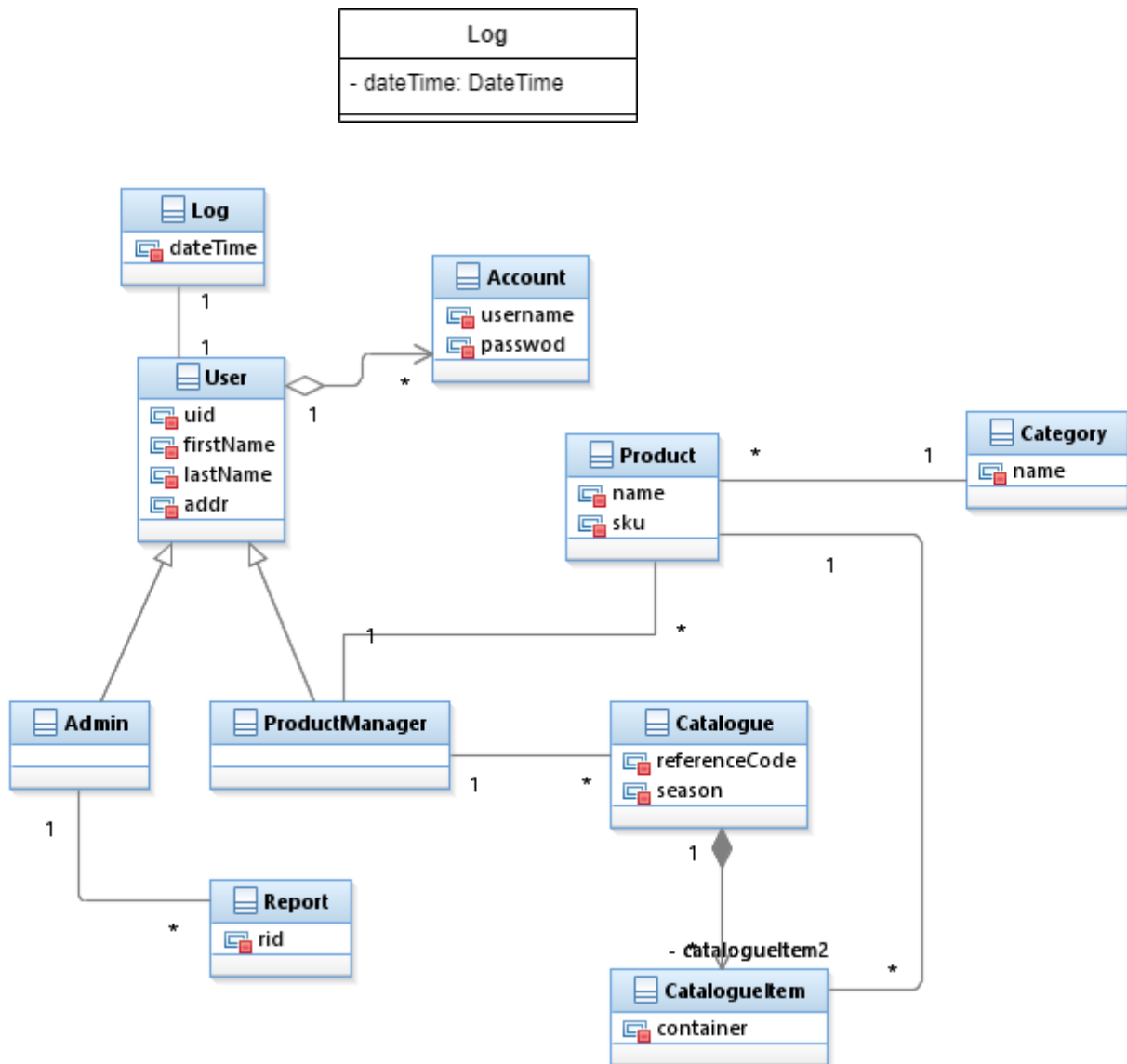
a) Suggested use case diagram:



b) Suggested analysis class diagram:

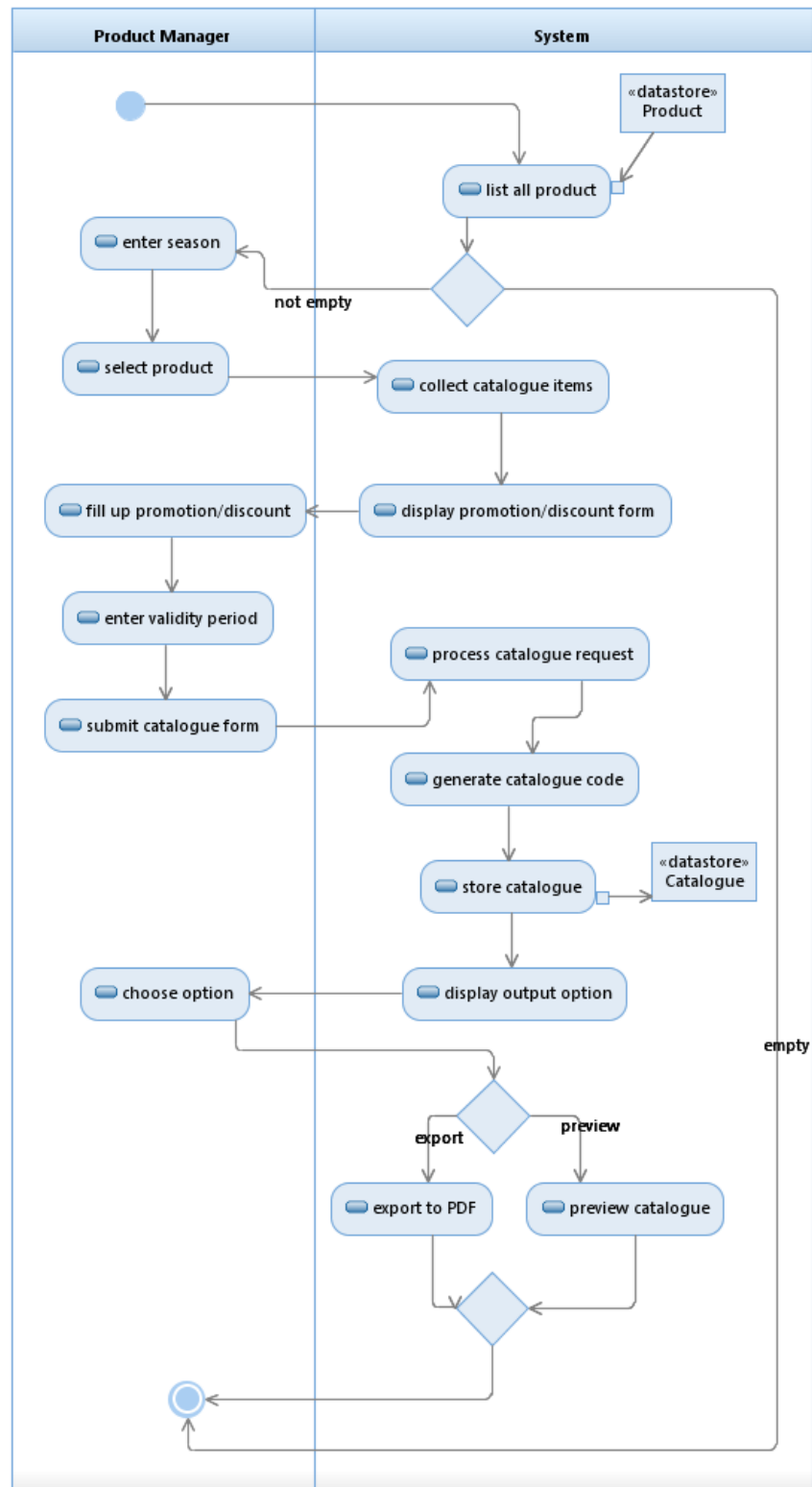
* The icon in red of the data attribute indicates the private field.

In UML, - *dateTime*: *DateTime*

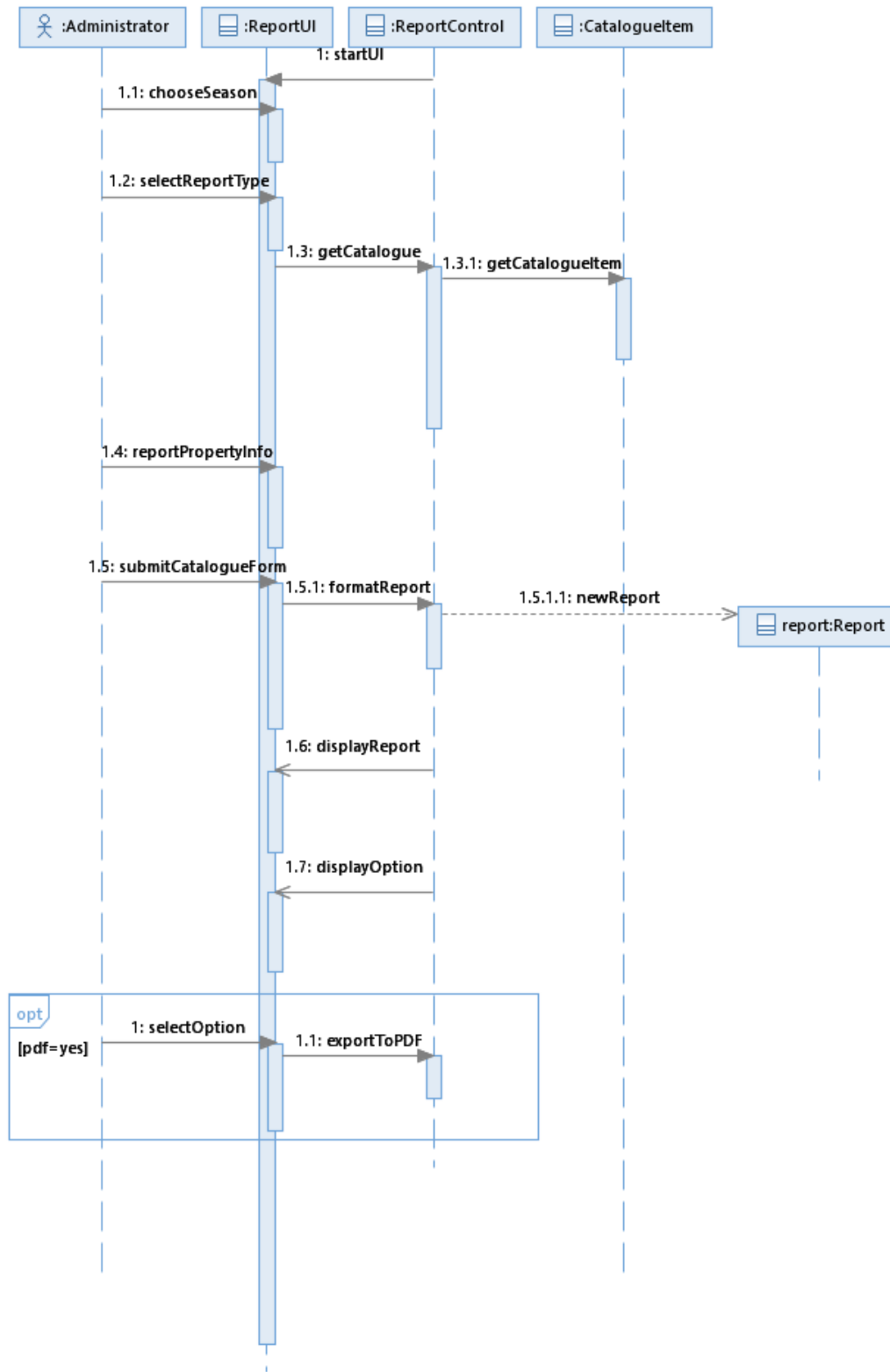


Question 2

a) Suggested activity diagram for **create catalogue** use case based on Q1 a)

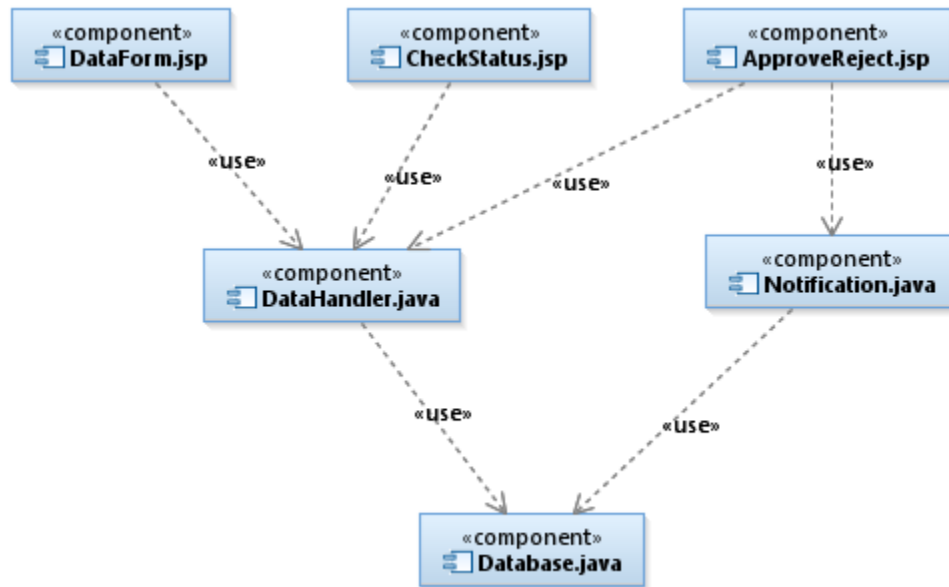


b) Suggested sequence diagram for the **produce report** scenario.

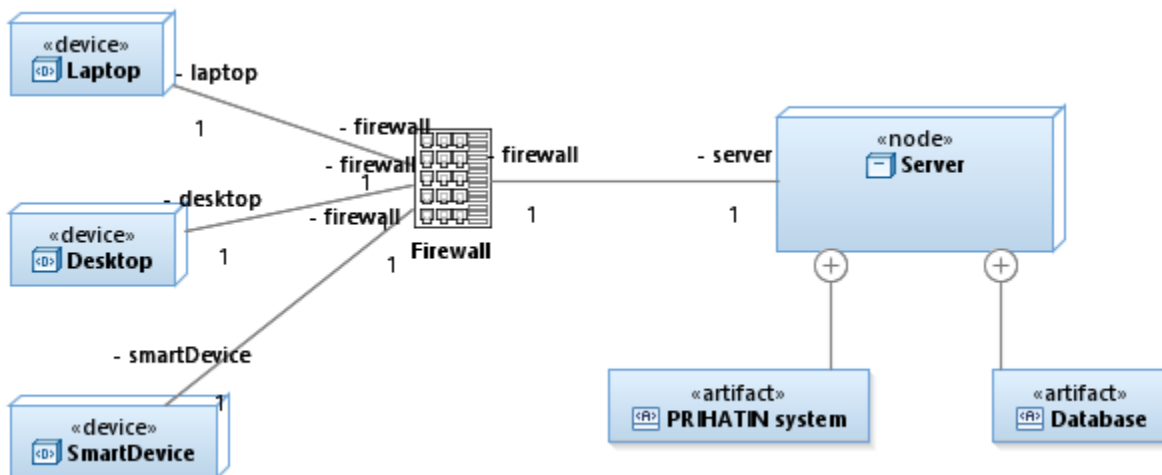


Question 3

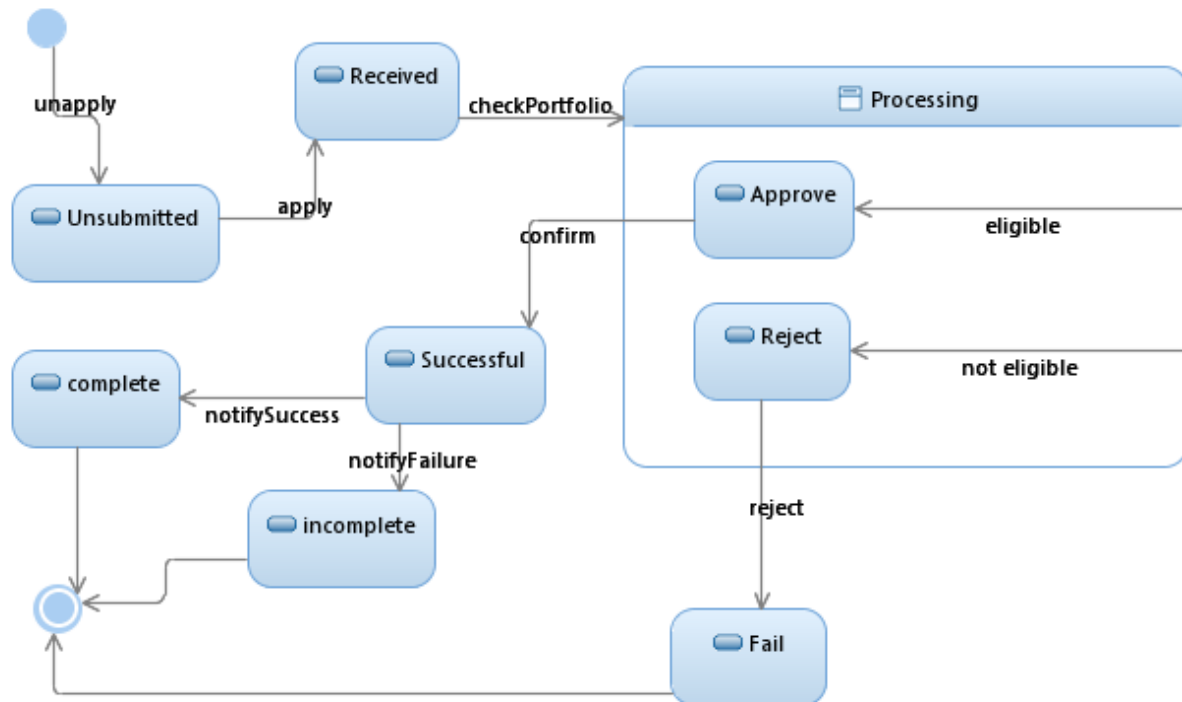
a) Suggested component diagram for PRIHATIN management system.



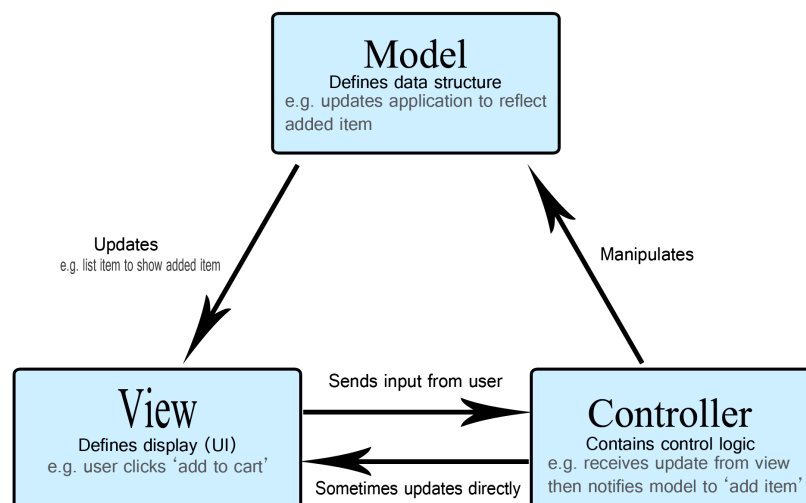
b) Suggested deployment diagram for PRIHAIN management system.



c) Suggested state machine diagram for **PrihatinPackage** class.



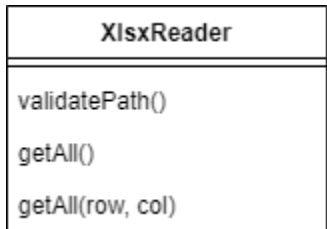
d) MVC architecture design reflecting the component diagram in this case. **Note:** Explain it using your own words.



Question 4

a)

- Cohesion is a measure of the degree to which an element contributes to a single purpose in this case reading. (2m)
- Maximise cohesion. (2m)
- While, log(), write(data) and write(data, row) are unrelated functions to the XlsxReader class. (3m)
- Improved class: (1m)



b)

- (i) context Meeting inv: self.endTime > self.startTime
- (ii) context Order inv: self.amount >= 200 implies self.discount += 10
- (iii) context Collection inv: self.arr notEmpty() implies self.Size > 0
- (iv) context Student inv: self.Status = "final" implies self.accumulatedCreditHours >= 30

c) Out of scope for this subject (BACS2053 OOAD).