Universität des Saarlandes

Fakultät 6 – Fachrichtung 6.2 – Informatik

Prof. Dr. Jana Koehler

Architectural Thinking for Intelligent Systems, WS 2019

Assignment 2

Task Description for Lecture 3: Business Processes, BPMN 2.0, Object Life Cyles

We practice the usage of BPMN 2.0 with a number of exercises.

1) Create a BPMN 2.0 model of the following Mortage Approval process: The customer fills in an application for a mortgage and submits it to the bank. The bank reviews the application. If the credit-rating of the customer is good, the bank creates a mortgage offering, opens an account and prepares all documents for the mortgage contract. The customer then signs the contract. If the credit-rating of the customer is not good, the bank sends a decline to the customer.

2) Create a modified BPMN 2.0 model, which also includes a flow where the customer rejects the offering.

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3) Model the following Loan Application Assessment process:

   a) A loan application is approved if it passes 2 checks:
      a. the applicant's loan risk assessment, done automatically by a system, and
      b. the appraisal of the property for which the loan has been asked, carried out by a property appraiser.
   b) The risk assessment requires a credit history check on the applicant, which is performed by a financial officer.
   c) Once both, the loan risk assessment and the property appraisal have been performed, a loan officer can assess the applicant's eligibility.
   d) If the applicant is not eligible, the application is rejected, otherwise the acceptance pack is prepared and sent to the applicant.

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4) Model the following process to complete the Loan Application:

   a) Once a loan application is received by the loan provider, and before proceeding with its assessment, the application itself needs to be checked for completeness.
   b) If the application is incomplete, it is returned to the applicant, so that she can fill out the missing information and send it back to the loan provider.
   c) This process is repeated until the application is found complete.

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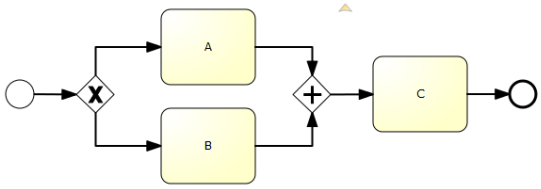
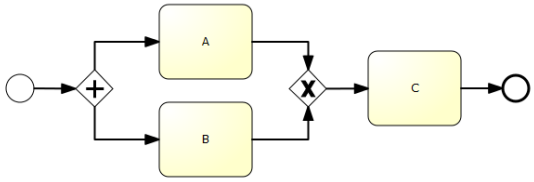
5) Decide if the following statements about process models are true or false:

a)



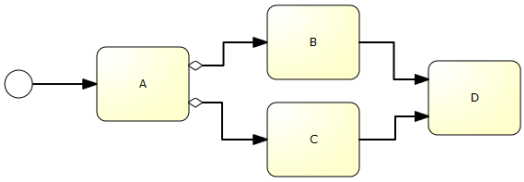
C is always executed

b)



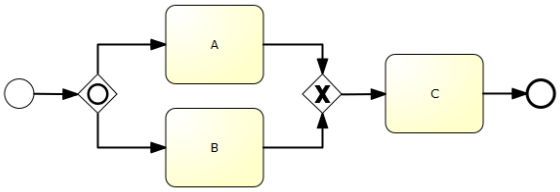
C is executed exactly twice

c)



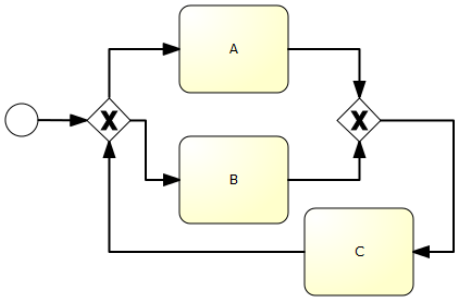
D is executed exactly once in each instance

d)



C is executed multiple times in some instances

e)



The process never ends (if the XOR conditions are correctly modeled and exactly one is true)

All instances of this process begin either with A-C or with B-C

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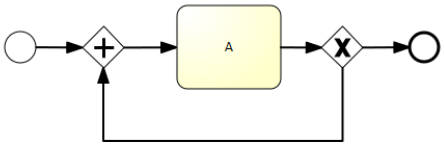
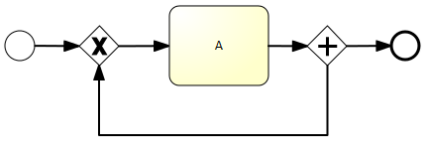
f)



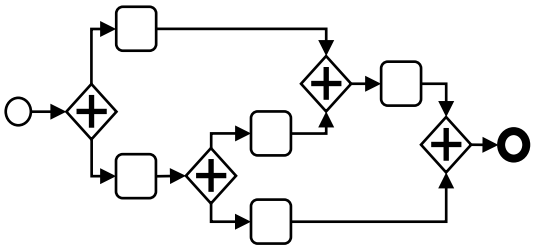
A can never be executed

g)



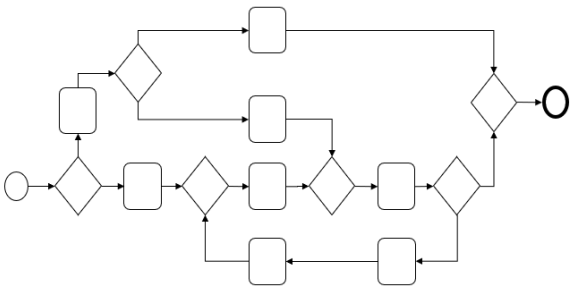
A is executed infinitely often

h)



A model with AND gateways that does not contain cyclic paths is sound.

i)



A model with only XOR gateways and cyclic paths cannot contain any Lack of Synchronization.

Submission

Instructions can be found in slide deck A1-BasicConcepts and on the course website.