

Housing Agency Workflow

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Housing Agency Workflow

This is an exercise to build a Workflow Net

Description

Housing Agency

Registration

- potential tenants indicate their interests:
 - certain criteria: price, size, location, etc
- the interests are entered into some database

Offer

- after the registration, the agency sends an offer when a suitable apartment is found
- customer decides to accept or decline the offer
- if he declines, the agency continues to look for another flat
- if the customer doesn't respond in 2 weeks, it's assumed he has declined the offer
- if the customer declines two offers in a row, the process ends automatically

Contract

- if the customer accepts the offer, he has to sign a contract
- after signing he has to send the signed copy
- and pay 1000 USD deposit
- once it's done, the tenants receive the keys

Payments

- they pay of the monthly basis
- every two months the finance department checks the payment history
- if everything is alright - no further action is needed
- if not, then a warning is sent
- then the payment is checked 2 months later: if there are still problems, the eviction process starts
- and then the process ends

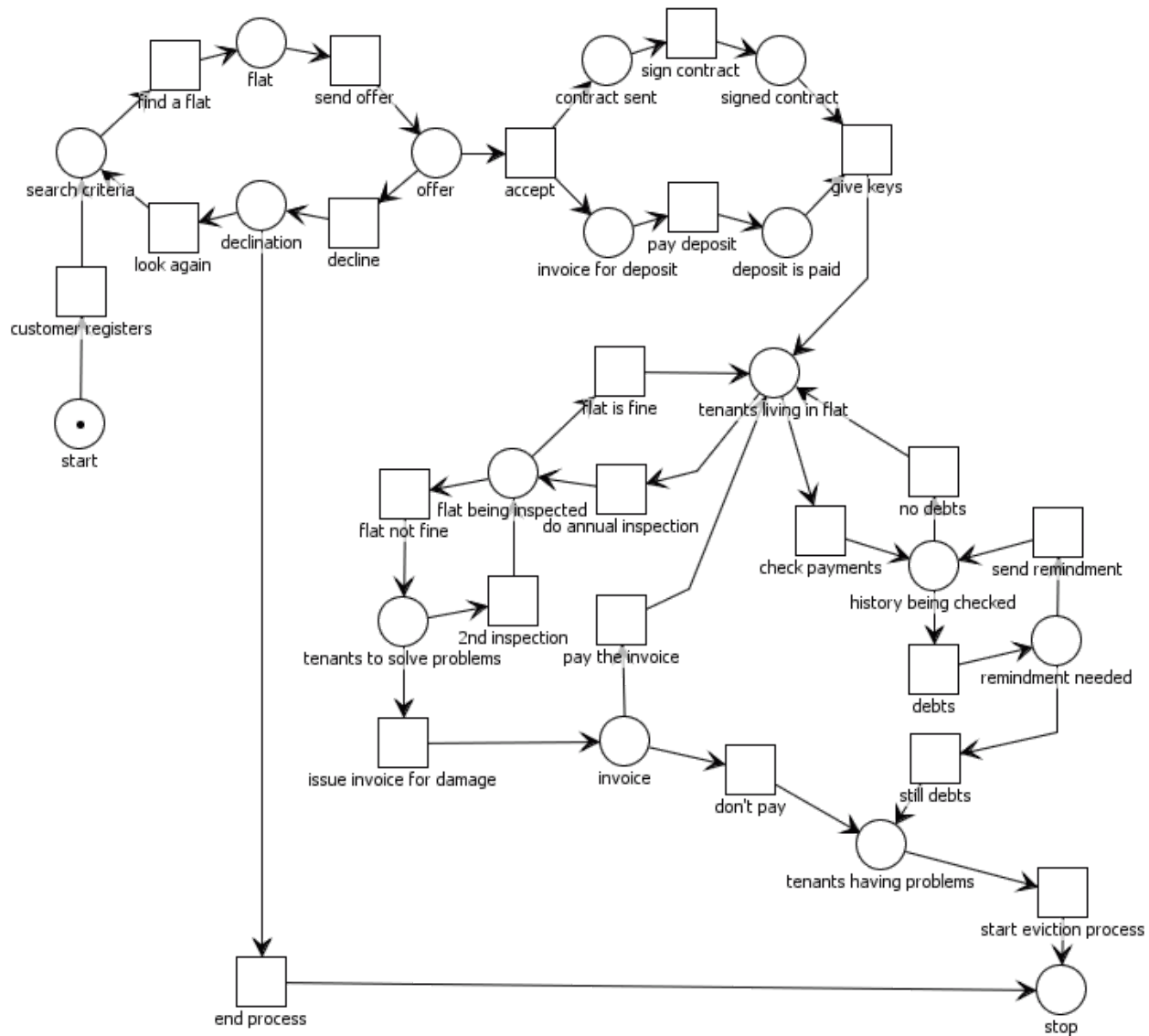
Annual inspection

- the flat is checked annually
- ok - no actions needed
- if problems (damages) - tenants have to solve them in 4 weeks
- second inspection: if the problems solved - no actions are needed
- if not, the damage must be paid by the tenants
- if payment is not received in 3 weeks, the eviction process starts
- and the process ends

Workflow Net Model

To model this in Petri Nets, PNEditor was used

Obtained model:

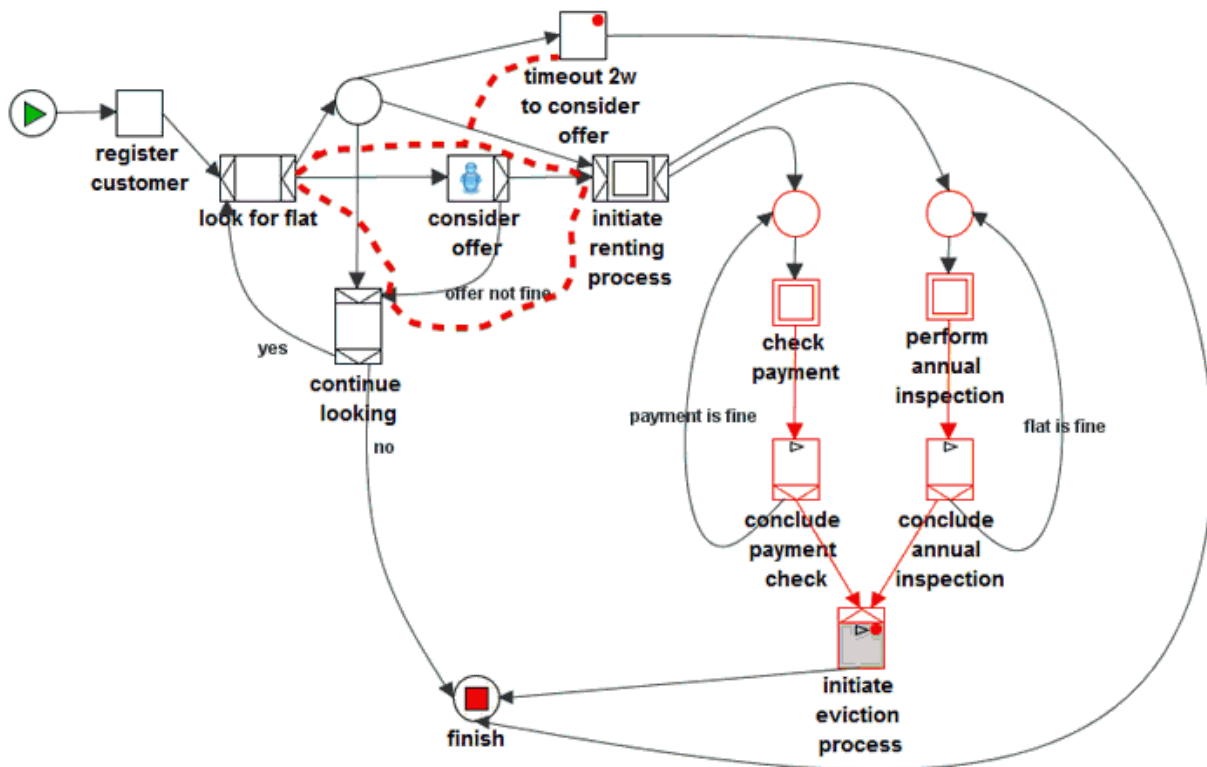


Bad sides of the model:

- lack of parallelism
- the model is too restrictive

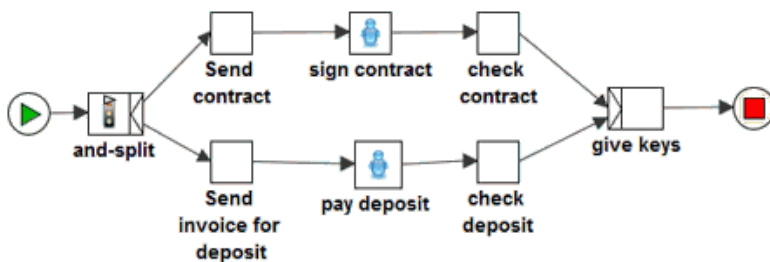
YAWL Model

The main flow:

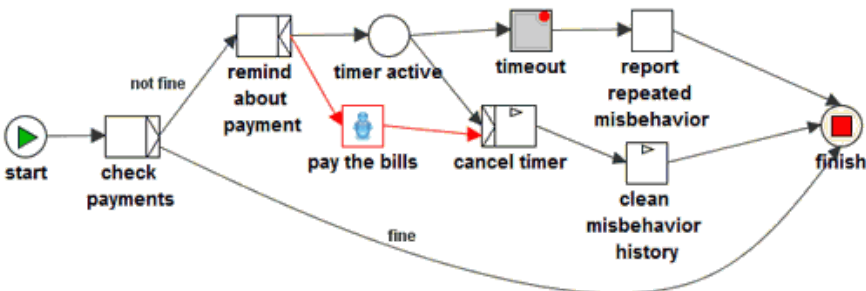


- there are 2 Cancellation Regions
- note that for "initiate eviction process" this activity is also included to the cancellation regions of itself (for the reasons described in Cancellation Regions)

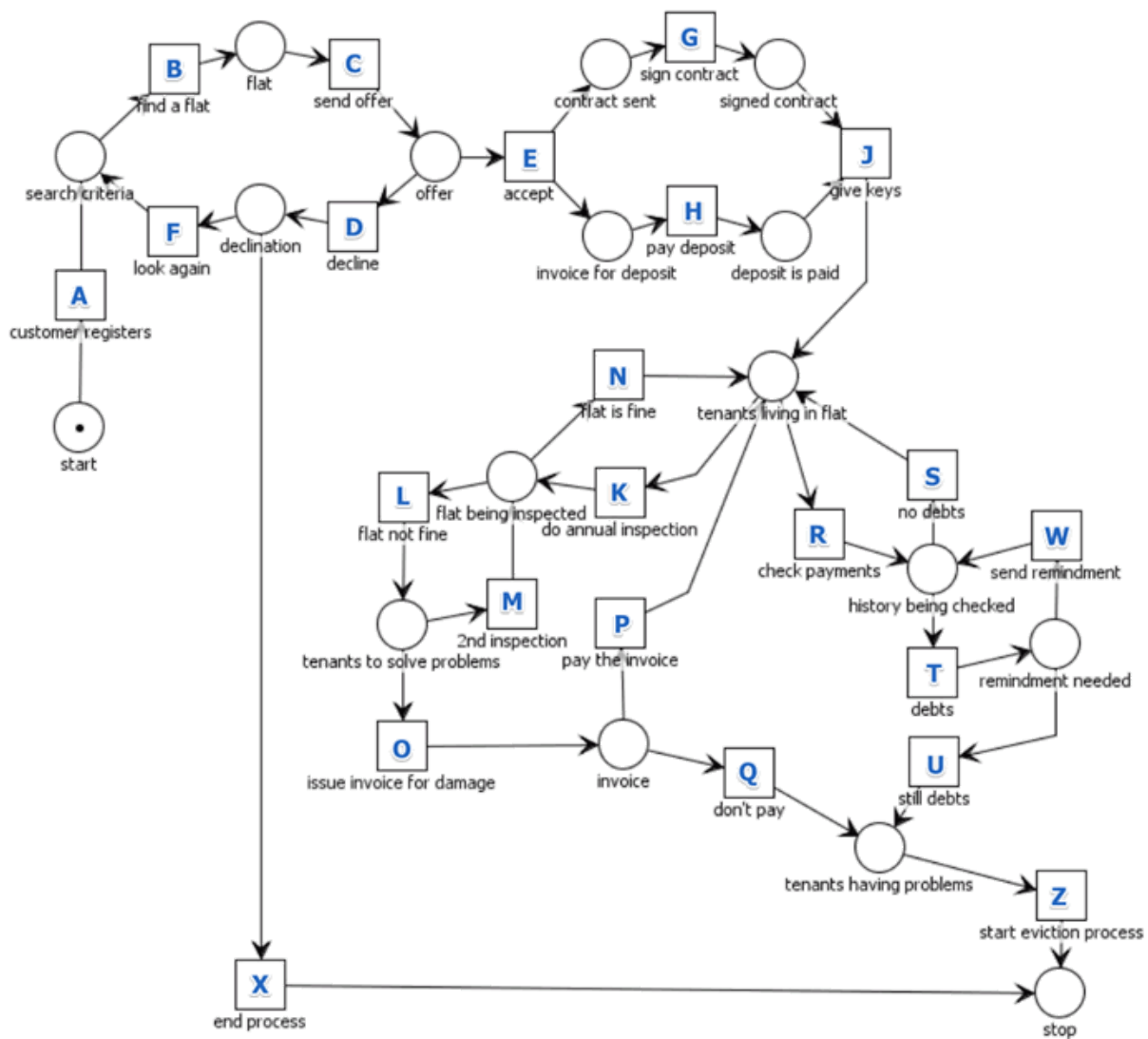
Initiate Renting flow:



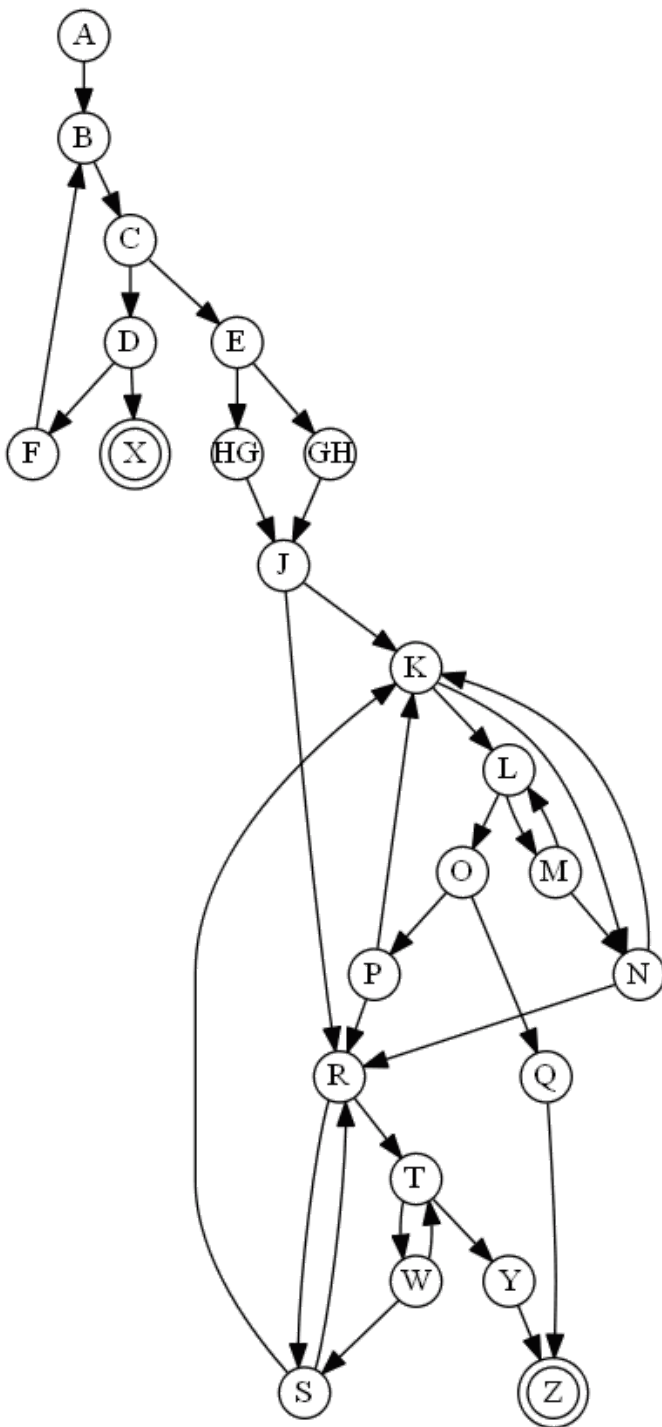
Check Payment flow



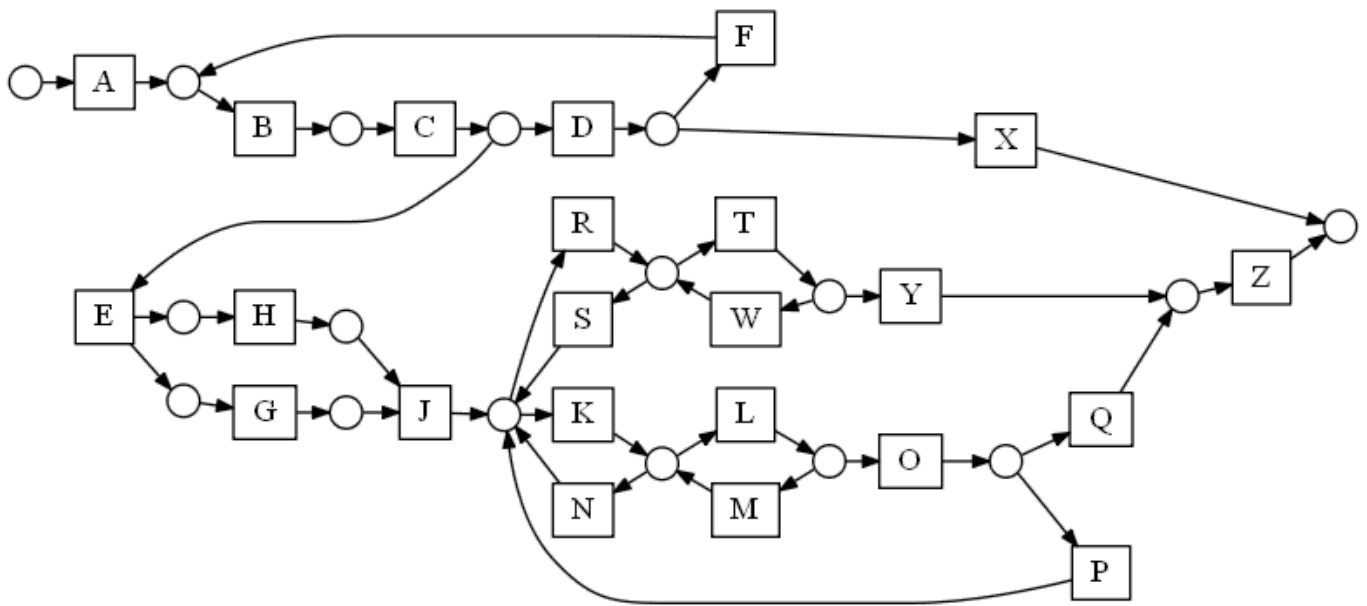
Annual Check flow:



- to obtain the possible sequences we construct the following graph:



- then we execute Breadth-First Search restricting the traversal of each node to 2 visits
- and get a log with the following possible firing sequences: <http://pastebin.com/kSyhR9uK>
- then the α^+ algorithm is applied to these sequences using EMiT
- and the following workflow net is rediscovered:



Sources

- Business Process Management (ULB)

Retrieved from "http://mlwiki.org/index.php?title=Housing_Agency_Workflow&oldid=366"

Category: Business Process Management

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Machine Learning Bookcamp: learn machine learning by doing projects (get 40% off with code "grigorevpc")

2012 – 2021 by Alexey Grigorev

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