

# Problem 1

Mark the following statements as true or false (5 points)

1. **(true)** A data object can be attached to a catching message intermediate event in BPMN.
2. **(true)** A data object lifecycle represents possibilities to assign values to the data object.
3. **(false)** A process model covers a data object life cycle when it allows only those states and transitions stated in the life cycle.
4. **(true)** Data stores are used in a BPMN model to show where data are loaded from and where they are eventually saved.
5. **(true)** Data input/output are used to represent process-level input/output only.

# Problem 2

With respect to the process model shown in Figure 1, answer the following questions: (8 points)

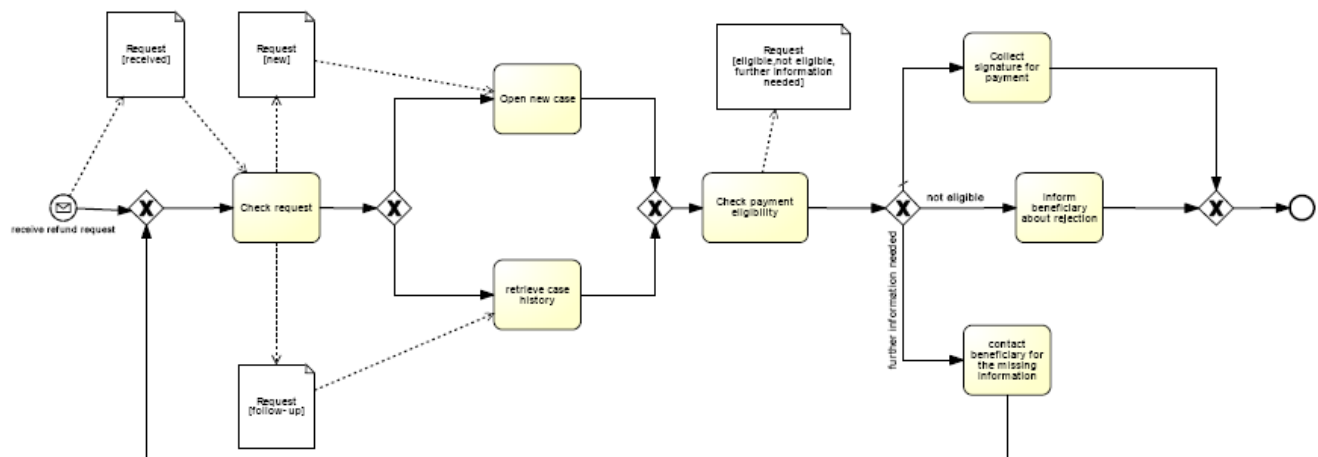


Figure 1: A travel-request-refund handling process

## 1. What type of data anomaly(ies) would this process suffer from?

Answer. The process model suffers from (1) the implicit routing data anomaly at the first XOR-split, (2) too restrictive preconditions at task "check request" when it returns back from task "contact beneficiary ..."

## 2. Suggest a resolution for the found anomalies.

Answer. (1) Add explicit conditions on the outgoing arcs of the XOR split. Thus, the edge from the XOR split to the task "open new case" has the condition "Request = new case" while the other edge has the condition "Request = follow-up". (2) Add new state from the data object "request" to be as an output data object from "check beneficiary..." and an input data object to "check request".

## 3. At the time task "Check Payment Illegibility" is ready to execute, what are the values (states) of the request object?

Answer. The value (state) of the "Request" data object is either new or follow-up.

4. At the time task “Collect Required Signatures for Payment” is ready to execute, what are the values (states) of the request data object?

Answer. The value (state) of the “Request” data object is eligible

### Problem 3

Given the Request object lifecycle shown in Figure 2 and after the above found data anomalies have been resolved, decide whether the process in Figure 1 is conformant and covering the lifecycle?

7 points: 3 points for the extracted object lifecycle from the process model, 2 for conformance and 2 for coverage

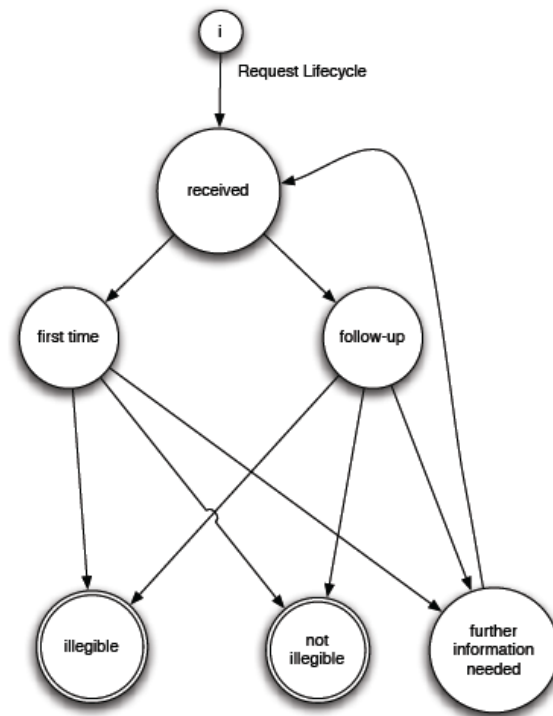


Figure 2: Refund request lifecycle

Answer. if the mistake “first time” state instead of “new” is accidental → The extracted object lifecycle from the process in Figure 1 is both covering to the object lifecycle of Figure 2 and conformant with the object lifecycle.

OR if the mistake is in purpose → It is both neither conformant nor coverage.