

In the result tables you can see 4 factuals with the best counterfactual the model produced.

Table 1: Shows a factual and the corresponding counterfactual generated. This counterfactual was generated by the evolutionary algorithm. It is the result which appears to have the highest viability score.

Factual Sequence Activity	Amount	Resource	Outcome	Counterfactual Sequence Activity	Amount	Resource	Outcome
A-SUBMITTED	20 000	112	1				
A-PARTLYSUBMITTED	20 000	112	1				
A-PREACCEPTED	20 000	112	1				
A-ACCEPTED	20 000	9	1				
A-FINALIZED	20 000	9	1				
O-SELECTED	20 000	9	1				
O-CREATED	20 000	9	1				
O-SENT	20 000	9	1				
W-Completeren aanvraag	20 000	9	1	A-SUBMITTED	14 812	112	0
W-Nabellen offertes	20 000	1	1	A-PARTLYSUBMITTED	39 465	112	0
O-SELECTED	20 000	112	1	A-PREACCEPTED	13 118	112	0
O-CANCELLED	20 000	112	1	A-ACCEPTED	-3 692	972	0
O-CREATED	20 000	112	1	A-FINALIZED	15 516	9	0
O-SENT	20 000	112	1	O-CREATED	26 384	11121	0
W-Nabellen offertes	20 000	112	1	O-SENT	23 004	932	0
W-Nabellen offertes	20 000	112	1	W-Completeren aanvraag	18 255	113	0
W-Nabellen offertes	20 000	11181	1	W-Nabellen offertes	-110	188	0
W-Nabellen offertes	20 000	113	1	W-Nabellen offertes	21 140	11111	0
W-Nabellen offertes	20 000	111	1	A-CANCELLED	20 199	nan	0
W-Nabellen offertes	20 000	982	1	W-Nabellen offertes	11 757	779	0
W-Nabellen offertes	20 000	103	1	W-Nabellen offertes	23 690	889	0
W-Nabellen offertes	20 000	111	1	W-Nabellen offertes	21 457	11181	0
A-CANCELLED	20 000	111	1	W-Nabellen offertes	22 660	11181	0
O-CANCELLED	20 000	111	1	W-Nabellen offertes	16 082	11181	0
W-Nabellen offertes	20 000	111	1	A-ACTIVATED	25 621	109	0

Across all examples, we see the bias of the viability measure. Every counterfactual is shorter in length than their factual counterpart. We also see, that the Amount fluctuates heavily for the evolutionary generator. Similar, holds for the resource field. All models manage to capture the first three activities and its resource. Also, the counterfactual outcome is the opposite of the factual outcome in all cases. Hence, the each generator successfully inverts the model prediction. Furthermore, each model captures the starting events, quite well.

We see in Table 1 and Table 2. Furthermore, the model with the highest feasibility among the Evolutionary Algorithm Generator generated counterfactuals, is also the one with the highest viability.

Table 3 displays a counterfactual generated by the Casebased-Search Generator. We see that its result appears to be more viable upon inspection. Here, all Amount variables are below the factual Amount. Hsieh et al. interprets this as a reasonable thought. From it, we can interpret, that we have better chances of a successful loan application process if we request a lower loan. This result tells us, that the viability measure *does* capture a notion of viability. However, it is not enough to generate realistic counterfactuals for models that optimize it.

Table 2: Shows a factual and the corresponding counterfactual generated. This counterfactual has a non-zero feasibility and has the highest viability among the results generated by the evolutionary algorithm.

Factual Sequence Activity	Amount	Resource	Outcome	Counterfactual Sequence Activity	Amount	Resource	Outcome
A-SUBMITTED	20 000	112	1				
A-PARTLYSUBMITTED	20 000	112	1				
A-PREACCEPTED	20 000	112	1				
A-ACCEPTED	20 000	9	1				
A-FINALIZED	20 000	9	1				
O-SELECTED	20 000	9	1				
O-CREATED	20 000	9	1				
O-SENT	20 000	9	1				
W-Completeren aanvraag	20 000	9	1	A-SUBMITTED	14 812	112	0
W-Nabellen offertes	20 000	1	1	A-PARTLYSUBMITTED	39 465	112	0
O-SELECTED	20 000	112	1	A-PREACCEPTED	13 118	112	0
O-CANCELLED	20 000	112	1	A-ACCEPTED	-3 692	972	0
O-CREATED	20 000	112	1	A-FINALIZED	15 516	9	0
O-SENT	20 000	112	1	O-CREATED	26 384	11121	0
W-Nabellen offertes	20 000	112	1	O-SENT	23 004	932	0
W-Nabellen offertes	20 000	112	1	W-Completeren aanvraag	18 255	113	0
W-Nabellen offertes	20 000	11181	1	W-Nabellen offertes	-110	188	0
W-Nabellen offertes	20 000	113	1	W-Nabellen offertes	21 140	11111	0
W-Nabellen offertes	20 000	111	1	A-CANCELLED	20 199	nan	0
W-Nabellen offertes	20 000	982	1	W-Nabellen offertes	11 757	779	0
W-Nabellen offertes	20 000	103	1	W-Nabellen offertes	23 690	889	0
W-Nabellen offertes	20 000	111	1	W-Nabellen offertes	21 457	11181	0
A-CANCELLED	20 000	111	1	W-Nabellen offertes	22 660	11181	0
O-CANCELLED	20 000	111	1	W-Nabellen offertes	16 082	11181	0
W-Nabellen offertes	20 000	111	1	A-ACTIVATED	25 621	109	0

Table 3: Shows a factual and the corresponding counterfactual generated. Thid counterfactuals was generated by the case-based model. The counterfactual seems far more viable than the one generated by the evolutionary algorithm.

Factual Sequence Activity	Amount	Resource	Outcome	Counterfactual Sequence Activity	Amount	Resource	Outcome
A-SUBMITTED	20 000	112	1				
A-PARTLYSUBMITTED	20 000	112	1				
A-PREACCEPTED	20 000	112	1				
A-ACCEPTED	20 000	9	1	A-SUBMITTED	9 450	112	0
A-FINALIZED	20 000	9	1	A-PARTLYSUBMITTED	9 450	112	0
O-SELECTED	20 000	9	1	A-PREACCEPTED	9 450	112	0
O-CREATED	20 000	9	1	A-ACCEPTED	9 450	111	0
O-SENT	20 000	9	1	A-FINALIZED	9 450	111	0
W-Completeren aanvraag	20 000	9	1	O-SELECTED	9 450	111	0
W-Nabellen offertes	20 000	1	1	O-CREATED	9 450	111	0
O-SELECTED	20 000	112	1	O-SENT	9 450	111	0
O-CANCELLED	20 000	112	1	W-Completeren aanvraag	9 450	111	0
O-CREATED	20 000	112	1	O-CANCELLED	9 450	111	0
O-SENT	20 000	112	1	O-SELECTED	9 450	111	0
W-Nabellen offertes	20 000	112	1	O-CREATED	9 450	111	0
W-Nabellen offertes	20 000	112	1	O-SENT	9 450	111	0
W-Nabellen offertes	20 000	11181	1	W-Nabellen offertes	9 450	111	0
W-Nabellen offertes	20 000	113	1	W-Nabellen offertes	9 450	111	0
W-Nabellen offertes	20 000	111	1	O-SENT-BACK	9 450	149	0
W-Nabellen offertes	20 000	982	1	W-Nabellen offertes	9 450	149	0
W-Nabellen offertes	20 000	103	1	O-ACCEPTED	9 450	629	0
W-Nabellen offertes	20 000	111	1	A-REGISTERED	9 450	629	0
A-CANCELLED	20 000	111	1	A-APPROVED	9 450	629	0
O-CANCELLED	20 000	111	1	A-ACTIVATED	9 450	629	0
W-Nabellen offertes	20 000	111	1	W-Valideren aanvraag	9 450	629	0