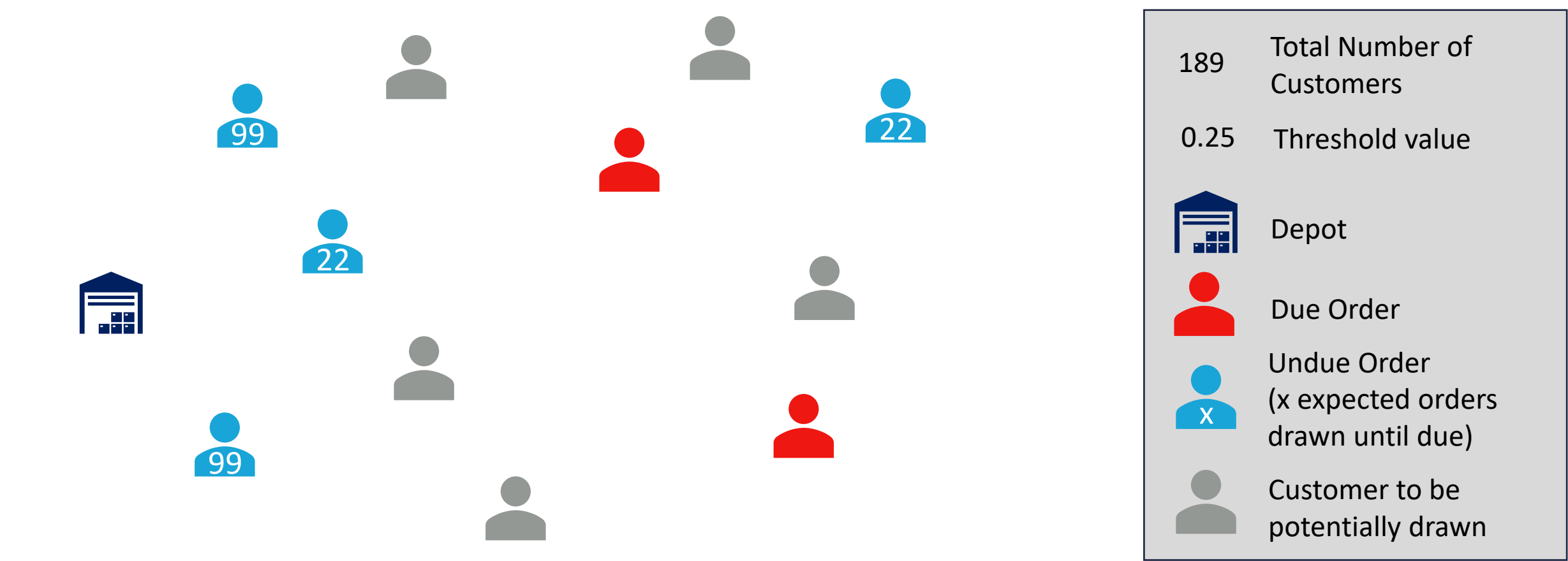


Non, je ne regrette (presque) rien: A Regret Policy For The Dynamic VRPTW

Peter Dieter^a

^a Management Information Systems and Operations Research (MISOR), Paderborn University, Warburger Str. 100, 33098 Paderborn, Germany

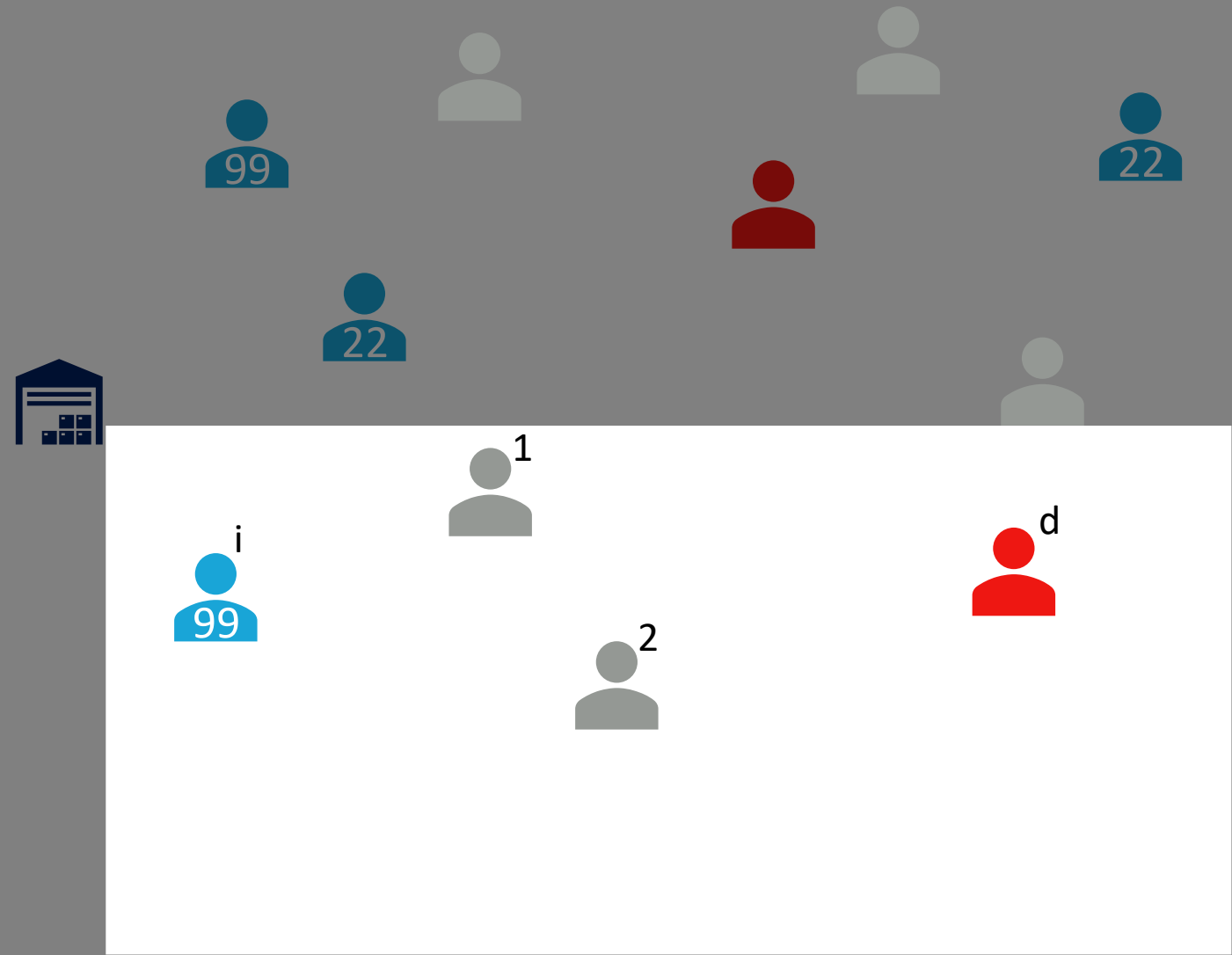
09 December 2022



Base Policy



Step 1: For all Undue Orders: Find Closest Due Order & Calculate Regret



189

Total Number of Customers

0.25

Threshold value

Depot

Due Order

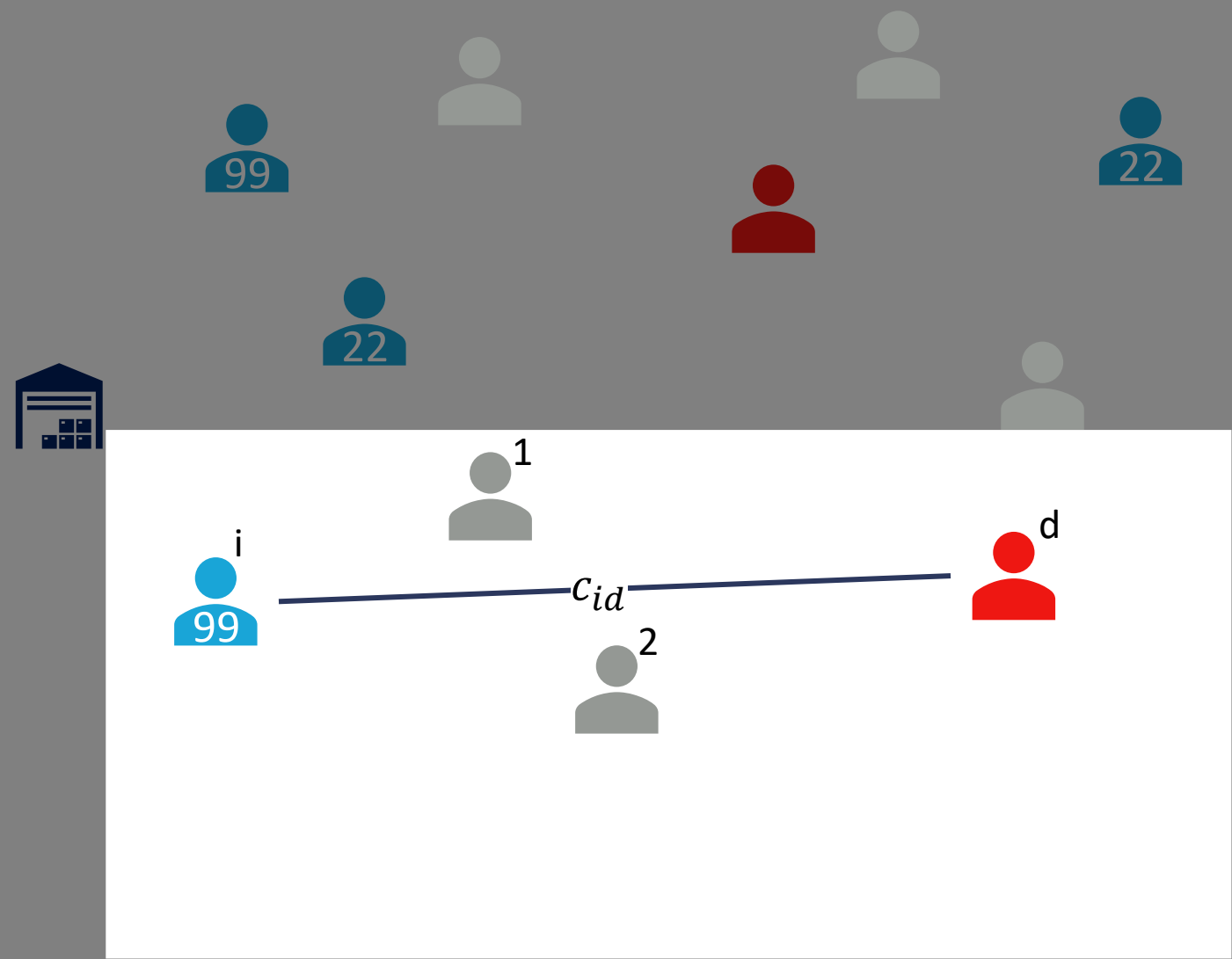
Undue Order
(x expected orders drawn until due)

Customer to be potentially drawn

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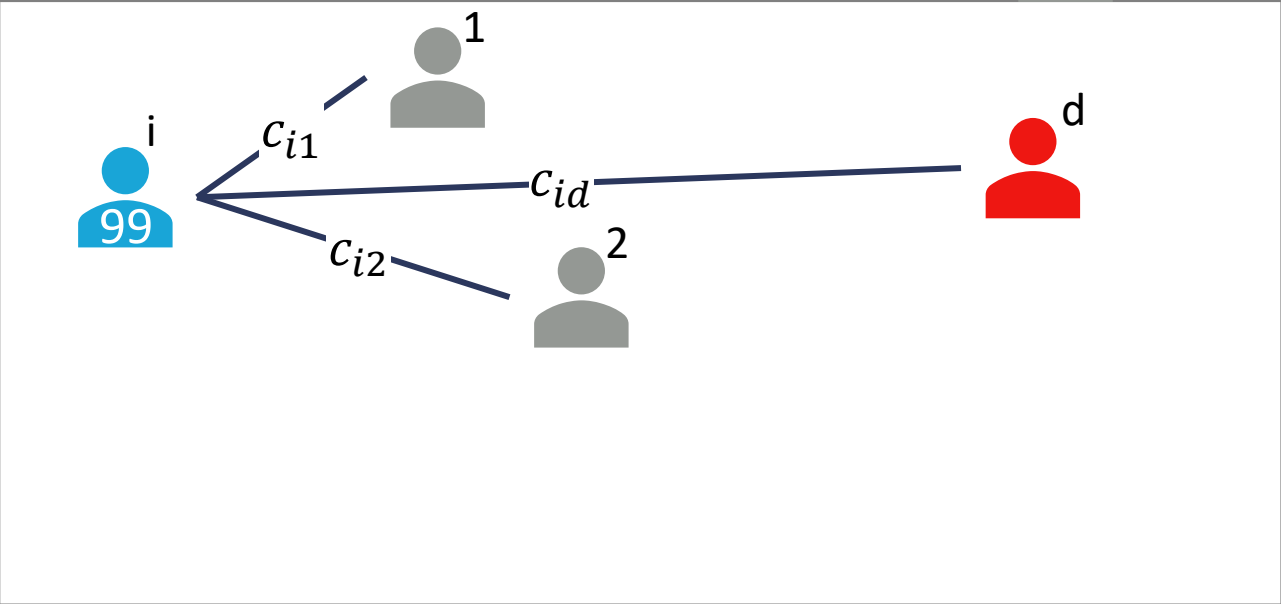
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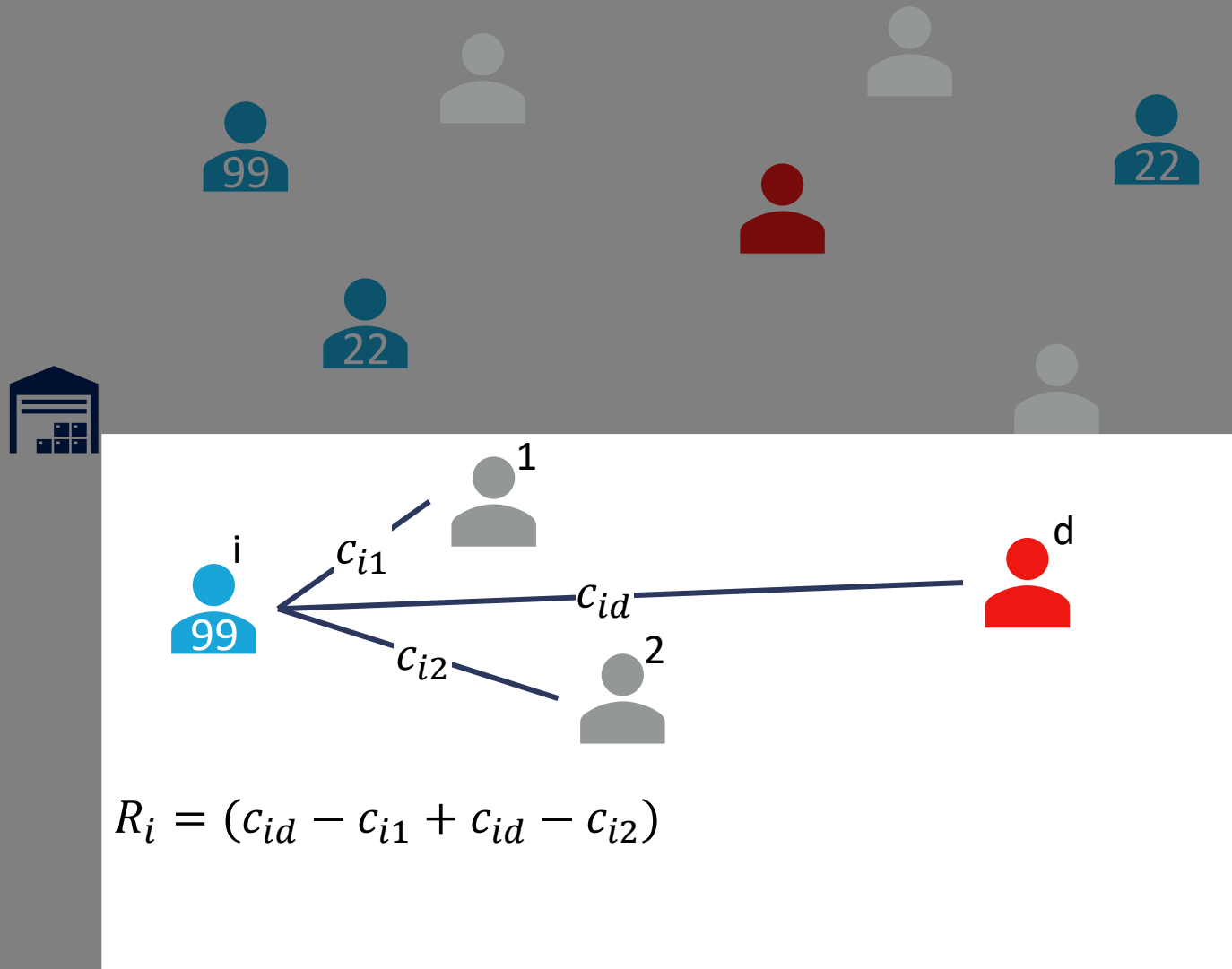






Customer to be potentially drawn



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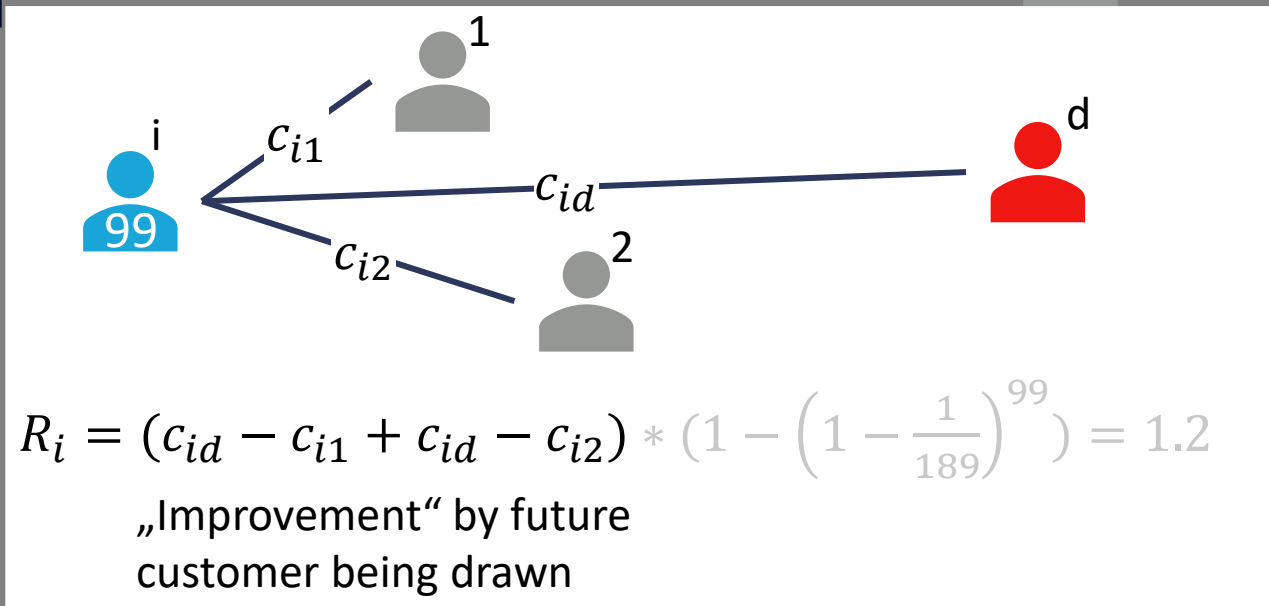
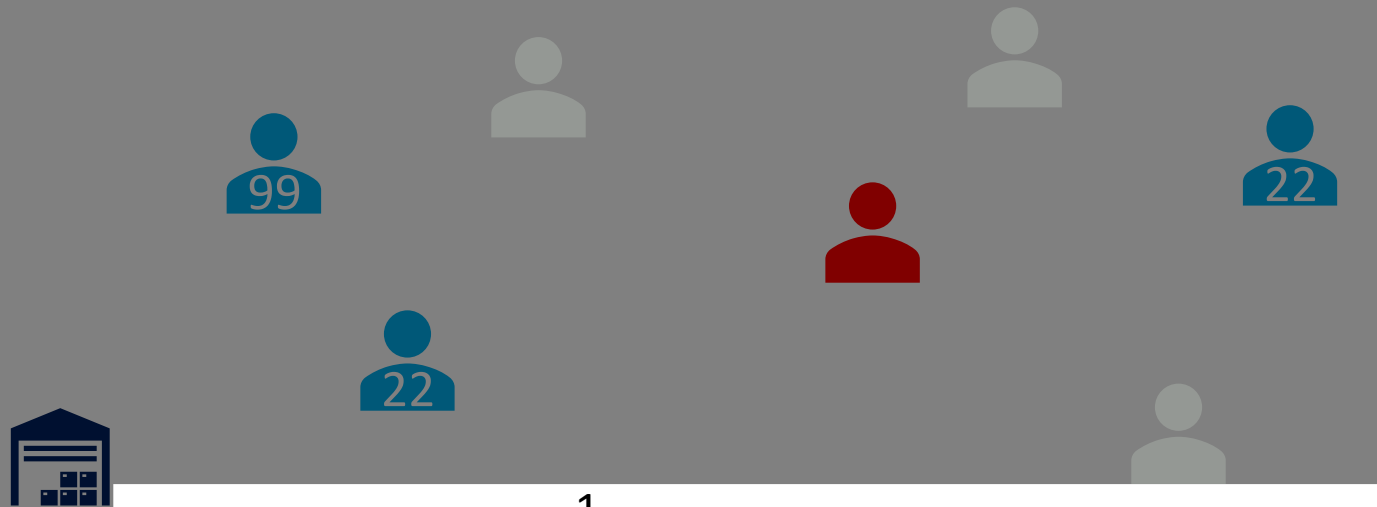
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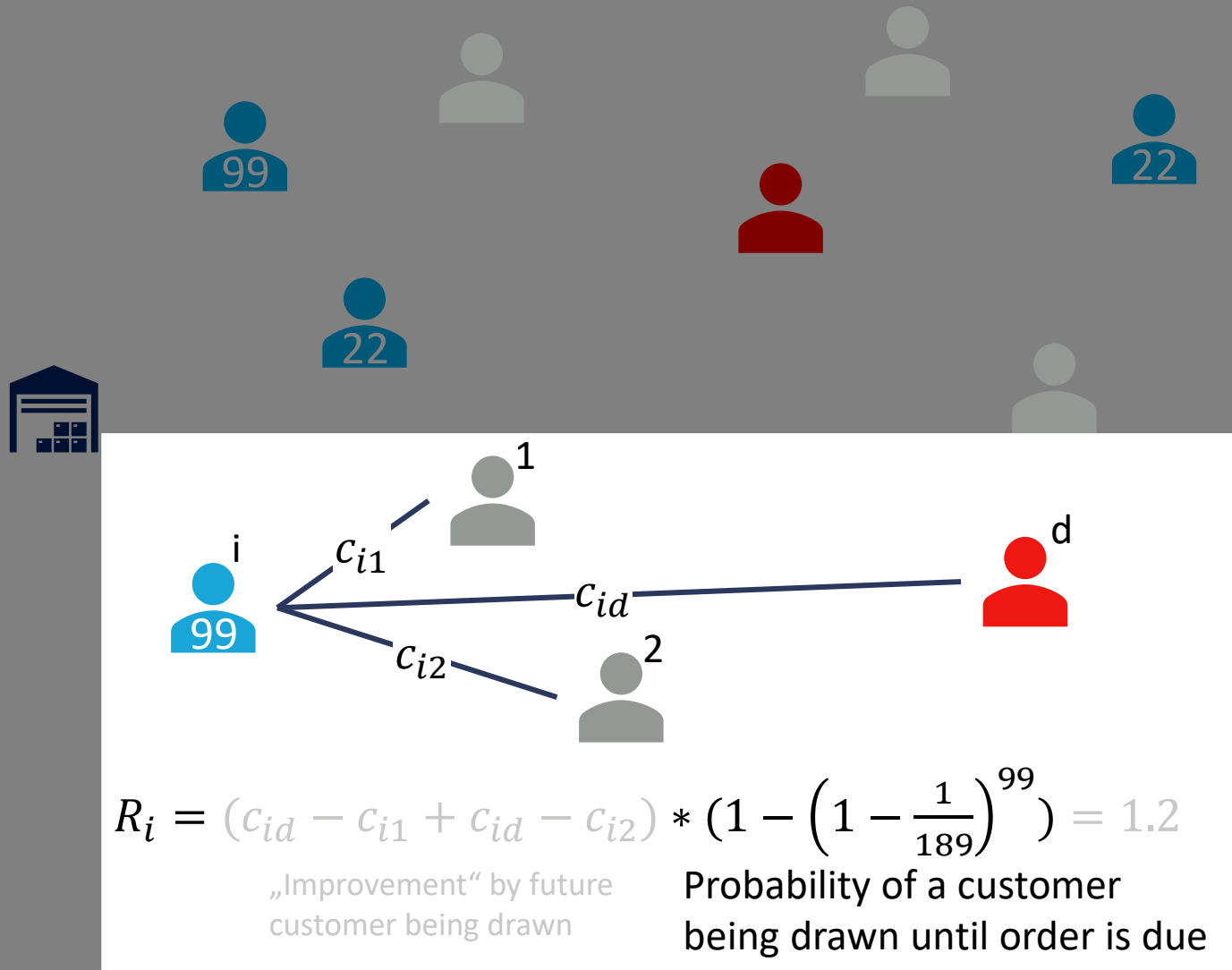
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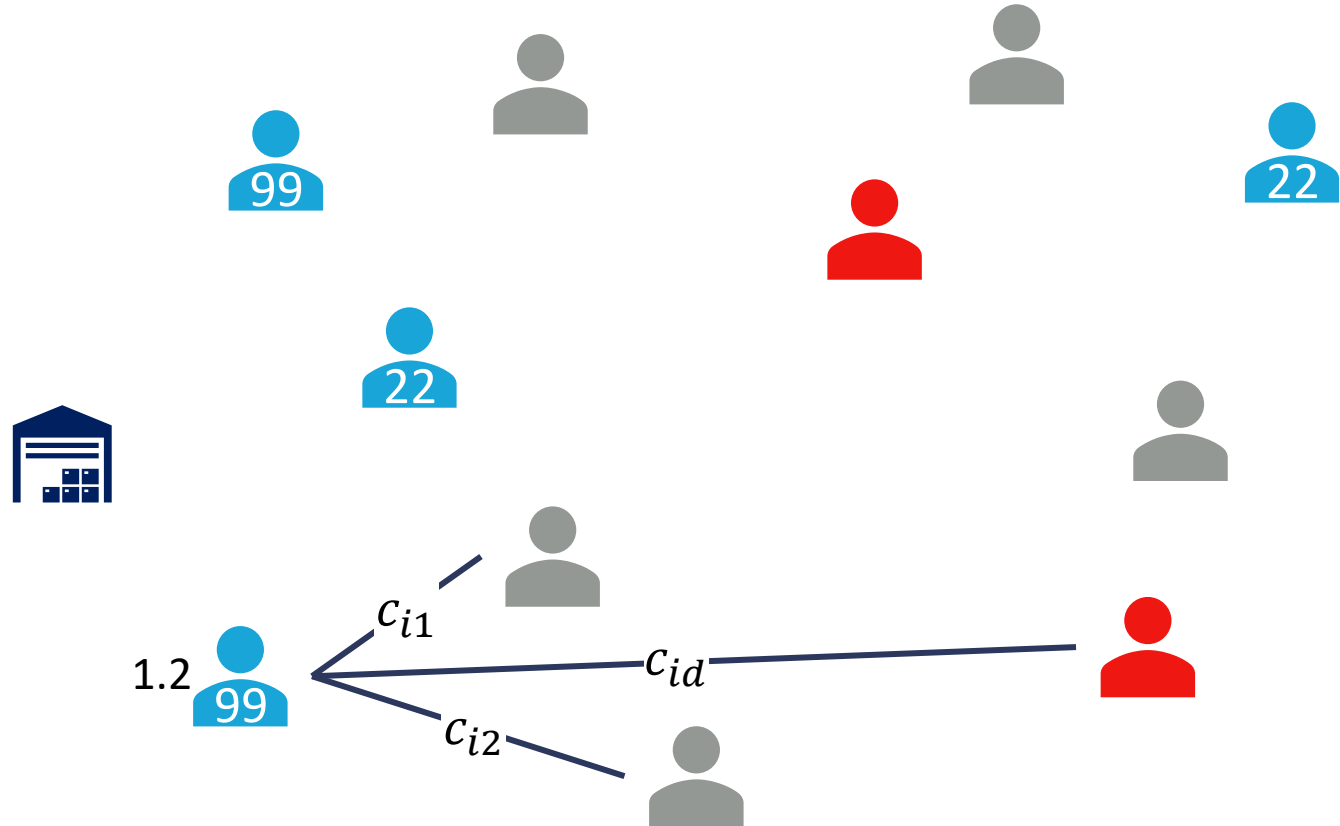
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$$R_i = (c_{id} - c_{i1} + c_{id} - c_{i2}) * \left(1 - \left(1 - \frac{1}{189}\right)^{99}\right) = 1.2$$

„Improvement“ by future customer being drawn

Probability of a customer being drawn until order is due

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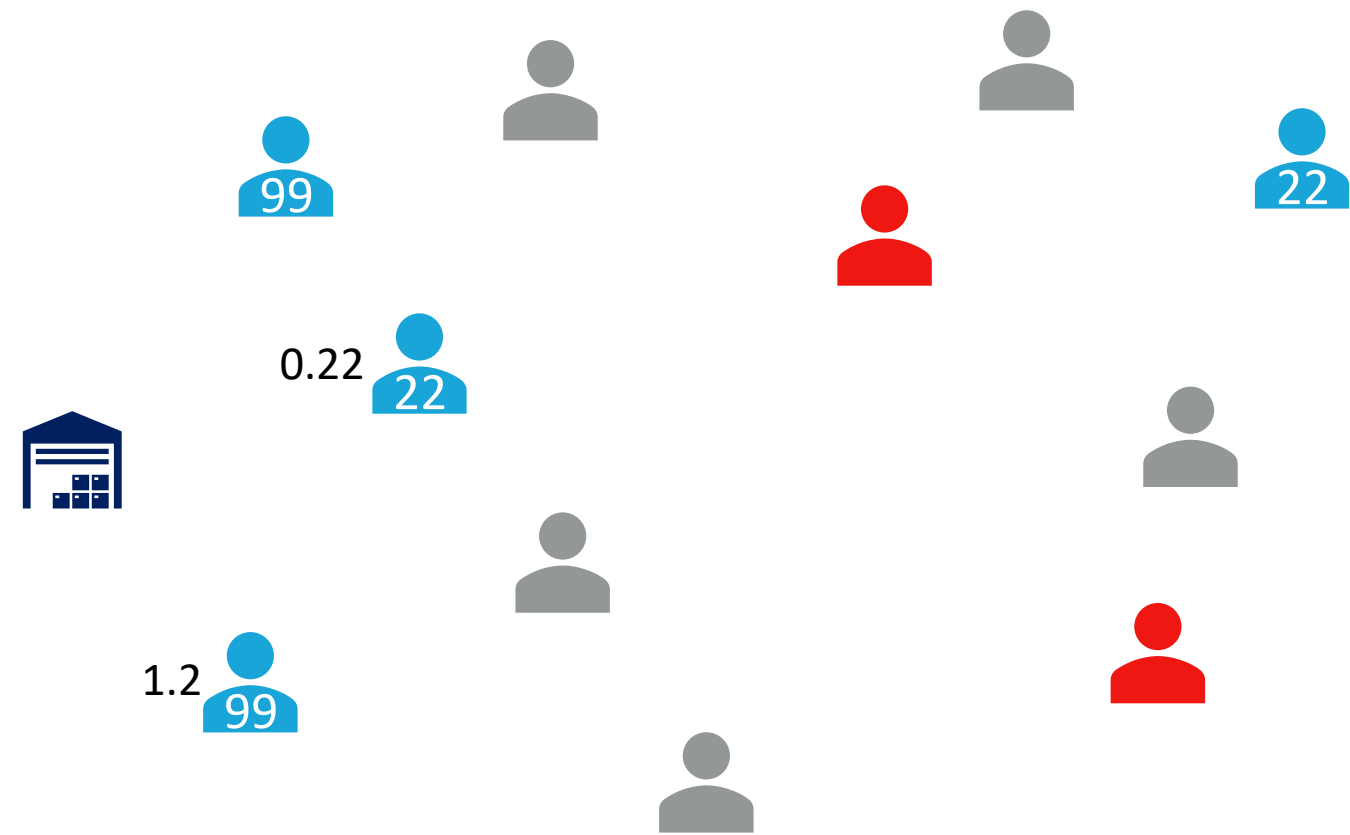
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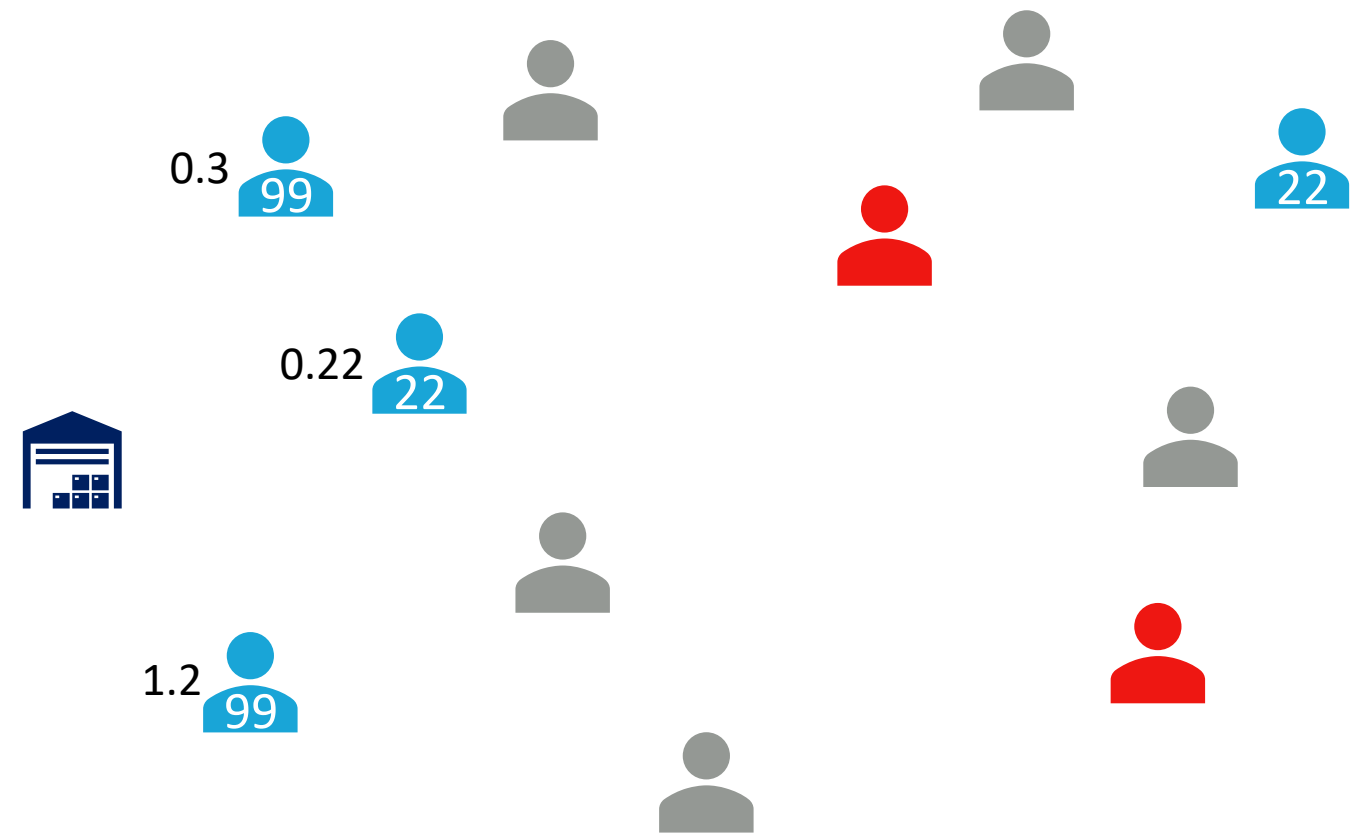
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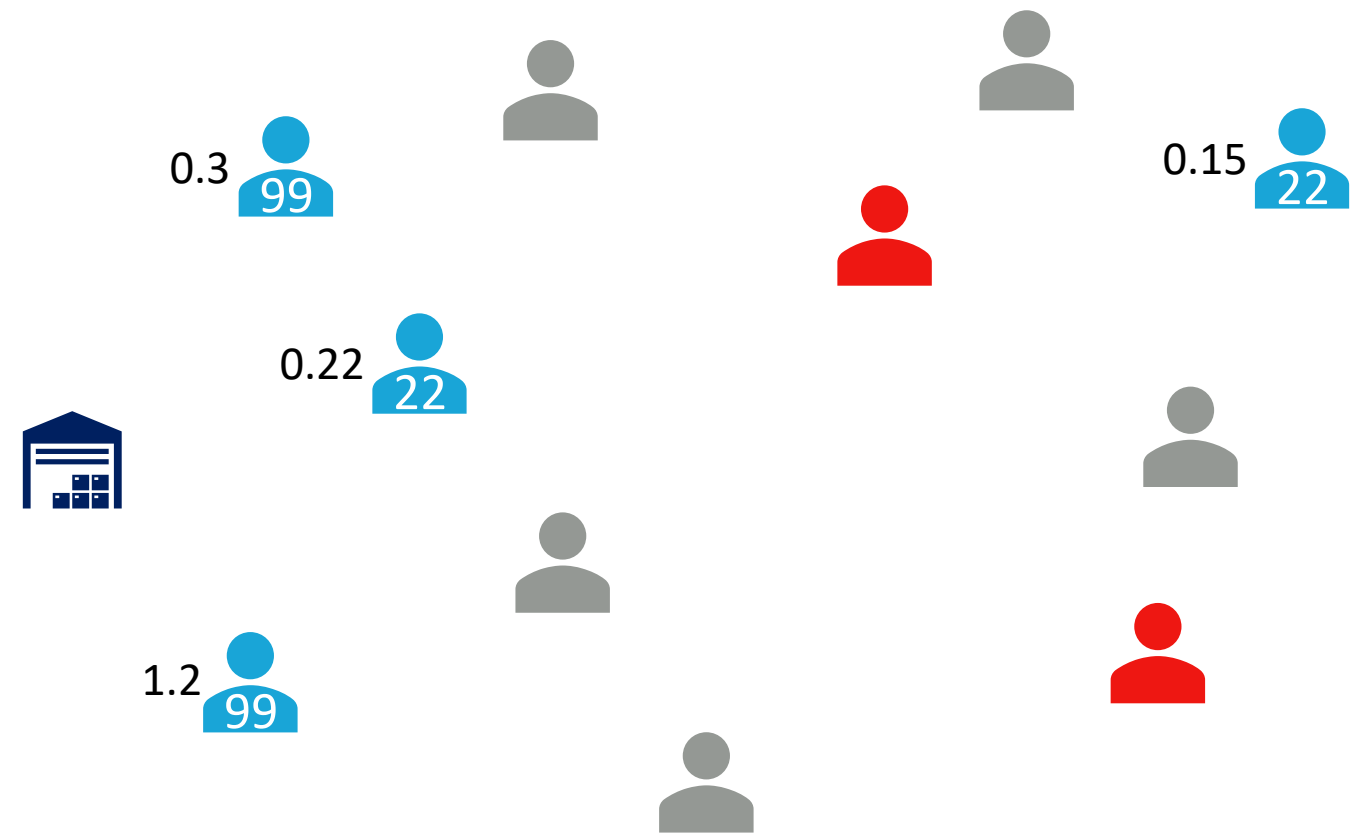
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Step 2: If lowest regret below threshold, mark order with lowest regret as due and go to step 1

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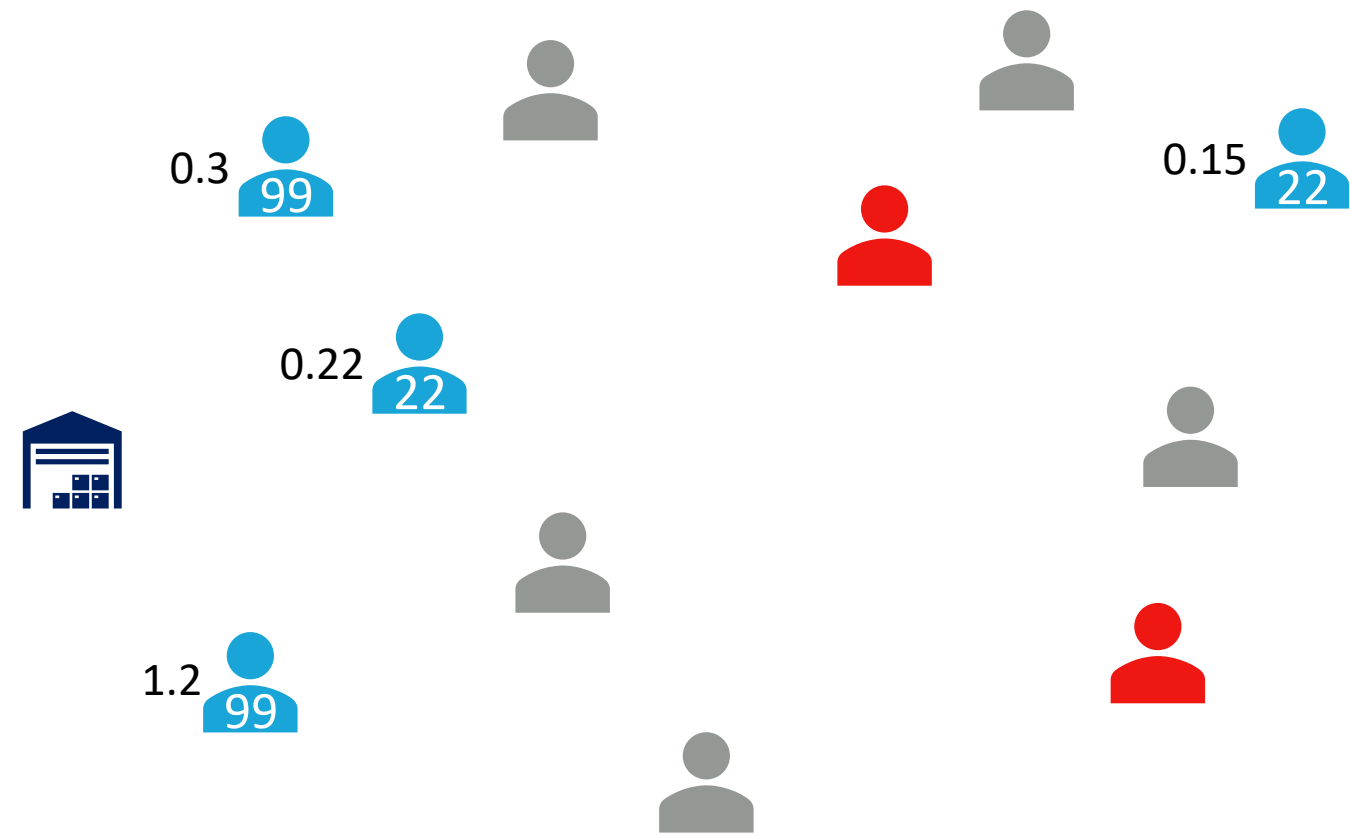
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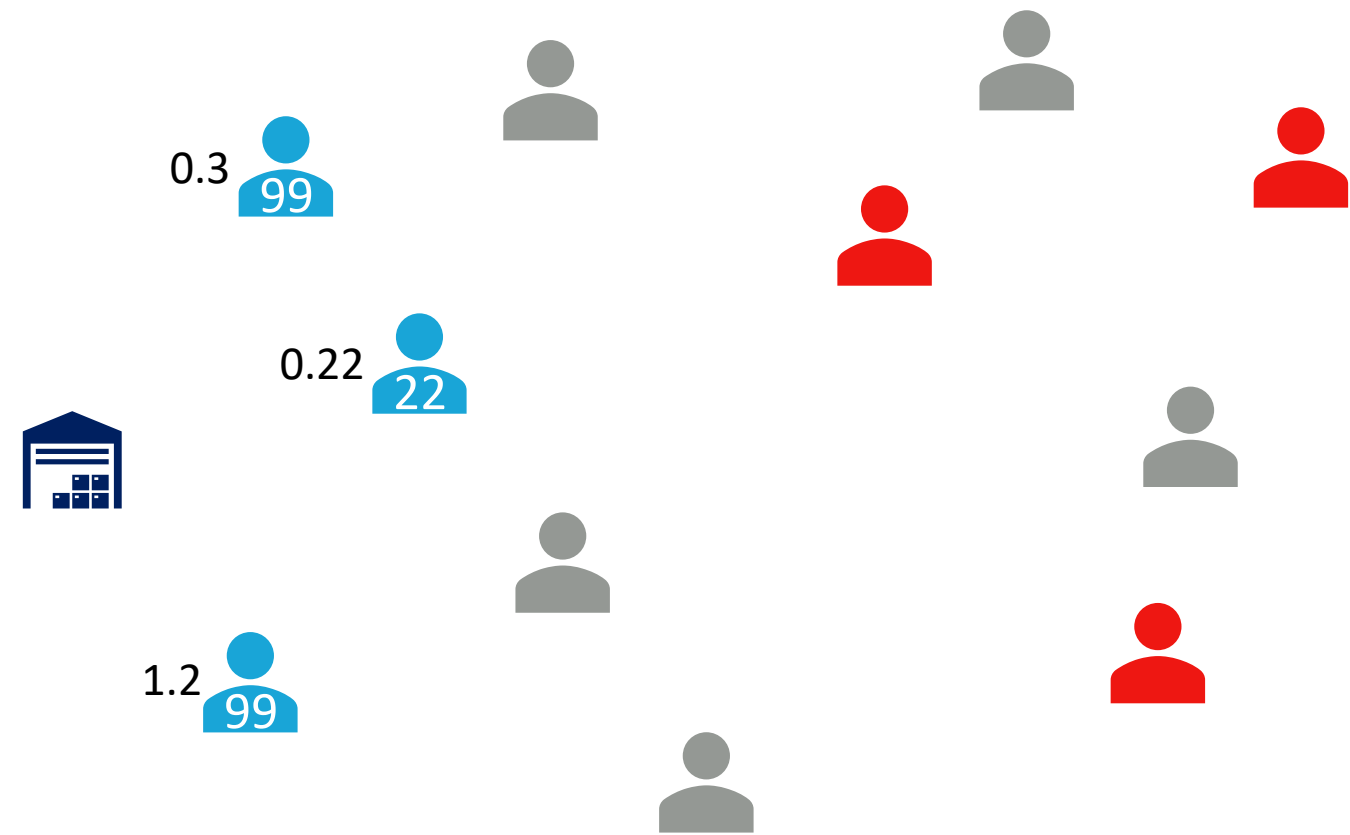
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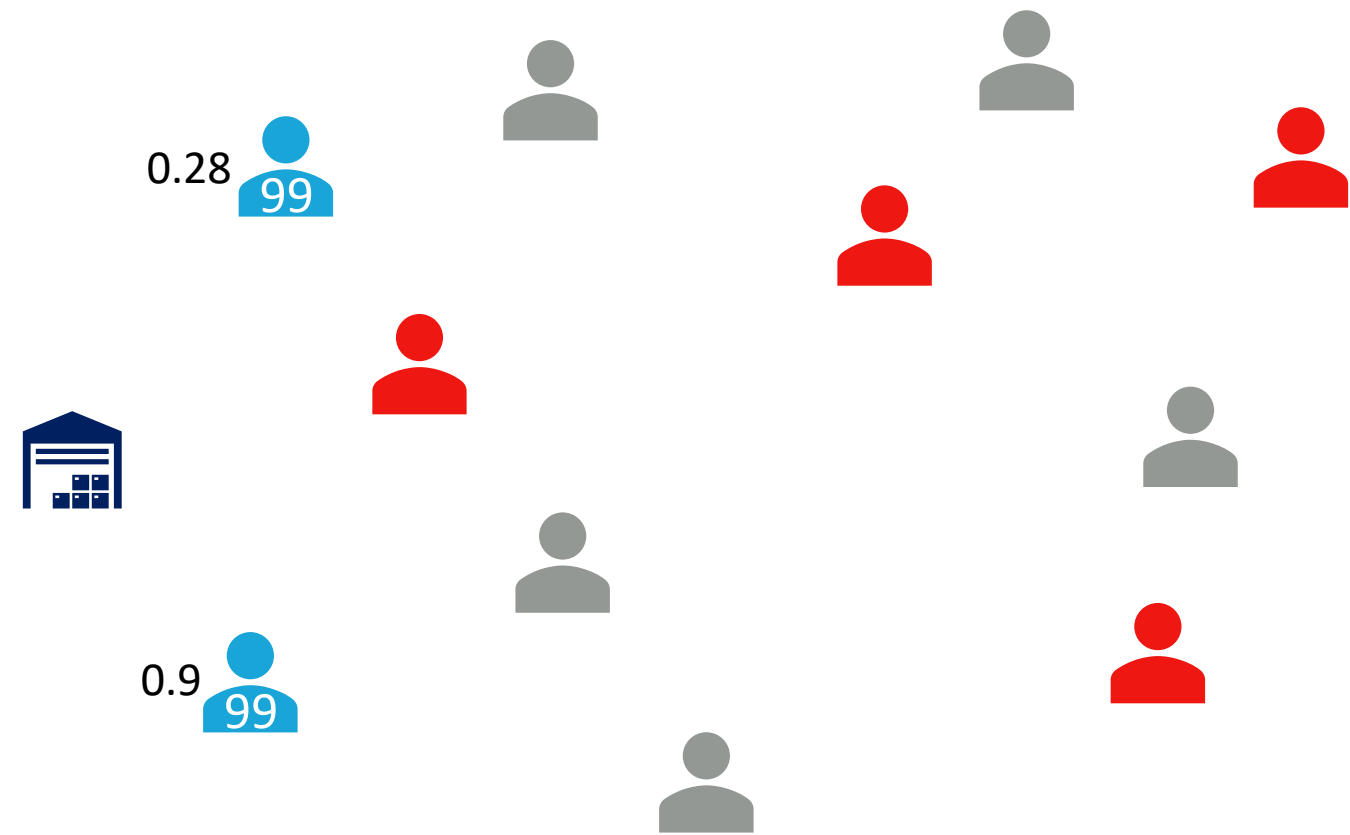
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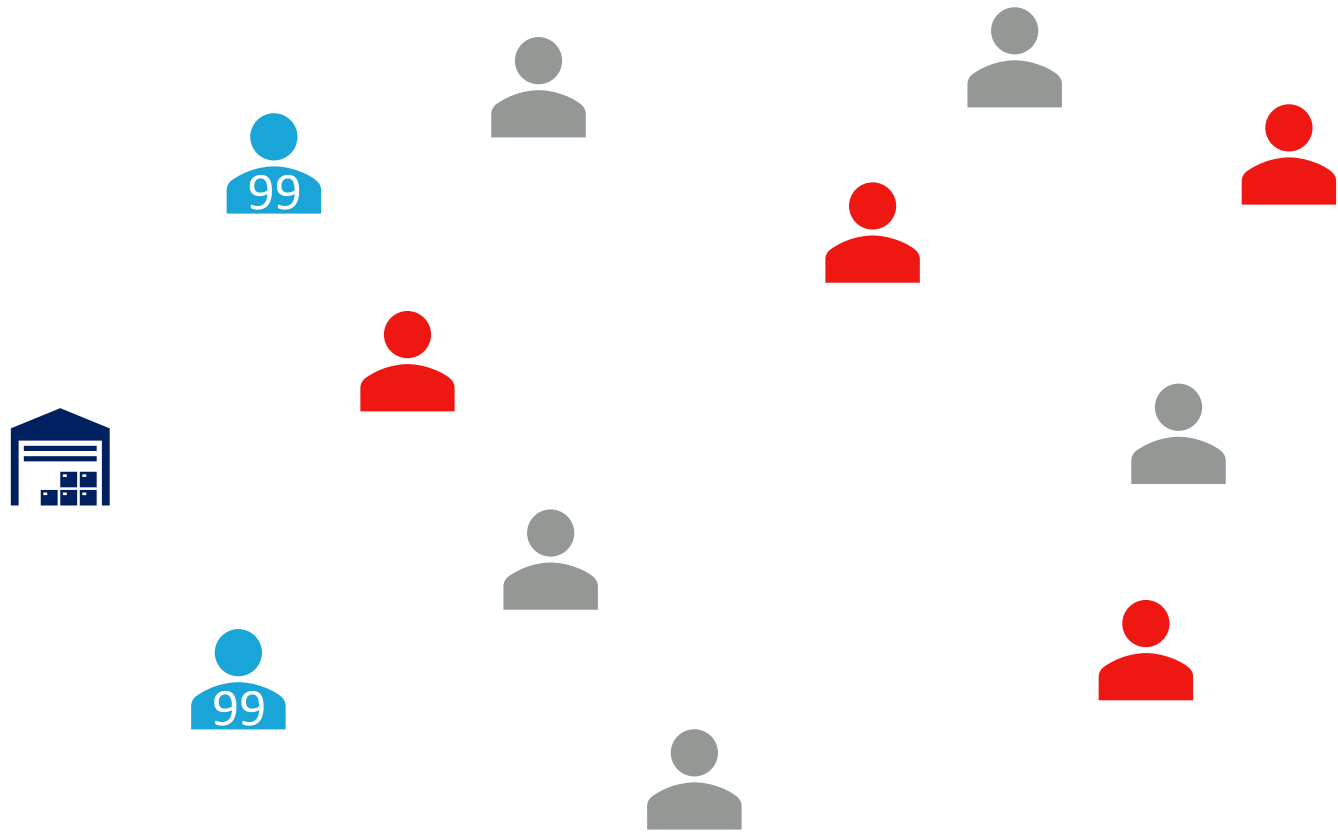
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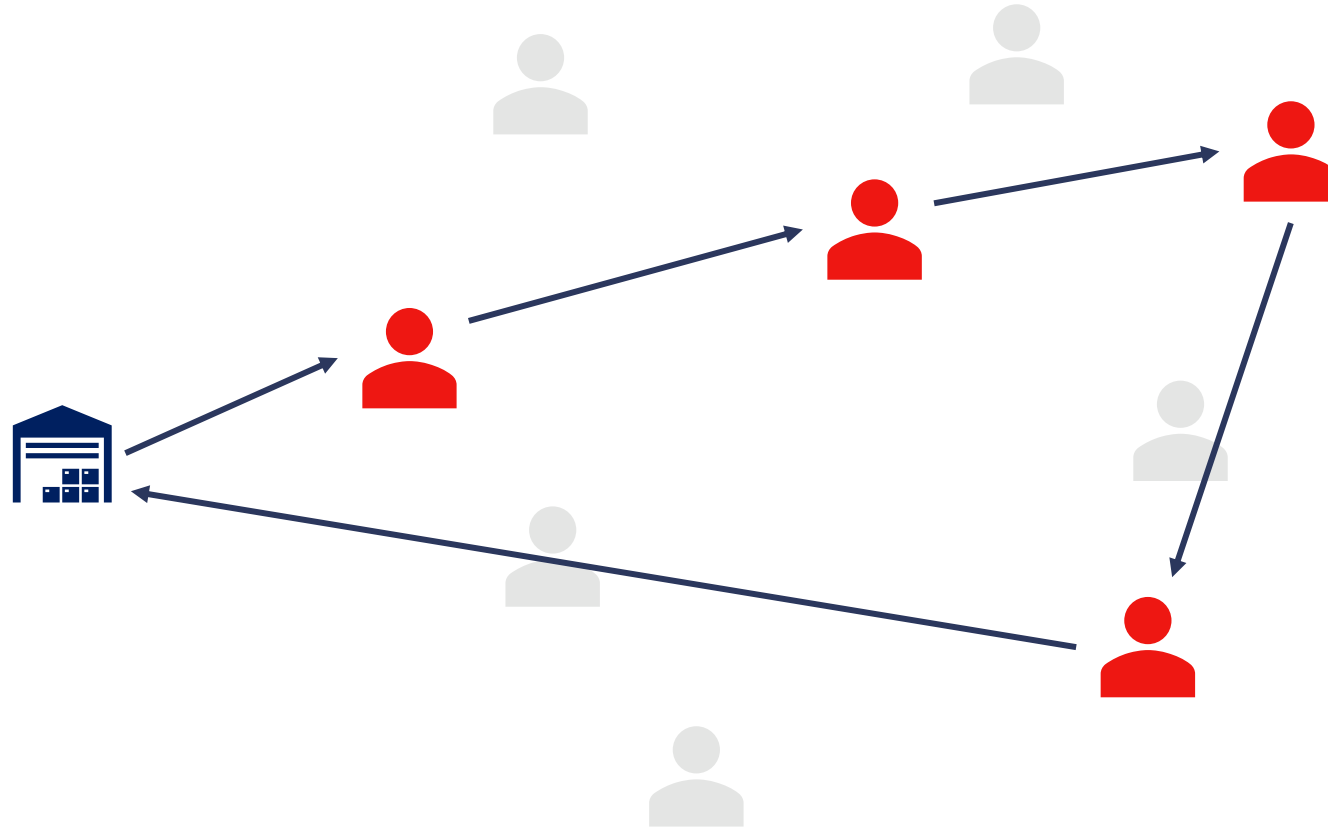
Step 3: Use the given heuristic to construct feasible routes







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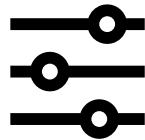
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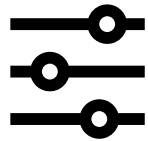
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 - Waiting times arising from routing i and d consecutively, as waiting might bind vehicles
 - Considering other undue orders: Same procedure as base policy, but with other undue orders which are so far not planned to be dispatched and no probability correction

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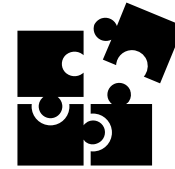


Parametrized
regret policy

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Parametrized
regret policy



Many possible
further extensions
are possible

Contact

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www.misor.org