Tutorial on ADVISE modeling in Moebius

BankRobbery

This tutorial deals with a fictitious bank.

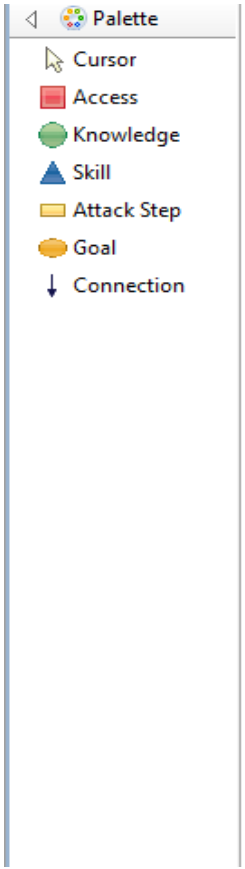
You will create an ADVISE model to model adversaries who would like to steal money from the bank.

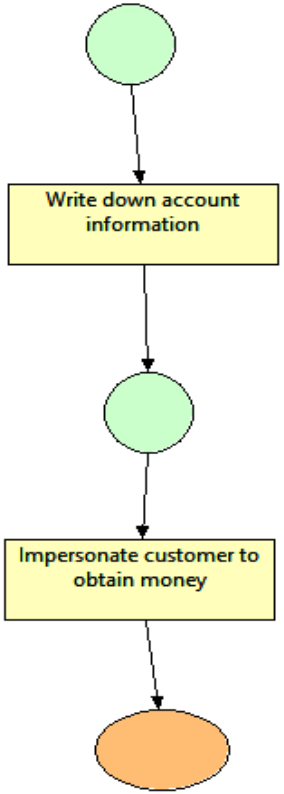
The scenario is open-ended to allow you to use your creativity in coming up with ways a robber could attempt to pull off a heist.

The tutorial uses an insider threat (a compromised employee).

For more info and complete parameters values visit https://www.mobius.illinois.edu/wiki/index.php/ADVISE_Bank_Robbery_Tutorial_Model

Simple ADVISE model





2 knowledges, 2 attack steps,1 goal

Decision Parameters

Planning Horizon: 2

Attack Preference Weights

Cost: 0.0

Detection: 0.2

Payoff: 0.8

Future Discount Factors

Cost: 1.0

Detection: 1.0

Payoff: 1.0

Access

Knowledge

Name	Init Value
Insider Knowledge	1

Skills

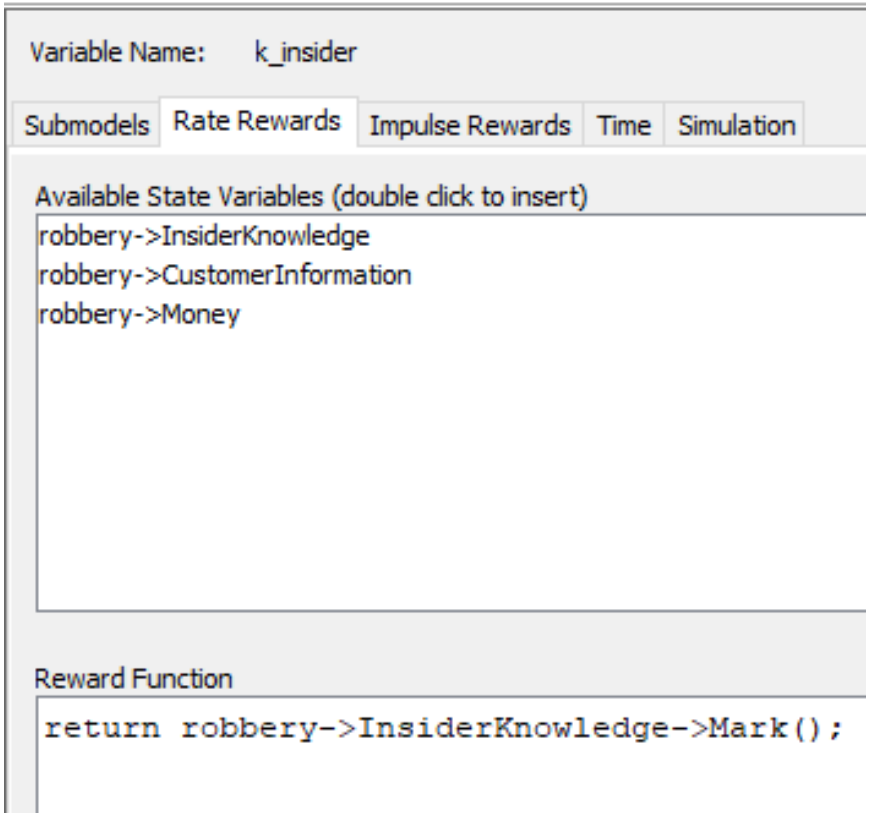
Goals

Name	Init Value	Payoff
Money	0	1000

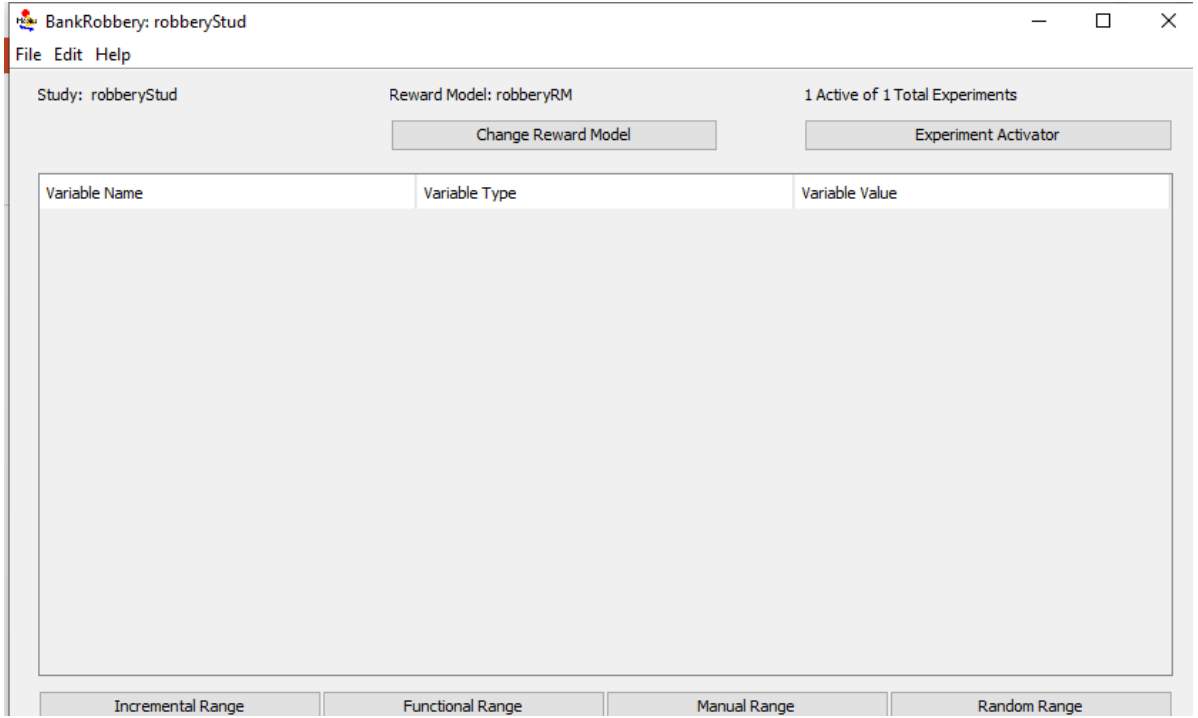
Attack Execution Graph | Adversary

Reward model

- Create three performance variables called **k_insider, k_customer, g_money.**
- Express their **reward function** according to the condition in the picture.
- Set a **Instant of time** option from 0.0 to 60.0 with a step of 5.



Study model



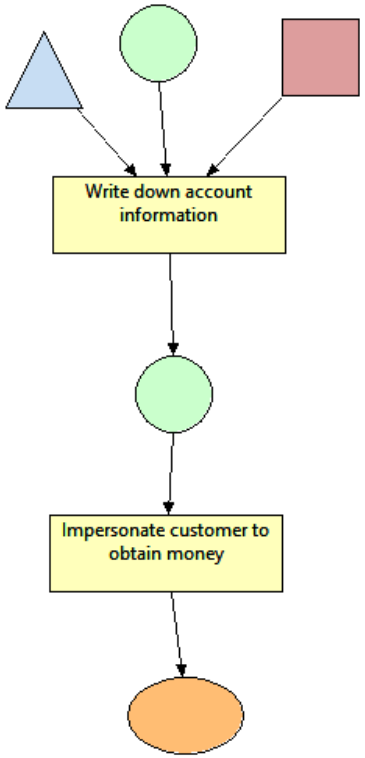
Since the atomic model has no global variables you only need to create an empty range study

(because it is needed for the tool).

Simulator solver

- Create a simulator solver connected to the empty study.
- Change the random number generator to **Mersenne Twister**
- Start the simulation
- The mean of **g_money** at time 15.0 should be around **0.7**

More complex ADVISE model



2 knowledges,2 attack steps,1 goal

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1 skill and 1 access

Add 3 global variables and use them as initial value/proficiency for the adversary

Access

Name	Init Value
Teller Access	initialteller

Knowledge

Name	Init Value
Insider Knowledge	initialinsider

Skills

Name	Proficiency
Sneaky Skill	sneaky

More complex example

- Values of **initialteller** : 0 and 1
- Values of **initialinsider** : 0 and 1
- Values of **sneaky** : 300 and 600

You should have a total of 8 experiments

Run the simulator again and see which kind of adversary can get the money.

Extension

- See the part 3 of the tutorial on the Mobius wiki for a possible extension.
- Use your fantasy to extend the model
- Change probability of attack step, rate of attack step, initial condition of the adversary, the adversary preference weights…
- Create new ways to steal money, new skills, new knowledges, new access, new attack steps