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Business Process Mining

Practice 7:
Process Simulation and What-If Process Mining

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Exercise 1: Warm-Up

Let's consider the following simulation scenario of the Credit Application Handling process we saw in the lecture:

https://www.dropbox.com/s/vijhela7r6rbwye/Credit%20Application%20Simulation.zip?dl=1

What happens to the cycle time if one clerk and one credit officer needs to be absent for a a few weeks?

Hint: check the resource utilization in this new scenario, in addition to the cycle time. Checking the chart of active cases over time can also give some insights.

Exercise 2: Simulation of an Insurance Claims Handling Process

An insurance company is facing the following problem: Whenever there is a storm, their claim-to-resolution process is unable to cope with the ensuing spike in demand. During normal times, the insurance company receives about 9,000 calls per week, but during a storm the number of calls per week doubles.

The claim-to-resolution process starts when a call related to lodging a claim is received. The call is routed to one of two call centers depending on the location of the caller. Each call center receives approximately the same amount of calls (50–50) and has the same number of operators (40 per call center). The process for handling calls is identical across both call centers.

The tasks of the claims handling department are performed by *claims handlers*. There are 150 claims handlers in total.
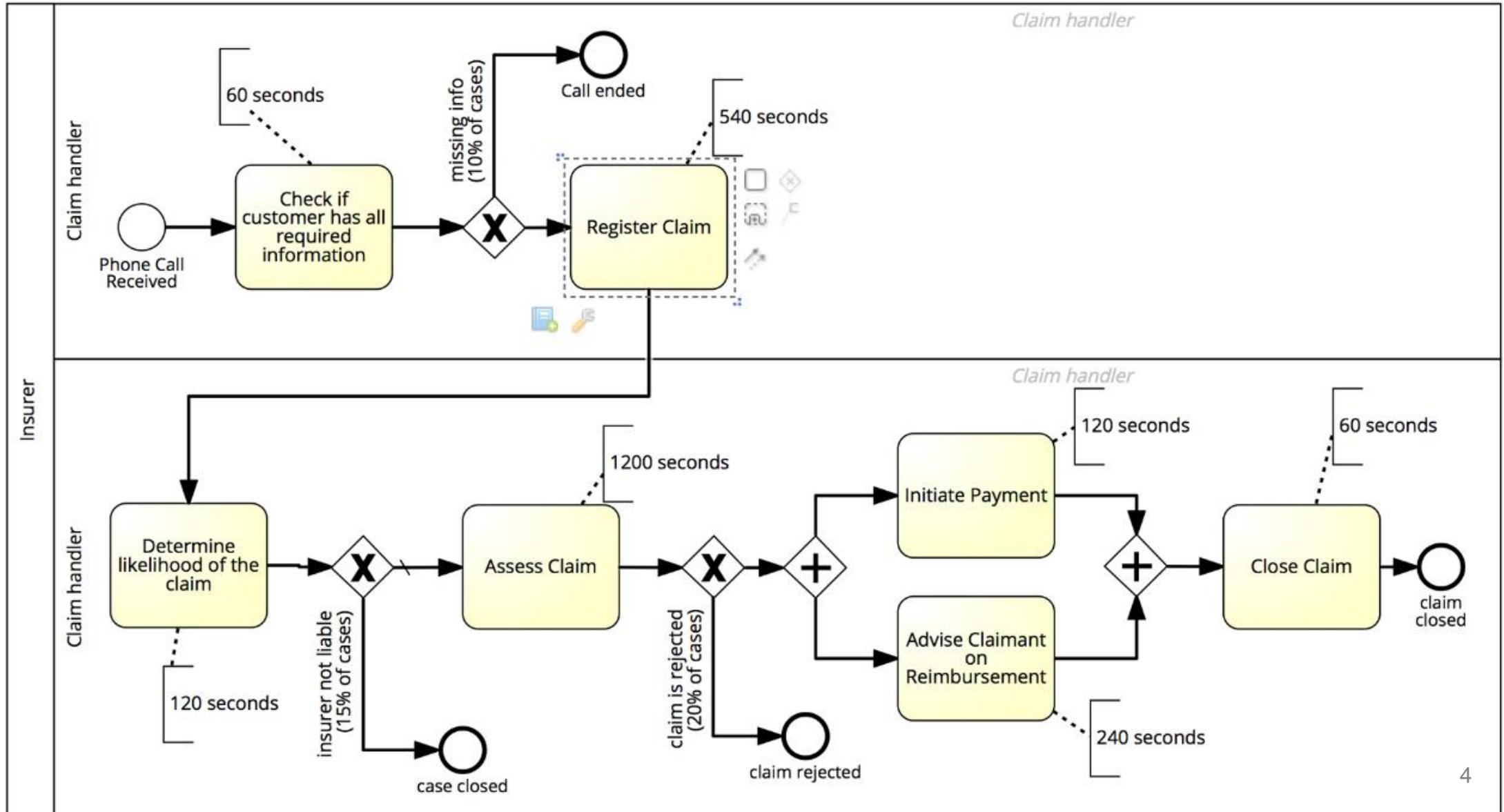
The hourly cost of a call center agent is 30, while the hourly cost of a claims handler is 50.

The call center agents and claims handler work during regular business hours (40 hours/week).

Use the following model as a starting point:

https://www.dropbox.com/s/0b4rsrubeiye4l6/InsuranceModelSimulation.zip?dl=0

Claims Handling Process Model & Processing Times

Ex. 3: Data-Driven Simulation Model Discovery

Let's discover a simulation model from the Repair event log.

Here's a first shot. It's a process model discovered from the event log, with some random parameters.

https://www.dropbox.com/s/crukckynq3ysr6k/repairExample-sim-scenario.zip?dl=1

If you simulate this process model, the distribution of cycle times and waiting times is very far off the mark.

Can you improve it and come up with a version of this model that produces simulated logs closer to the original one?