Design, Simulate and Analyze Kahve Dünyası Using Arena

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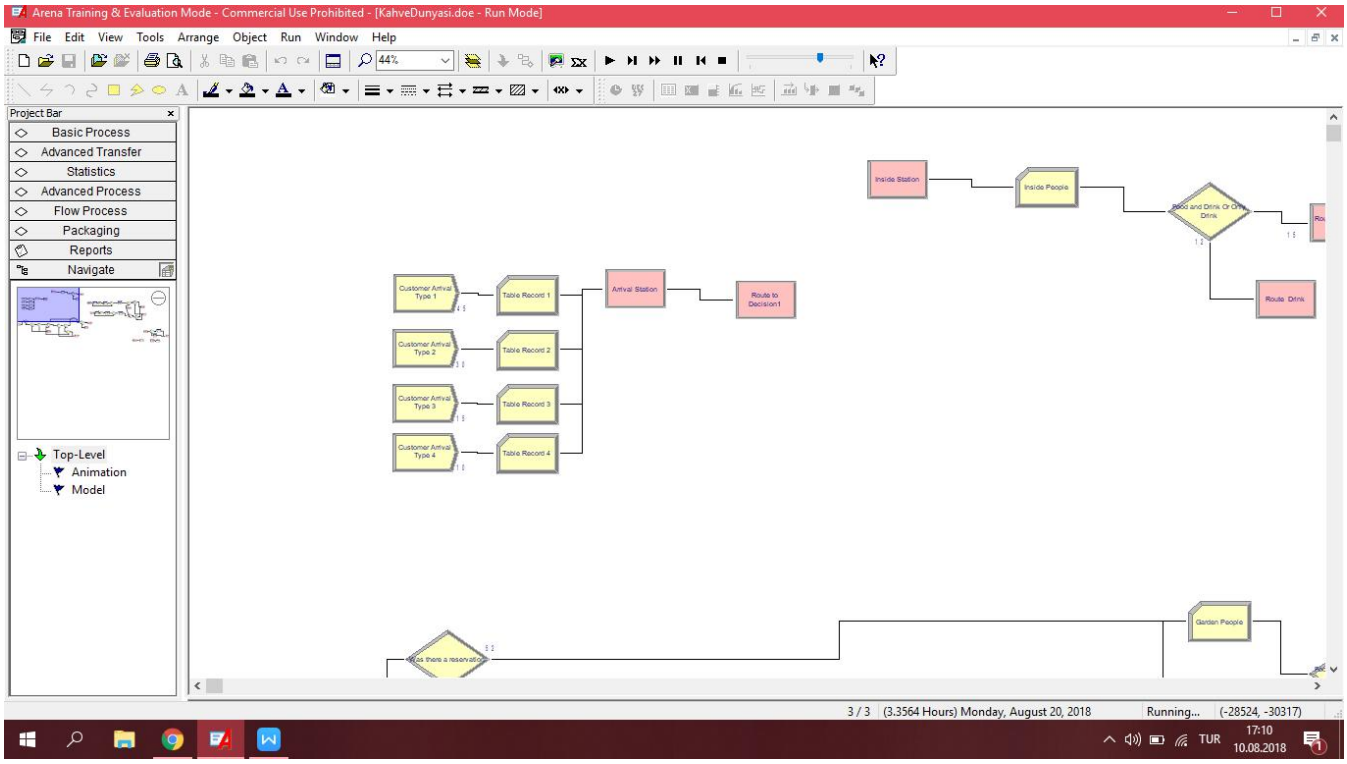
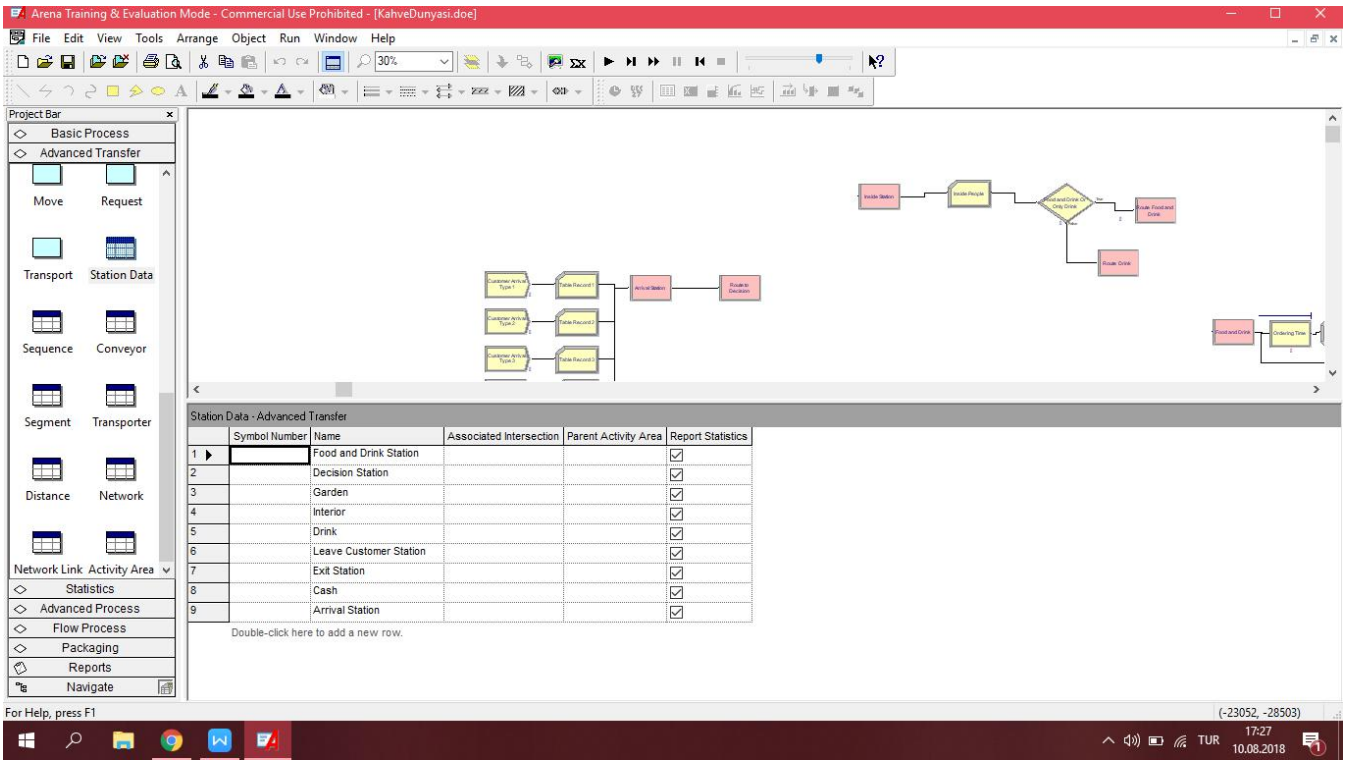
Gülşah Yılmaz
Hale Şahin

1- Summary: Efforts are being made to simulate and analyze the local cafeteria and create simulations using the Arena software. Arena logic is made to express complex conditions.

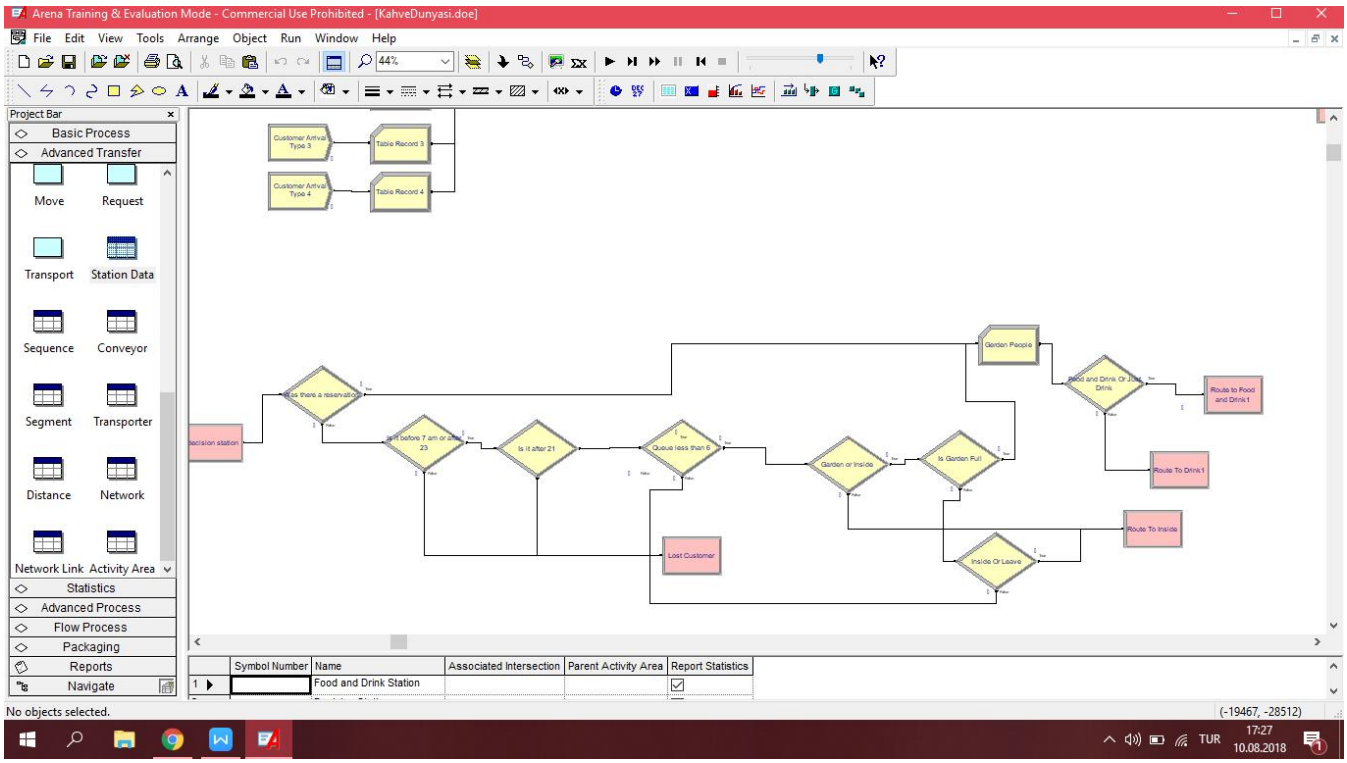


From here we arrived on arrival to different departures on different arrival lara. We decided by count method how many people the tables were. We have checked out the tables in this project have 6 outs in 4 in total which is 10 in total. We evaluated these total tables according to the likelihood of customers coming and going.

Here in our stations :

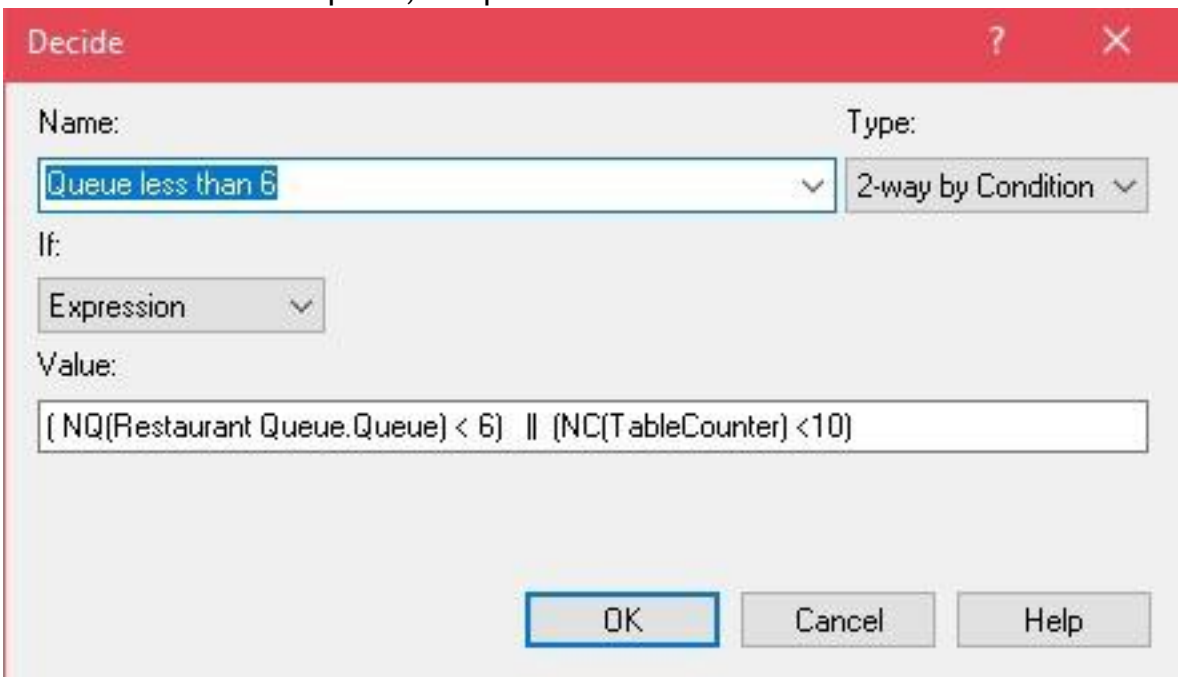

Arena Training & Evaluation Mode - Commercial Use Prohibited - [KahveDunyasi.doe]
File Edit View Tools Arrange Object Run Window Help
Project Bar
Basic Process
Advanced Transfer
Move
Request
Transport
Station Data
Sequence
Conveyor
Segment
Transporter
Distance
Network
Network Link
Activity Area
Statistics
Advanced Process
Flow Process
Packaging
Reports
Navigate
Station Data - Advanced Transfer
Symbol Number
Name
Associated Intersection
Parent Activity Area
Report Statistics
1 Food and Drink Station
2 Decision Station
3 Garden
4 Interior
5 Drink
6 Leave Customer Station
7 Exit Station
8 Cash
9 Arrival Station
Double-click here to add a new row.
For Help, press F1
(-23052, -28503)
TUR
17:27
10.08.2018

In the general structure of the system:



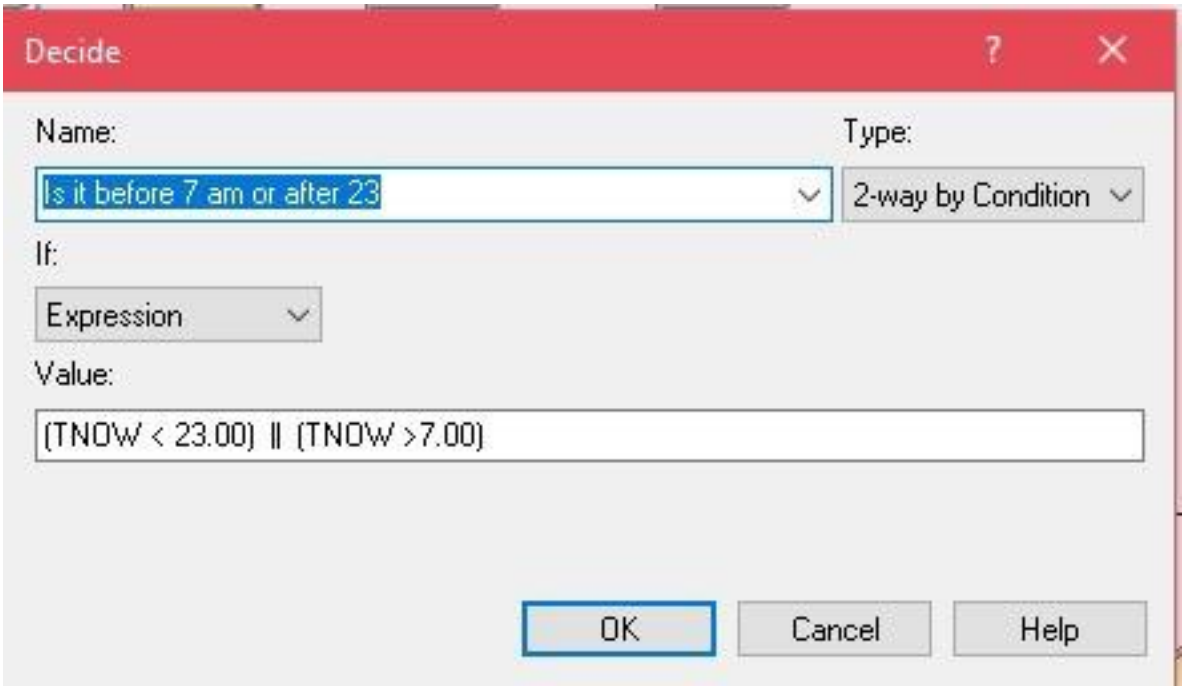
We support there conditions :

We checked our legends, did not we have full of our legs? If the tables are full or there is no room in the queue, the person exits. He never enters the café.

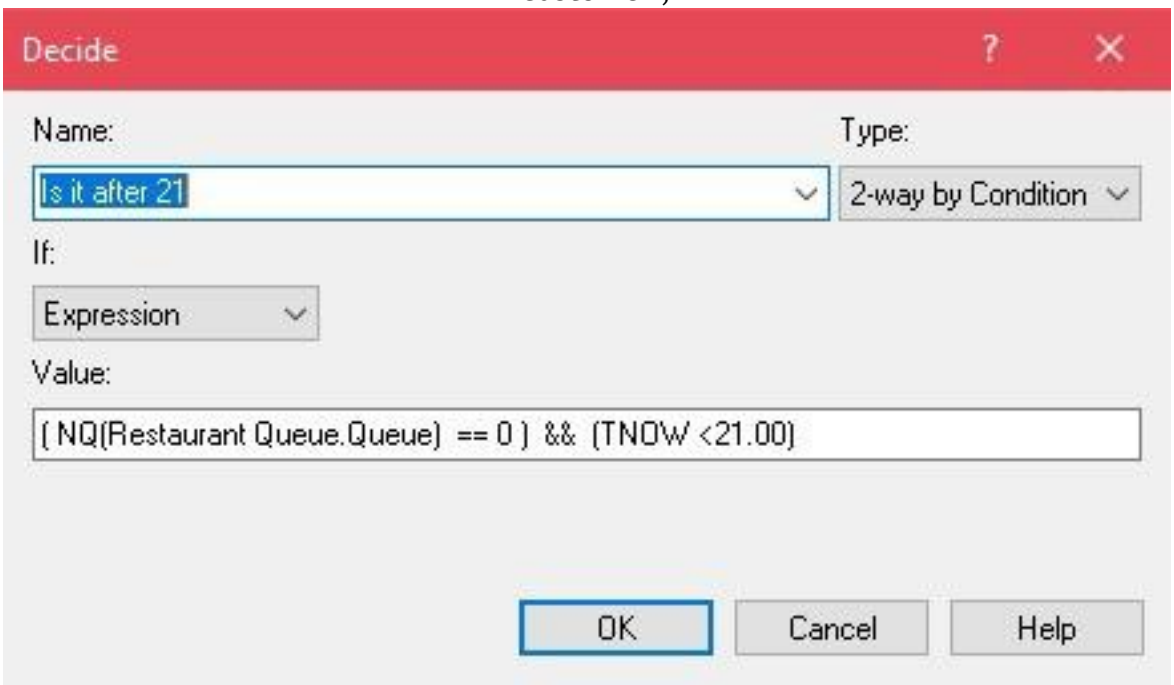


Was there a reservation
If there are a resarvation go to the food drink or just food.

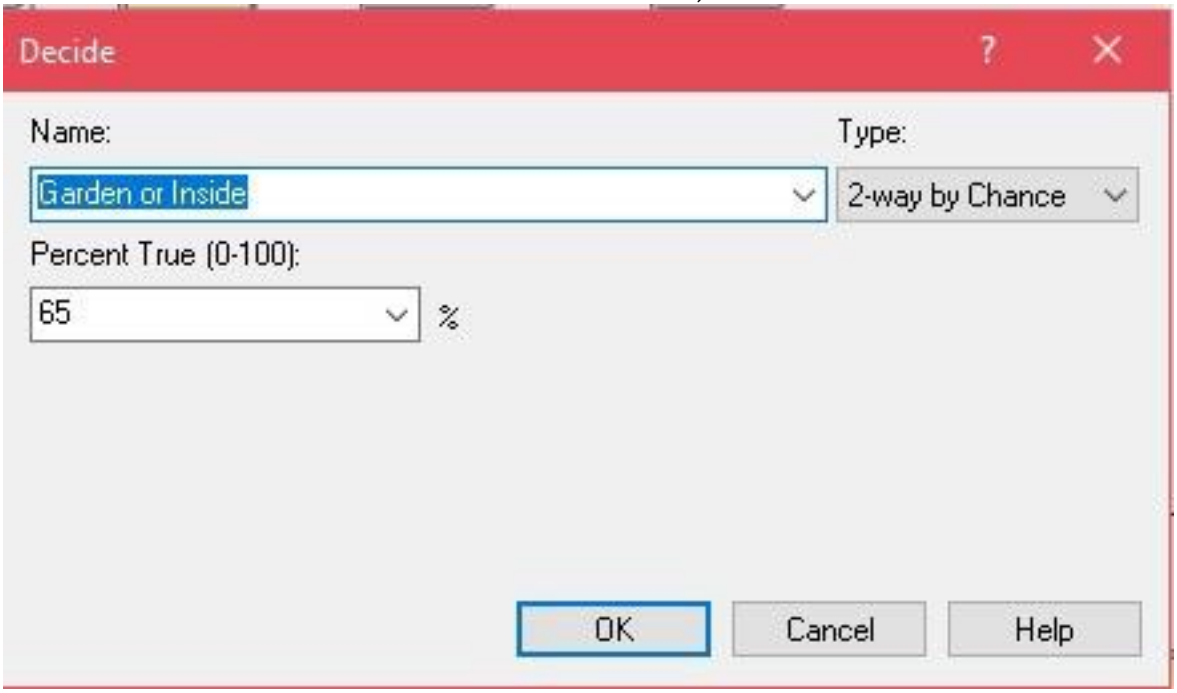
Is the before 7 or after 22.00 -> if false -> lost customer



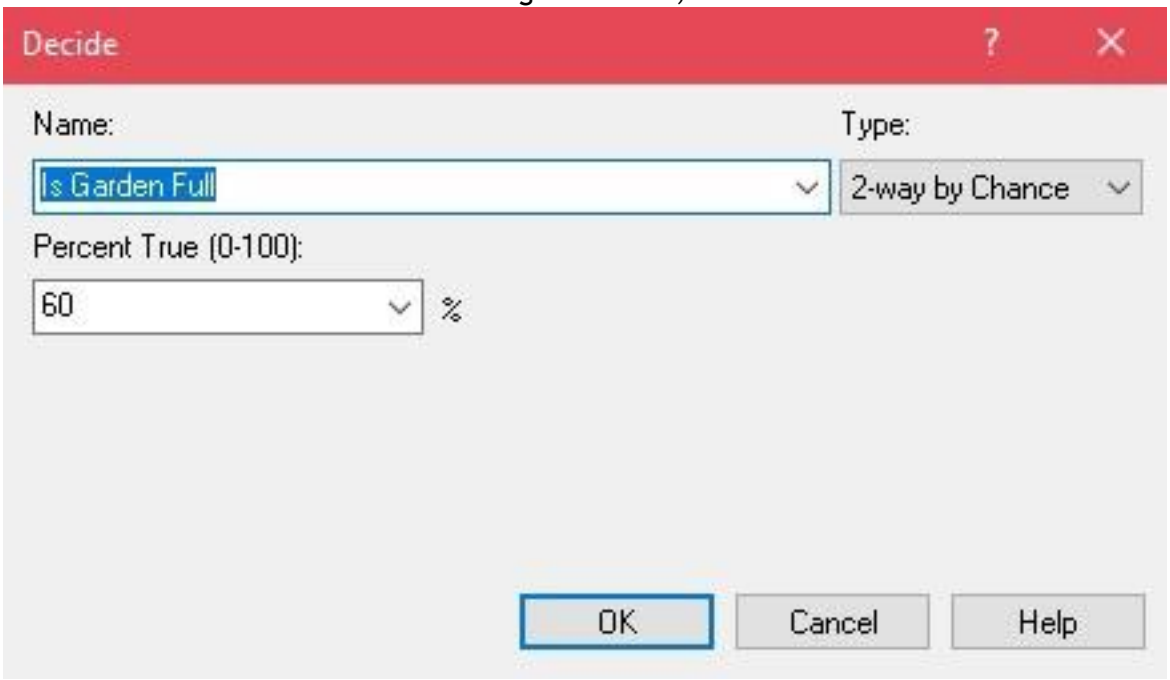
Is customer came after 21.00 and are there qeueu less than 6 -> true -> if false -> lost customer ;



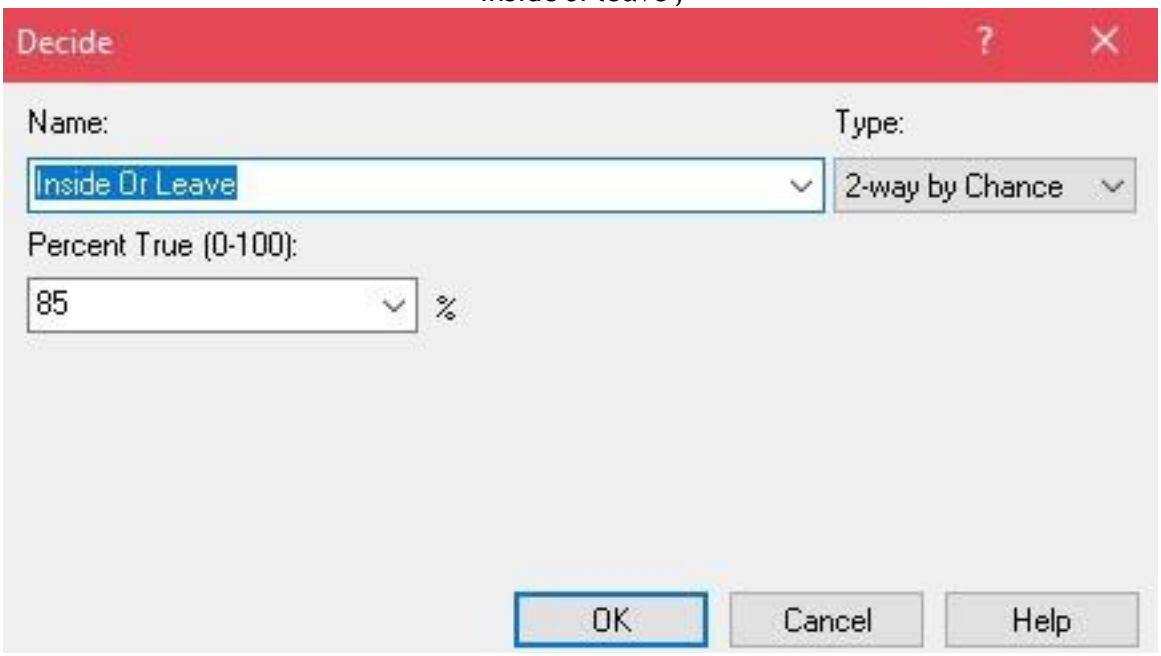
Garden or inside ;



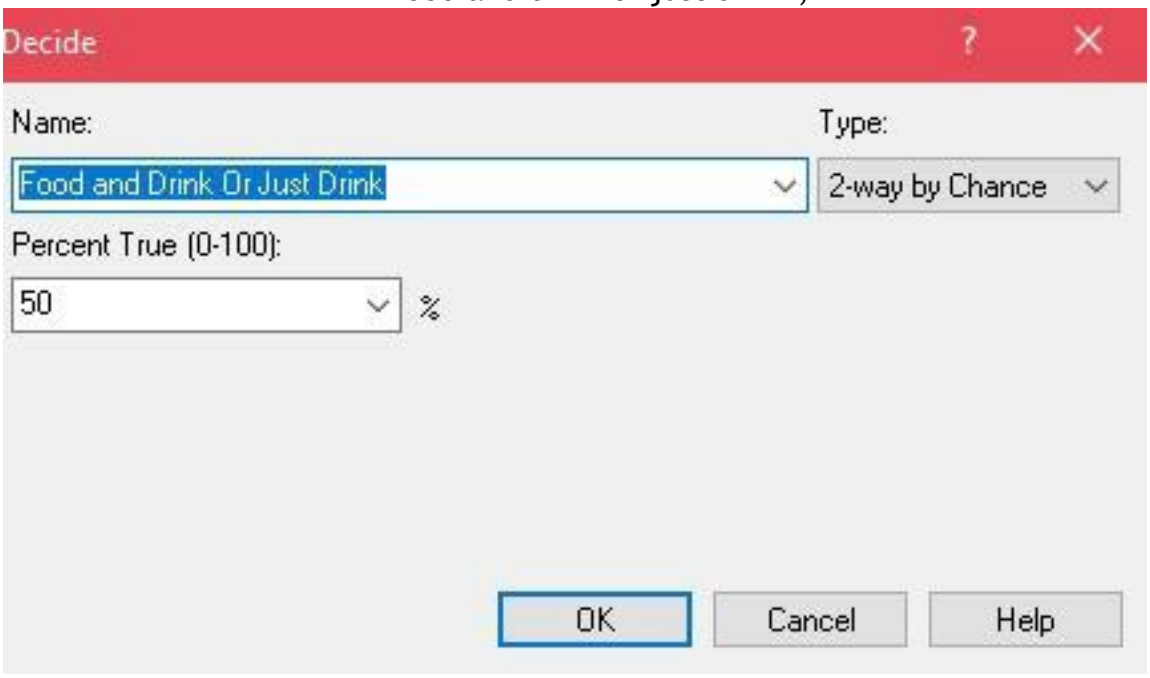
Is garden full ;



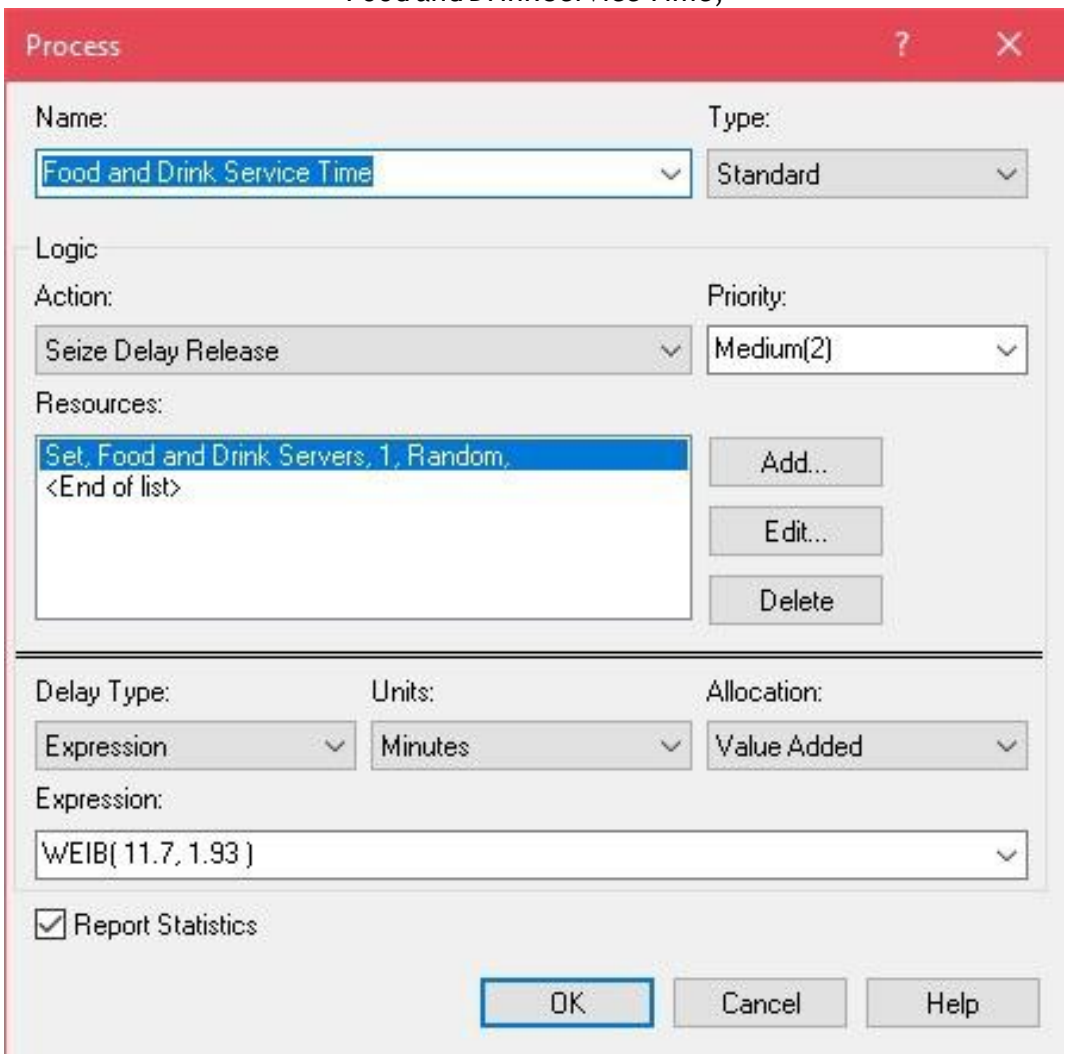
Inside or leave ;



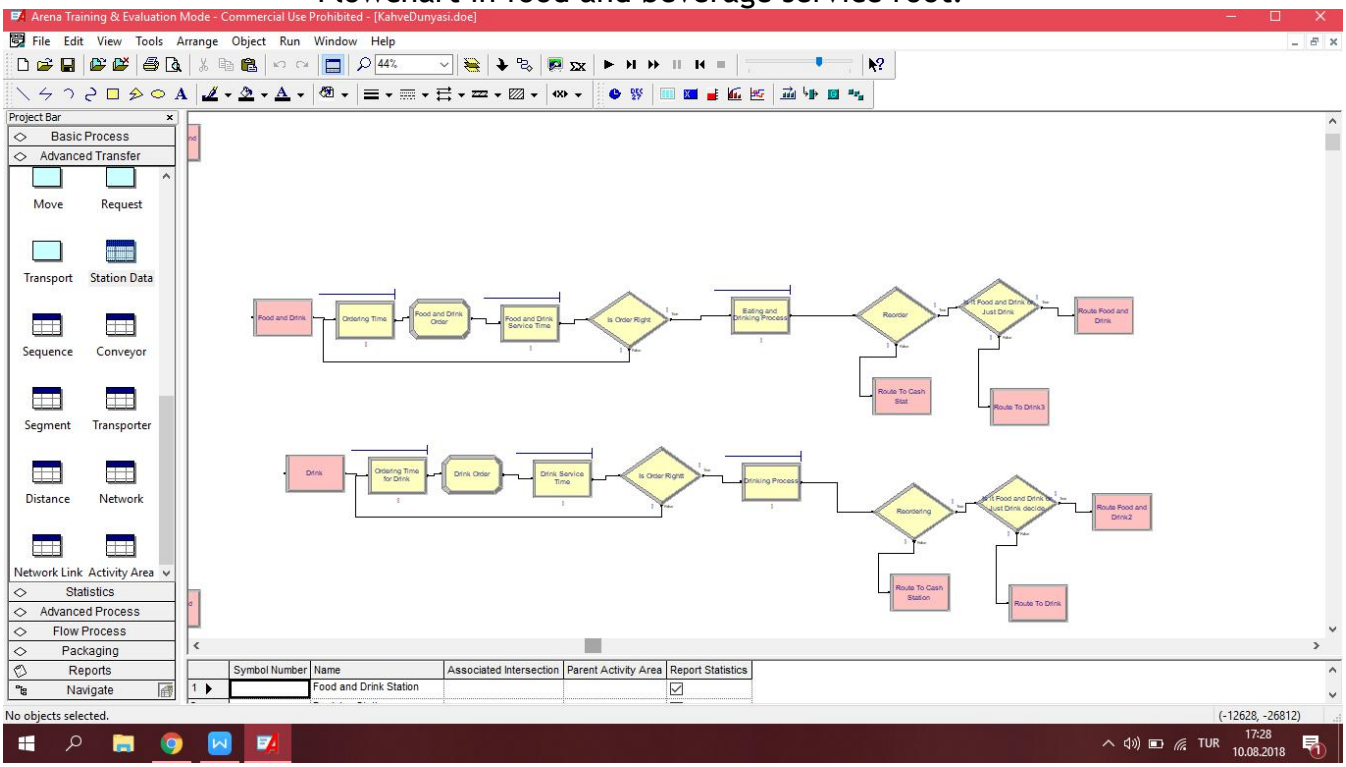
Food and drink or just drink ;



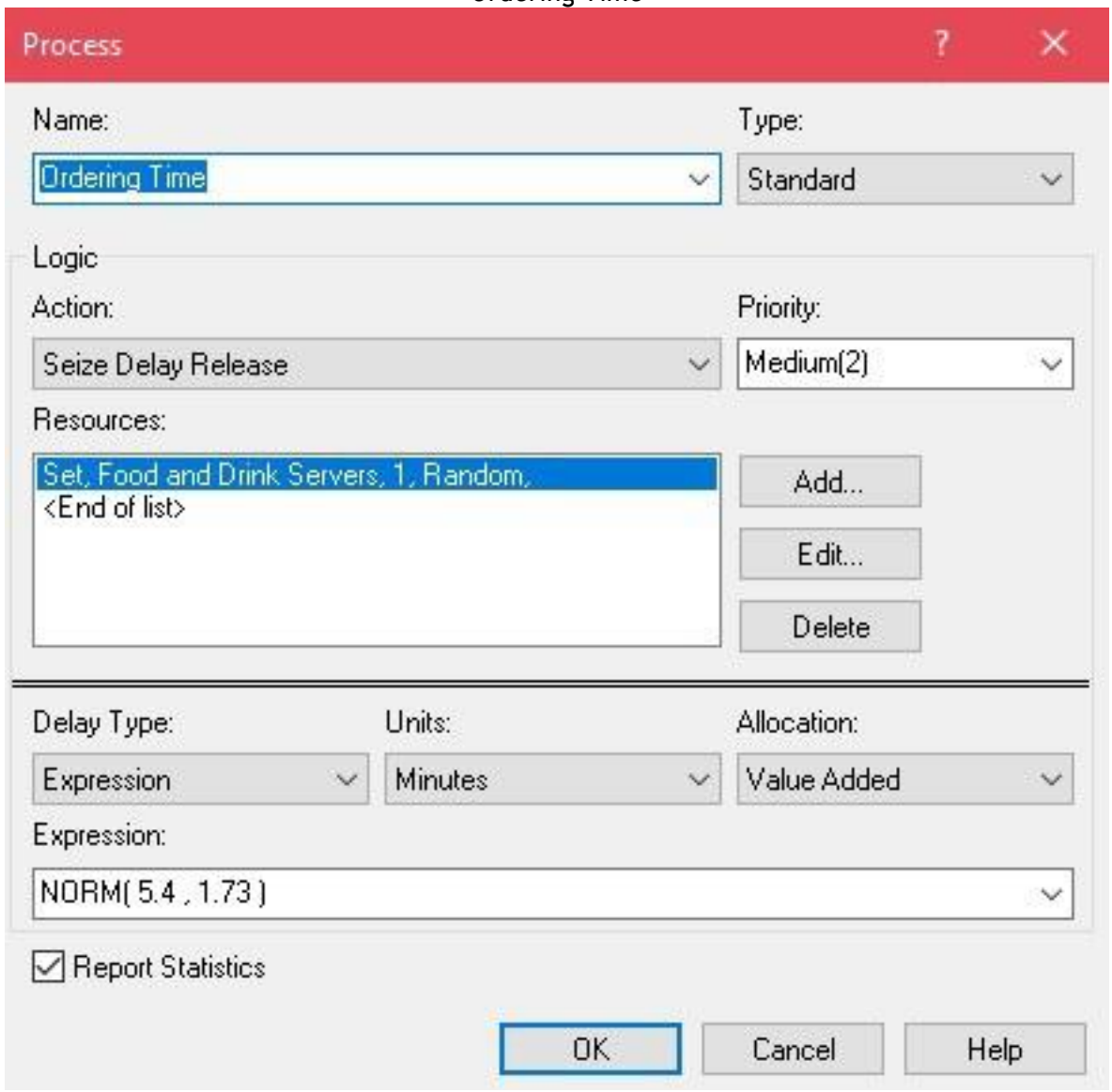
Food and Drink Service Time;



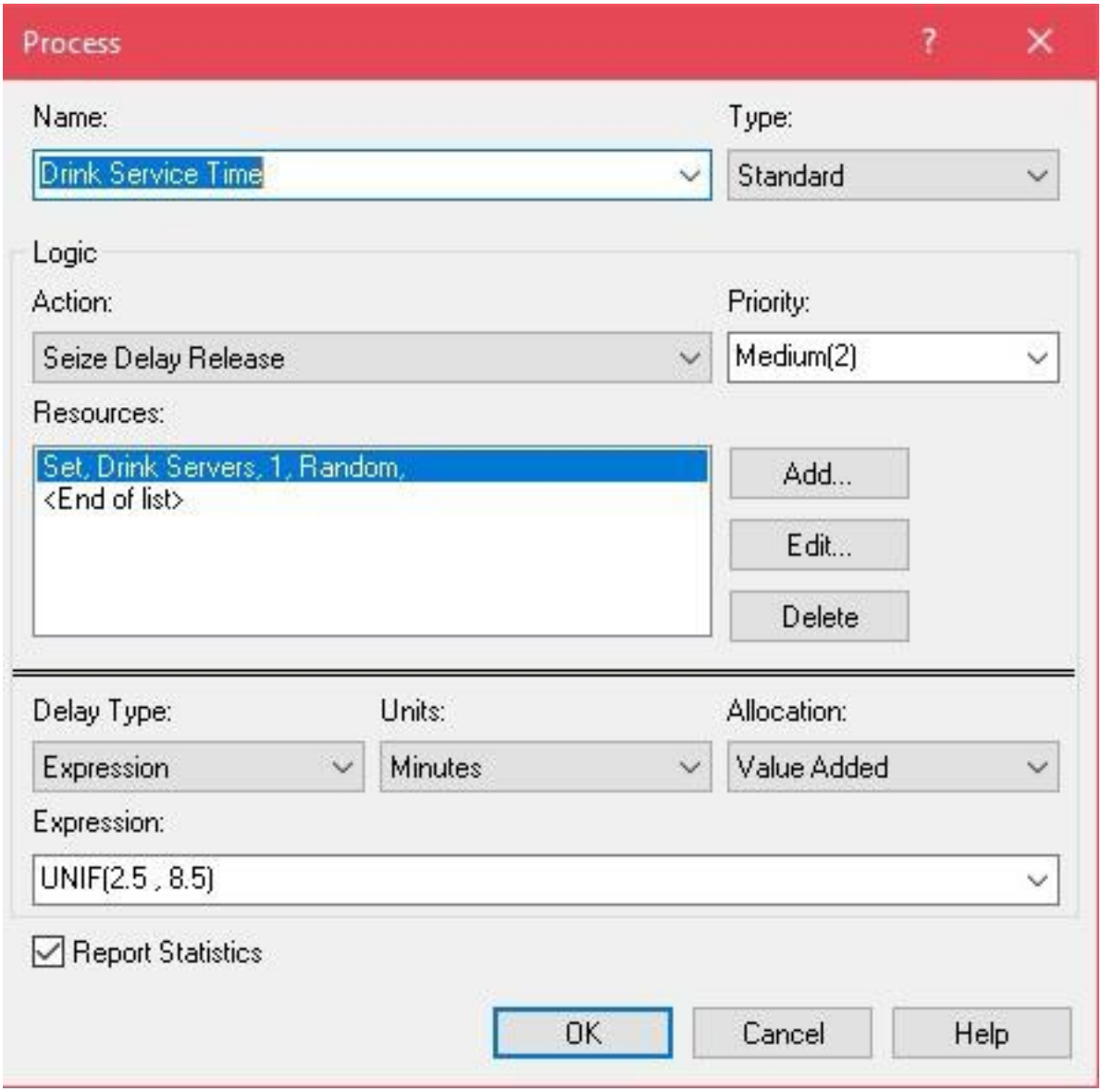
Flowchart in food and beverage service root.



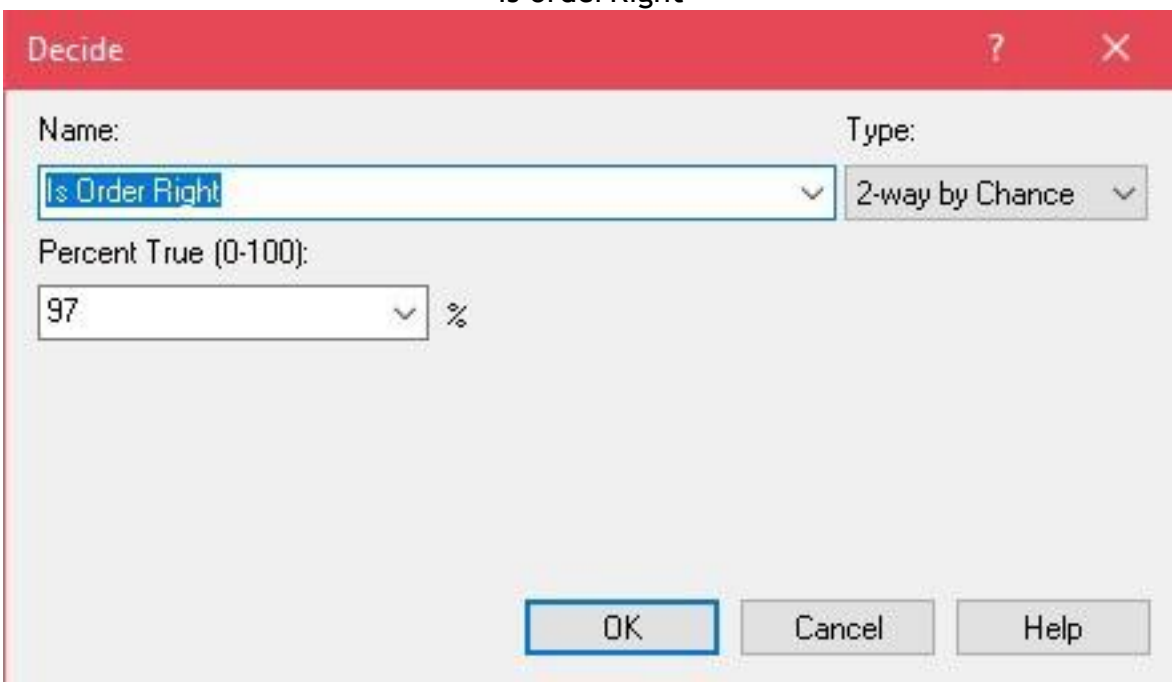
Ordering Time



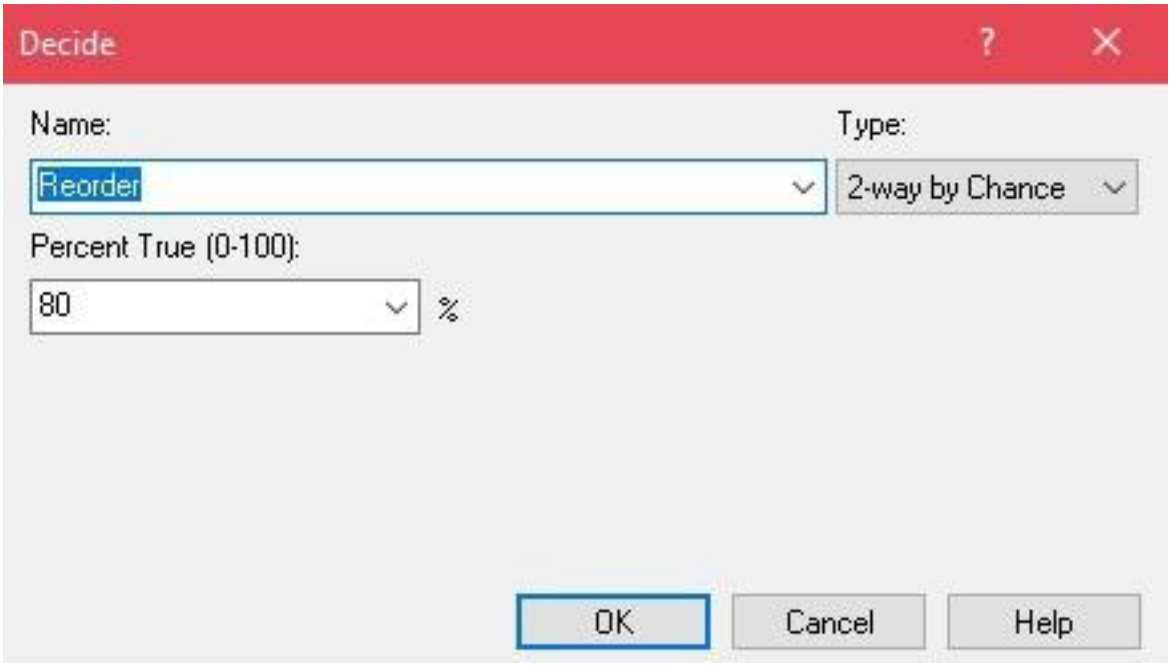
Drink Services Time



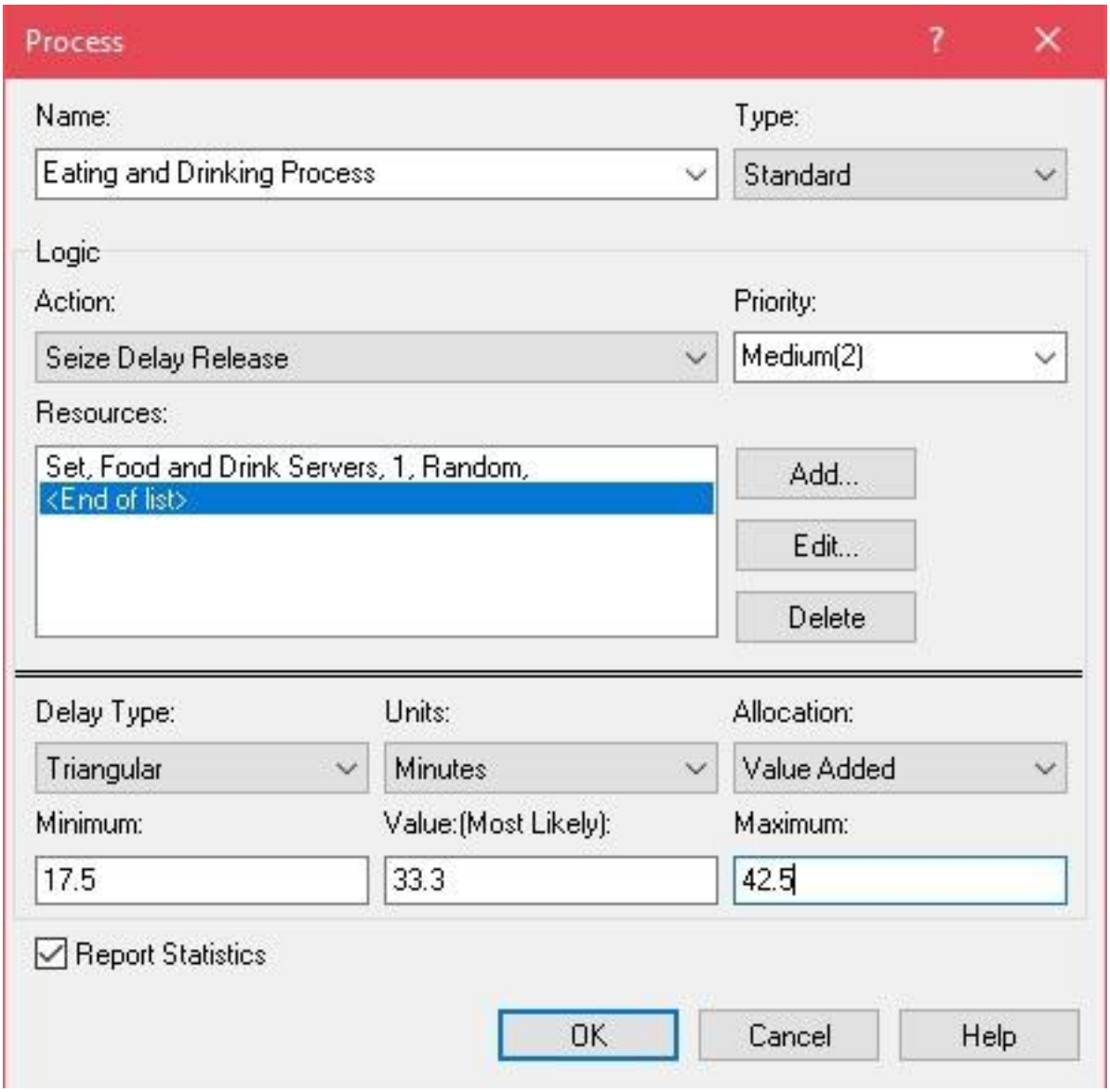
Both Food and Drink Order
Is order Right



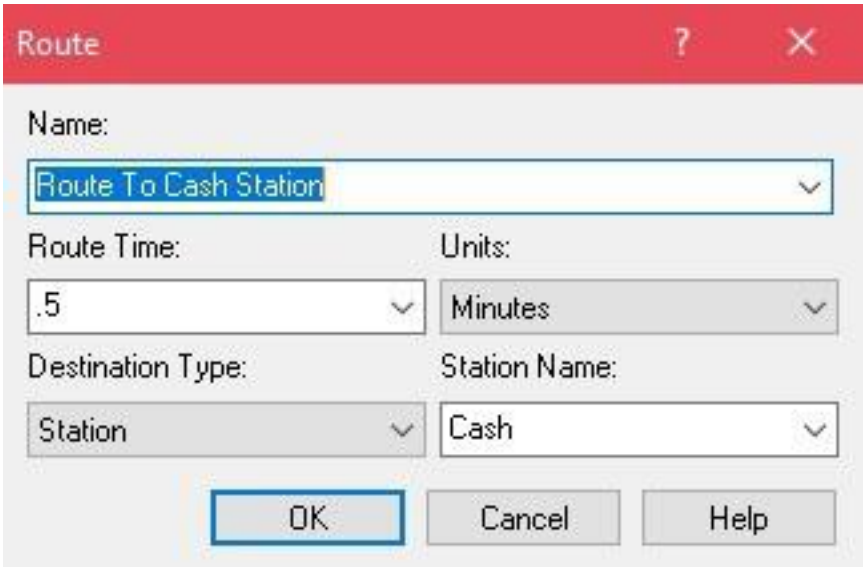
Reorder



Is it Food and Drink or Just Food

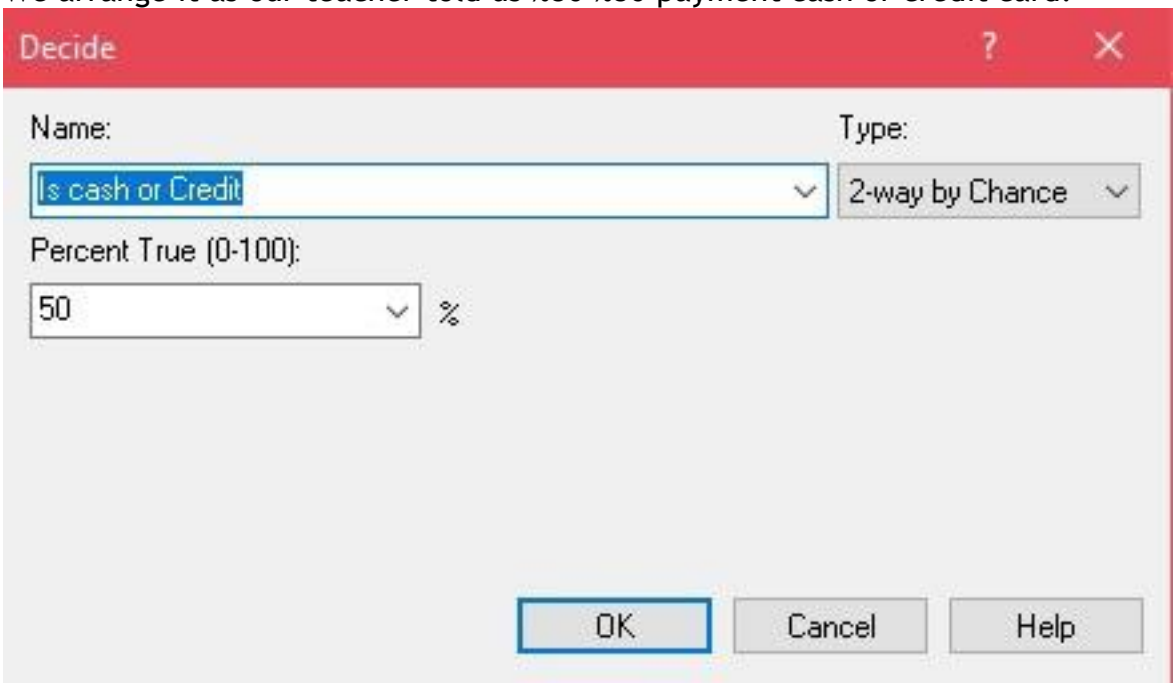


Route to cash Station

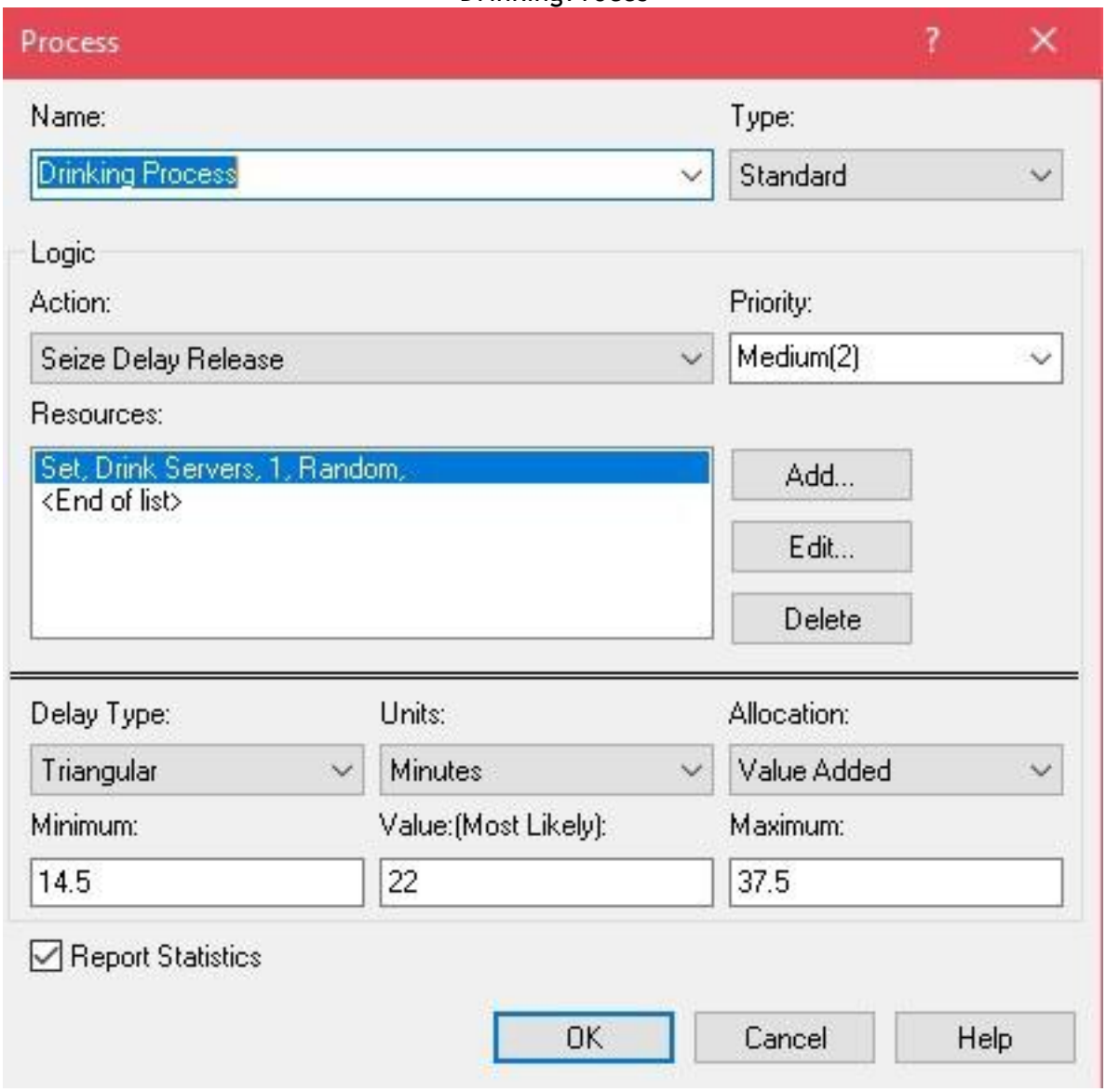


Payment Cash or Credit Card

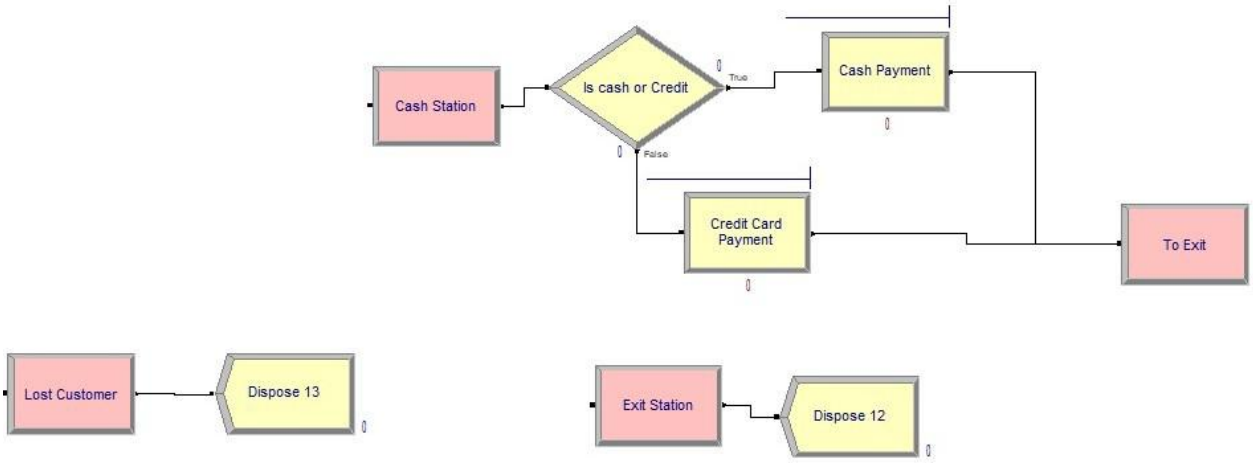
We arrange it as our teacher told us %50 %50 payment cash or credit card.



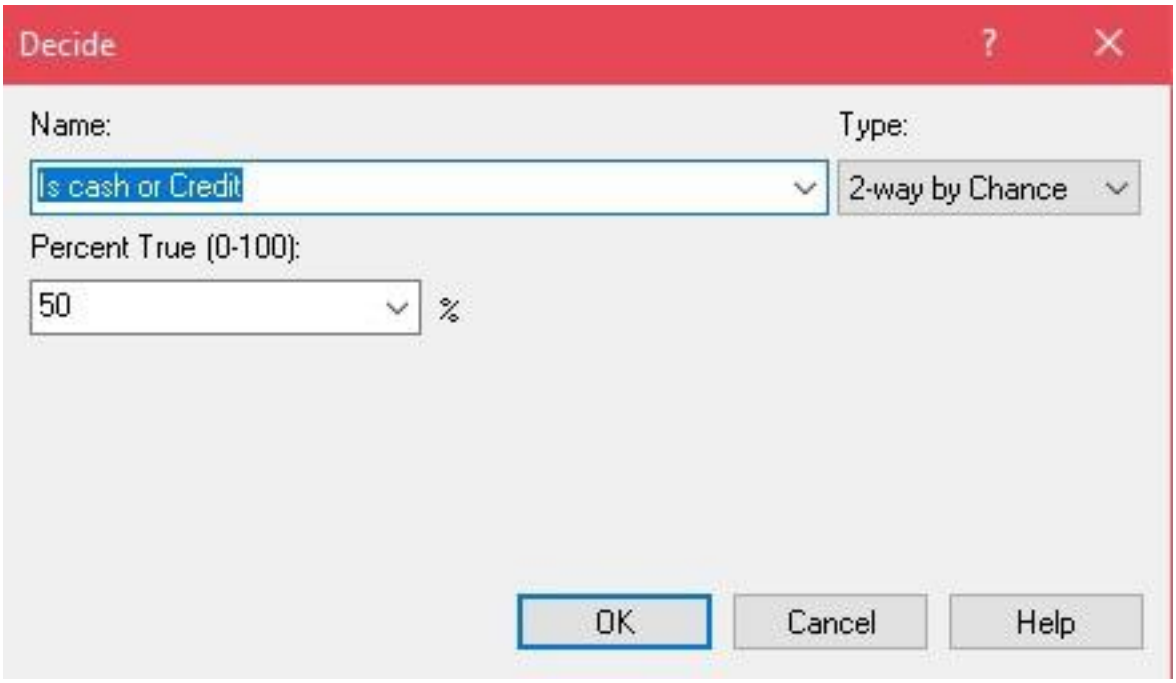
Drinking Proces



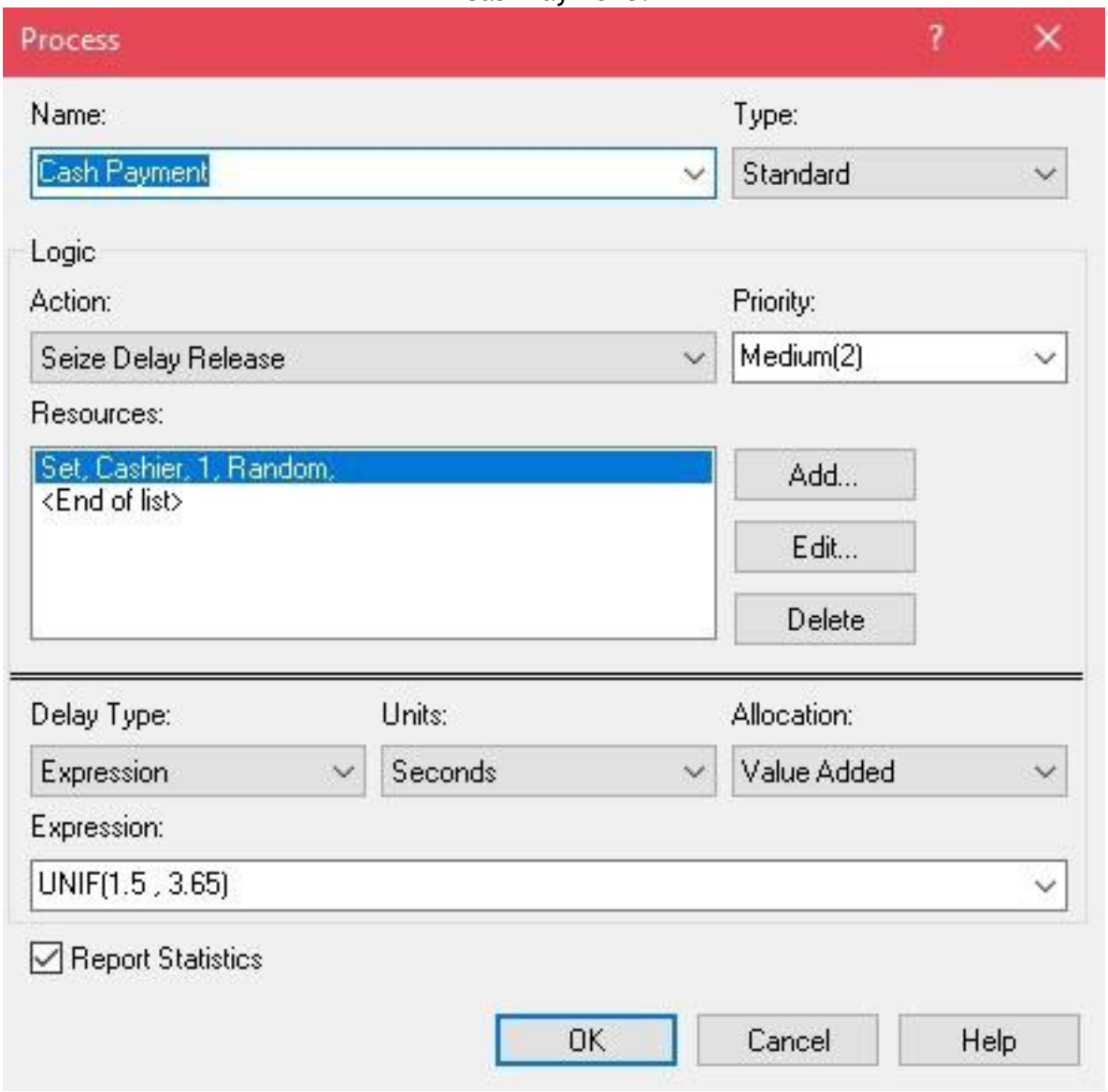
Cash Station :



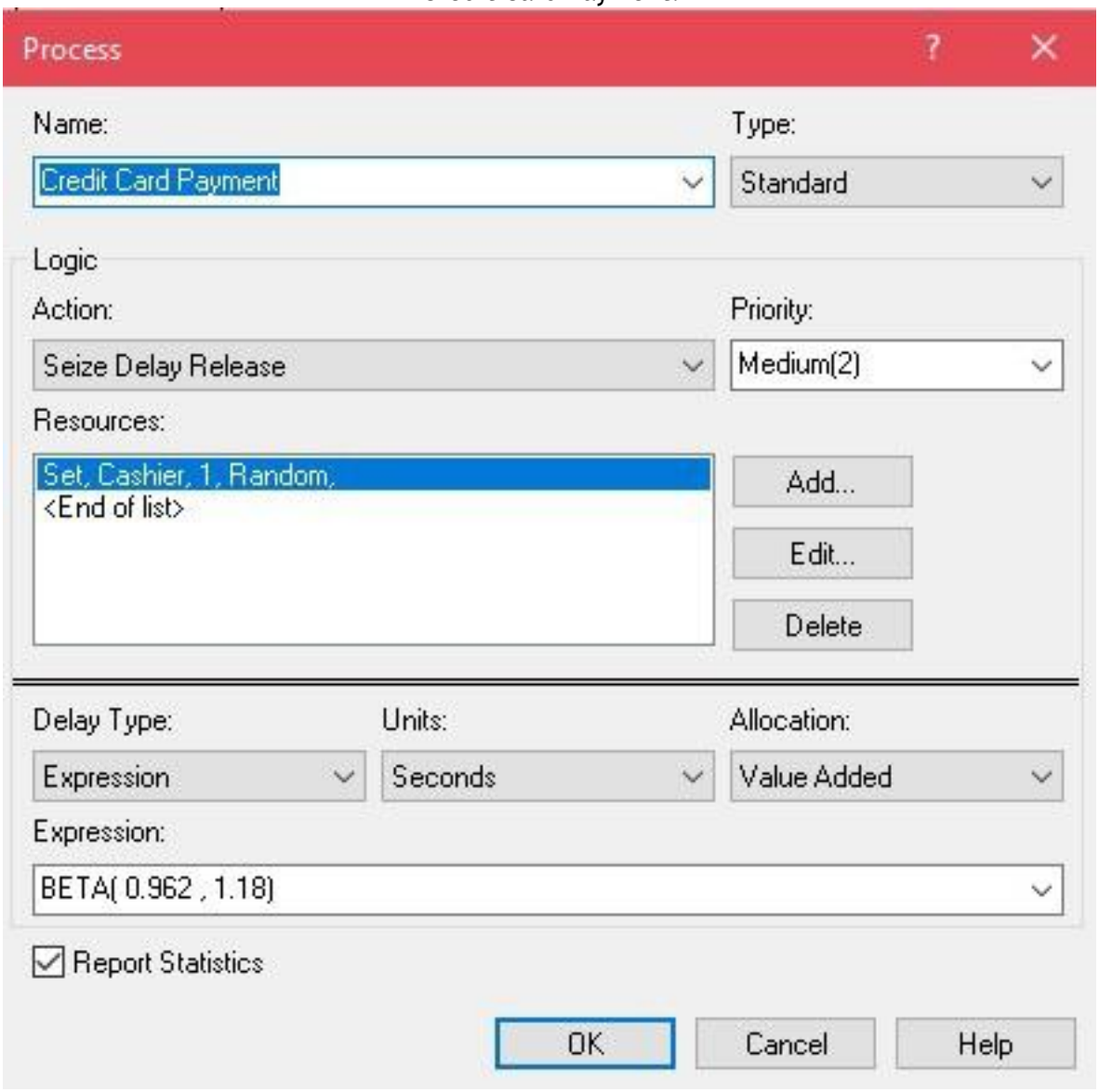
Is cash or credit



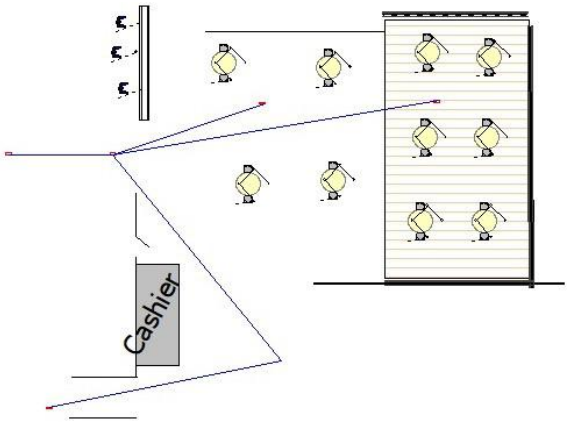
Cash Payment :



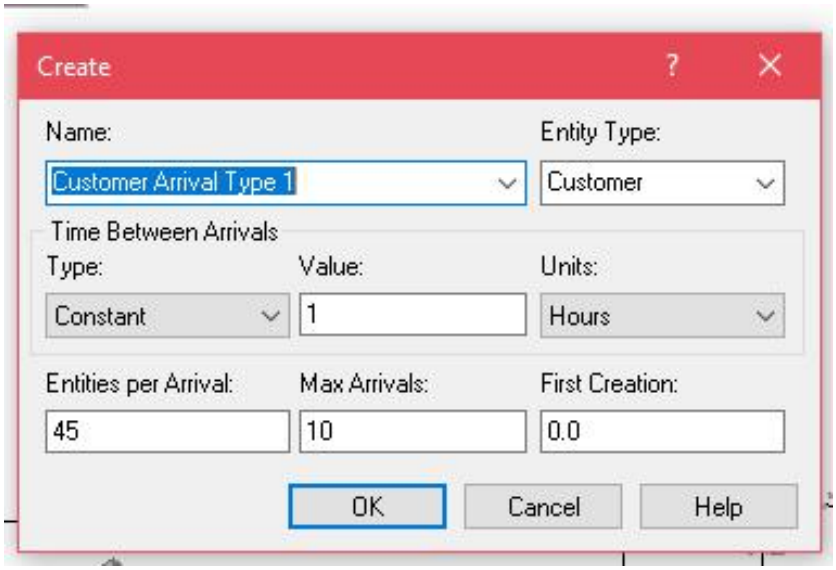
Credit Card Payment:



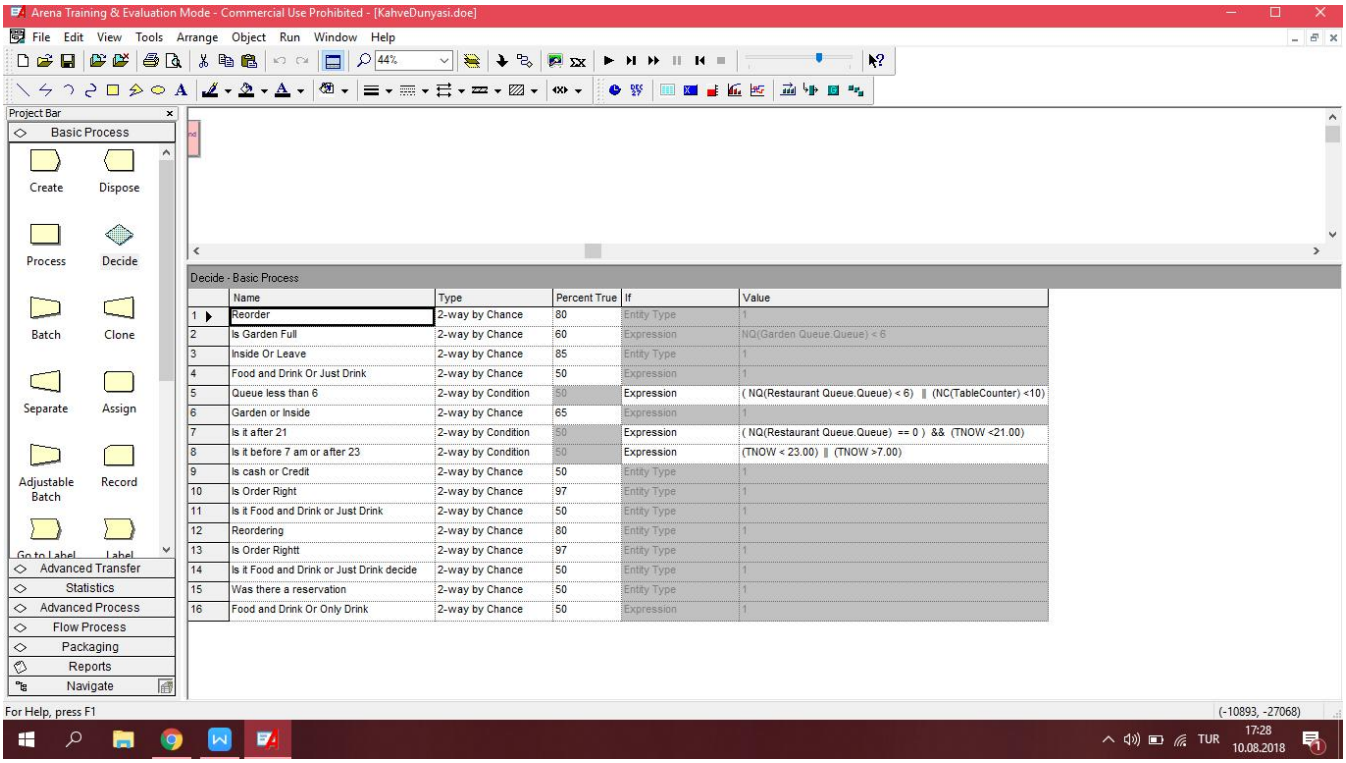
Our GUI



Customer Arrival Type :



Decide Function :



Process Function

Process - Basic Process

	Name	Type	Action	Priority	Resources	Delay Type	Units	Allocation	Minimum	Value	Maximum	Expression
1	Food and Drink Service Time	Standard	Seize Delay Release	Medium(2)	1 rows	Expression	Minutes	Value Added	2.285	22.88	54.925	WEIB(11.7, 1.93)
2	Cash Payment	Standard	Seize Delay Release	Medium(2)	1 rows	Expression	Seconds	Value Added	12.445	34.223	65.223	UNIF(1.5 , 3.65)
3 ▶	Credit Card Payment	Standard	Seize Delay Release	Medium(2)	1 rows	Expression	Seconds	Value Added	12.445	34.223	65.223	BETA(0.962 , 1.18)
4	Ordering Time	Standard	Seize Delay Release	Medium(2)	1 rows	Expression	Minutes	Value Added	.5	1	1.5	NORM(5.4 , 1.73)
5	Drink Service Time	Standard	Seize Delay Release	Medium(2)	1 rows	Expression	Minutes	Value Added	2.285	22.88	54.925	UNIF(2.5 , 8.5)
6	Ordering Time for Drink	Standard	Seize Delay Release	Medium(2)	1 rows	Expression	Minutes	Value Added	.5	1	1.5	NORM(5.4 , 1.73)
7	Eating and Drinking Process	Standard	Seize Delay Release	Medium(2)	1 rows	Triangular	Minutes	Value Added	17.5	33.3	42.5	1
8	Drinking Process	Standard	Seize Delay Release	Medium(2)	1 rows	Triangular	Minutes	Value Added	14.5	22	37.5	1

Entitiy :

Entity - Basic Process

	Entity Type	Initial Picture	Holding Cost / Hour	Initial VA Cost	Initial NVA Cost	Initial Waiting Cost	Initial Tran Cost	Initial Other Cost	Report Statistics
1	Customer	Picture.Person	0.0	0.0	0.0	0.0	0.0	0.0	☑
2	Waiter	Picture.Man	0.0	0.0	0.0	0.0	0.0	0.0	☑

Entity - Basic Process

	Entity Type	Initial Picture	Holding Cost / Hour	Initial VA Cost	Initial NVA Cost	Initial Waiting Cost	Initial Tran Cost	Initial Other Cost	Report Statistics
1	Customer	Picture.Person	0.0	0.0	0.0	0.0	0.0	0.0	☑
2	Waiter	Picture.Man	0.0	0.0	0.0	0.0	0.0	0.0	☑

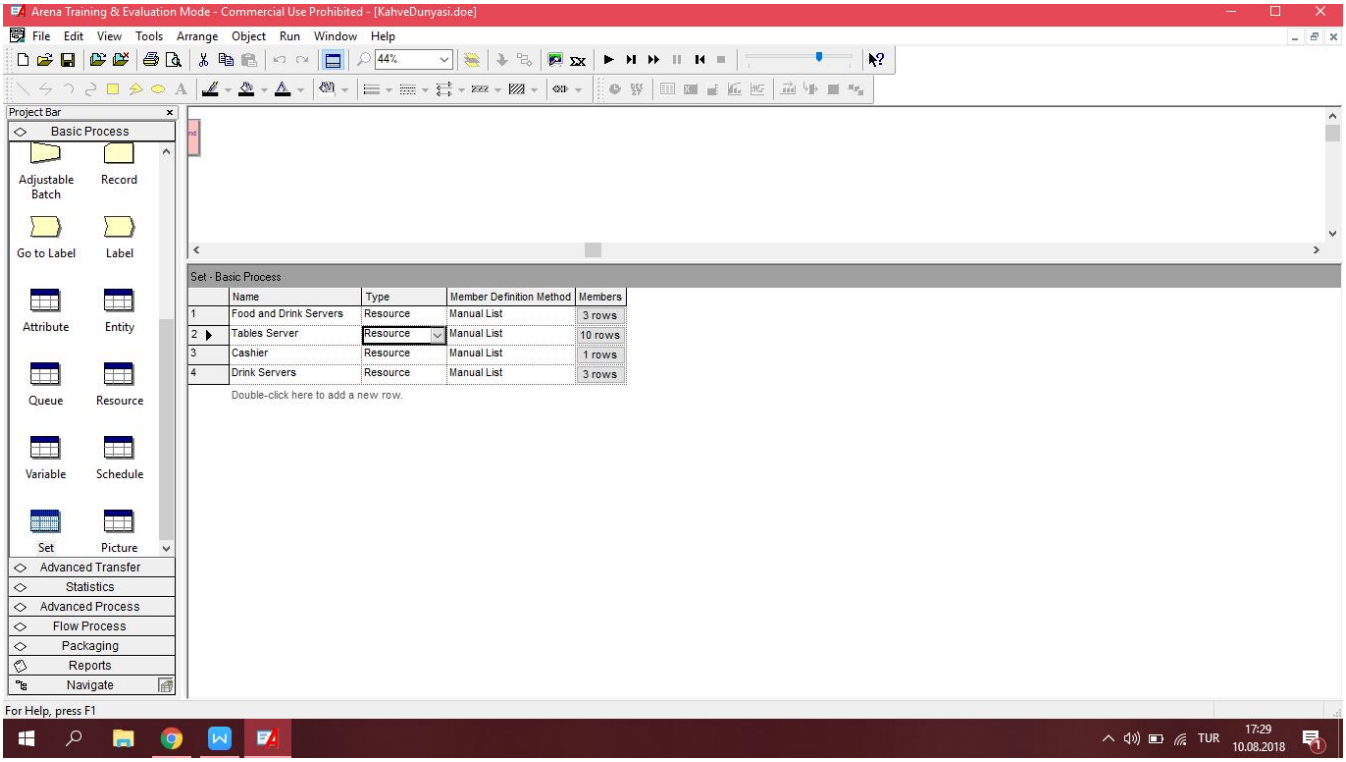
Our queue FIFO model

Queue - Basic Process

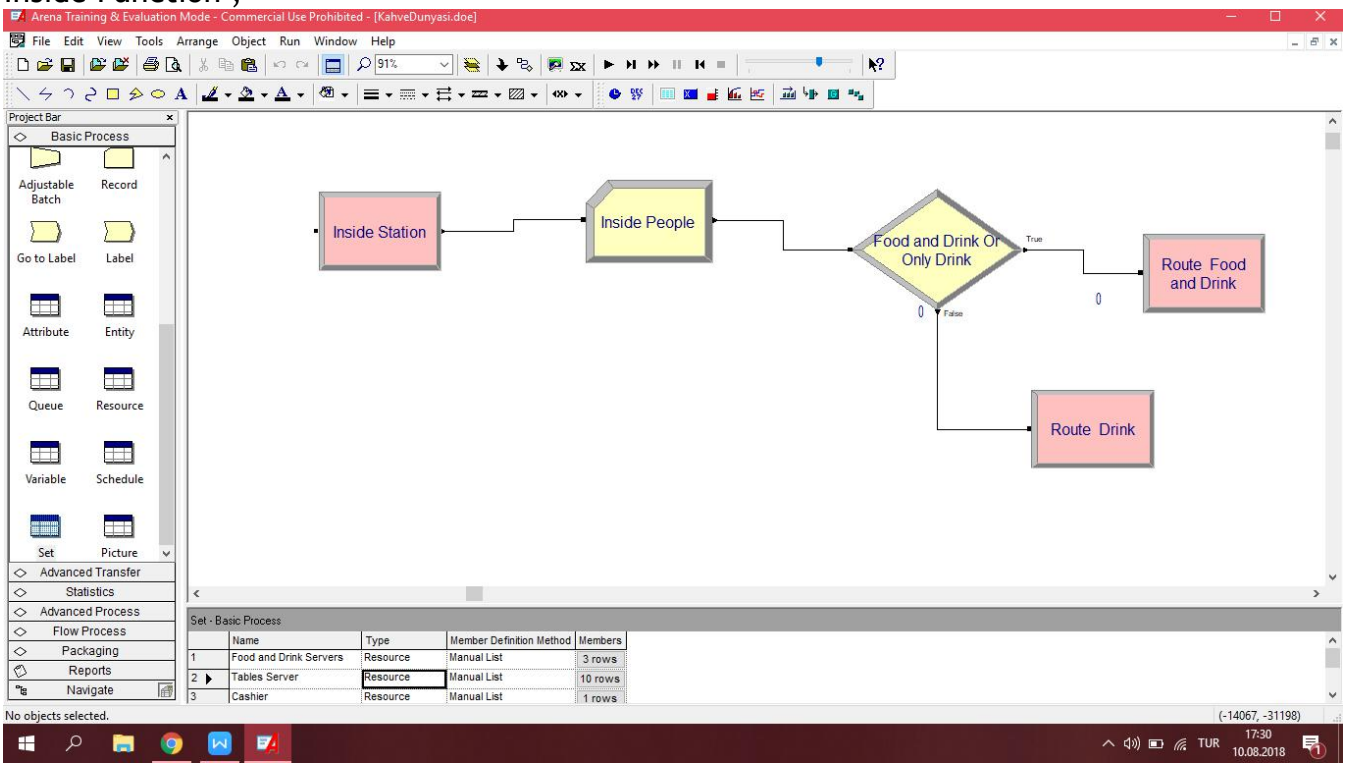
	Name	Type	Shared	Report Statistics
1	Restaurant Queue.Queue	First In First Out	☐	☑
2	Ordering Time.Queue	First In First Out	☐	☑
3	Ordering Time for Drink.Queue	First In First Out	☐	☑
4	Just Drink Service Time.Queue	First In First Out	☐	☑
5	Garden Queue.Queue	First In First Out	☐	☑
6 ▶	Food and Drink Service Time.Queue	First In First Out	☐	☑
7	Food and Drink Process.Queue	First In First Out	☐	☑
8	Eating and Drinking Process.Queue	First In First Out	☐	☑
9	Drink Service Time.Queue	First In First Out	☐	☑
10	Drink Process.Queue	First In First Out	☐	☑
11	Credit Card Payment.Queue	First In First Out	☐	☑
12	Credit Card Check.Queue	First In First Out	☐	☑
13	Cash Payment.Queue	First In First Out	☐	☑
14	Cash Check Time.Queue	First In First Out	☐	☑

Set :

Process Function

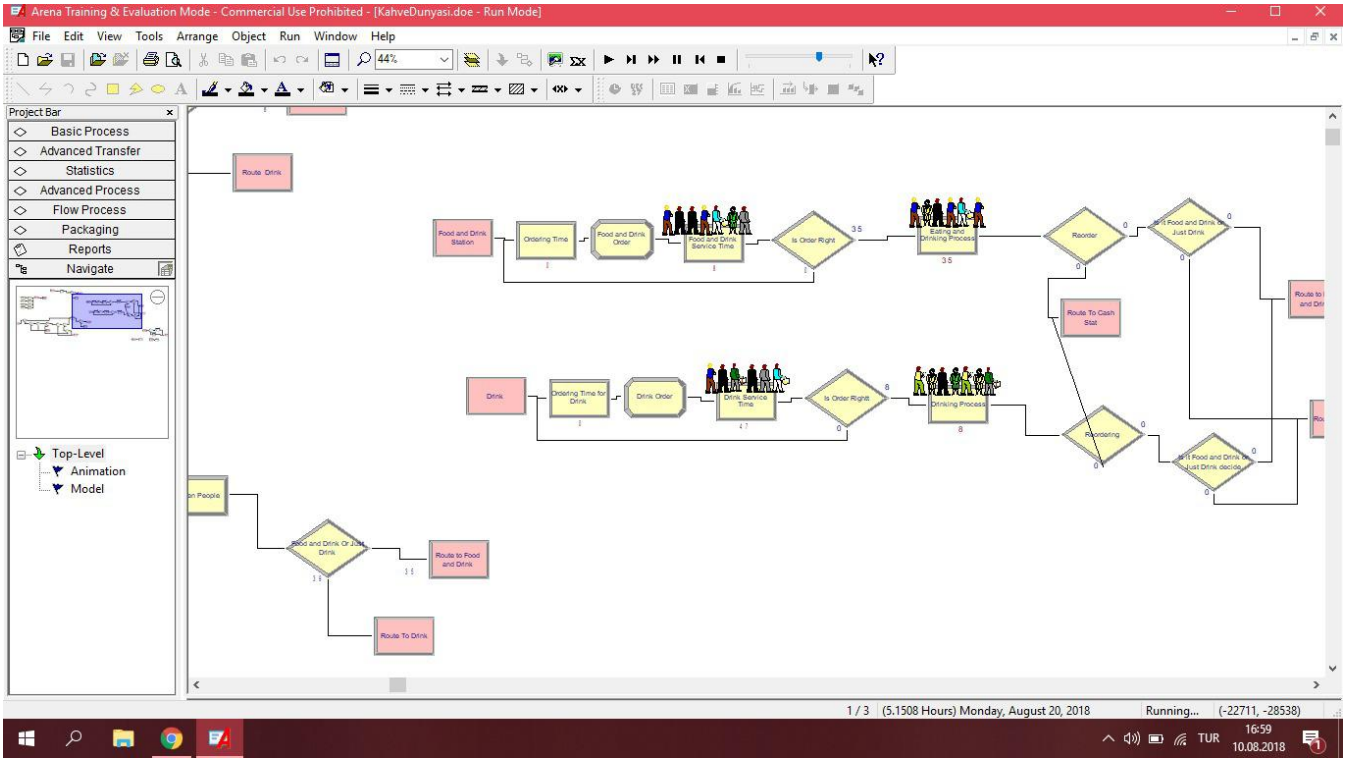


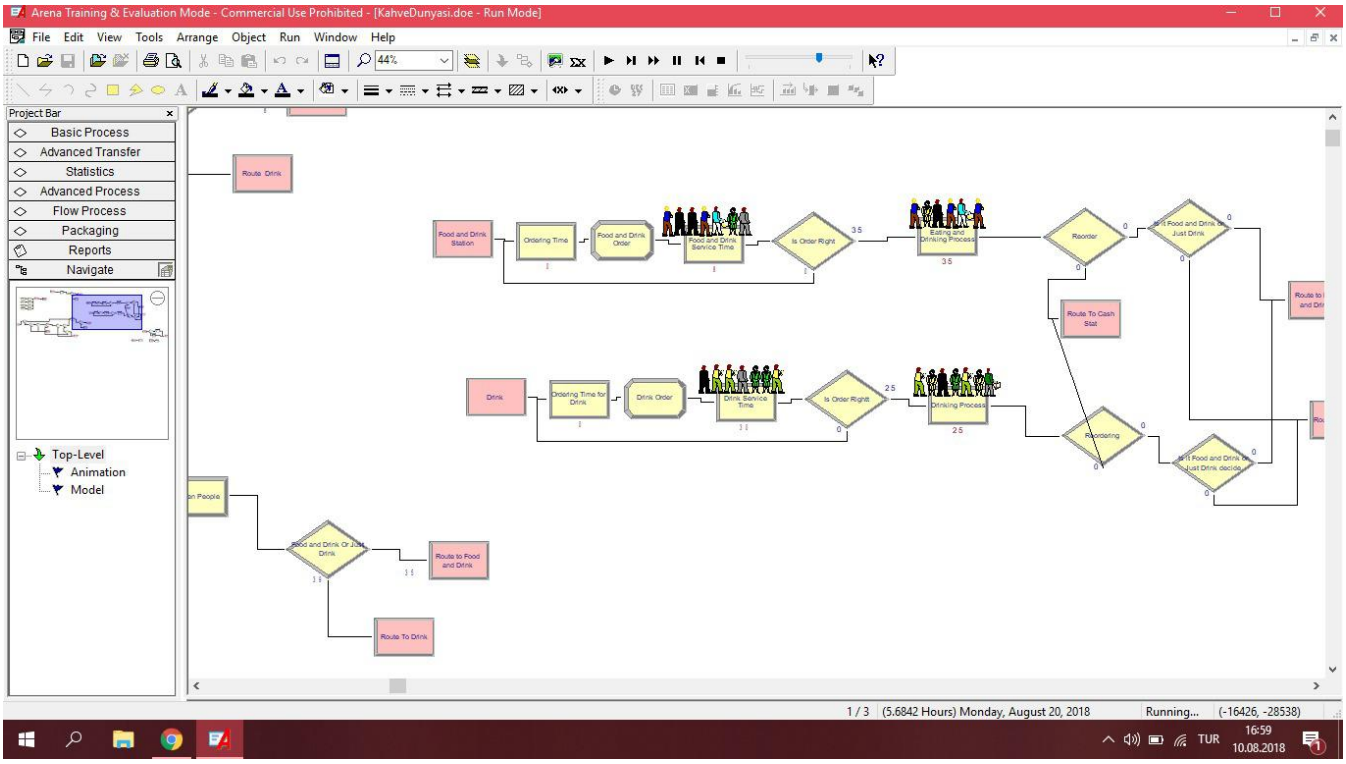
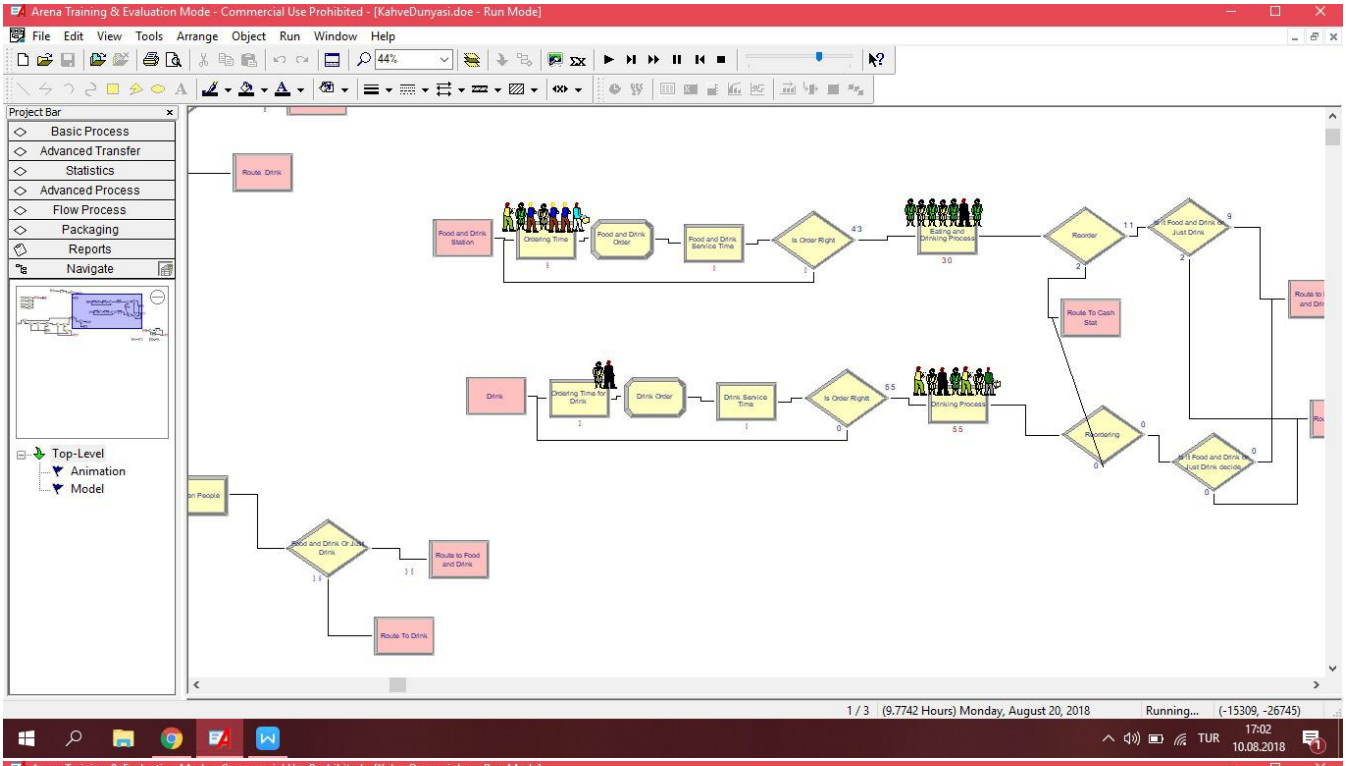
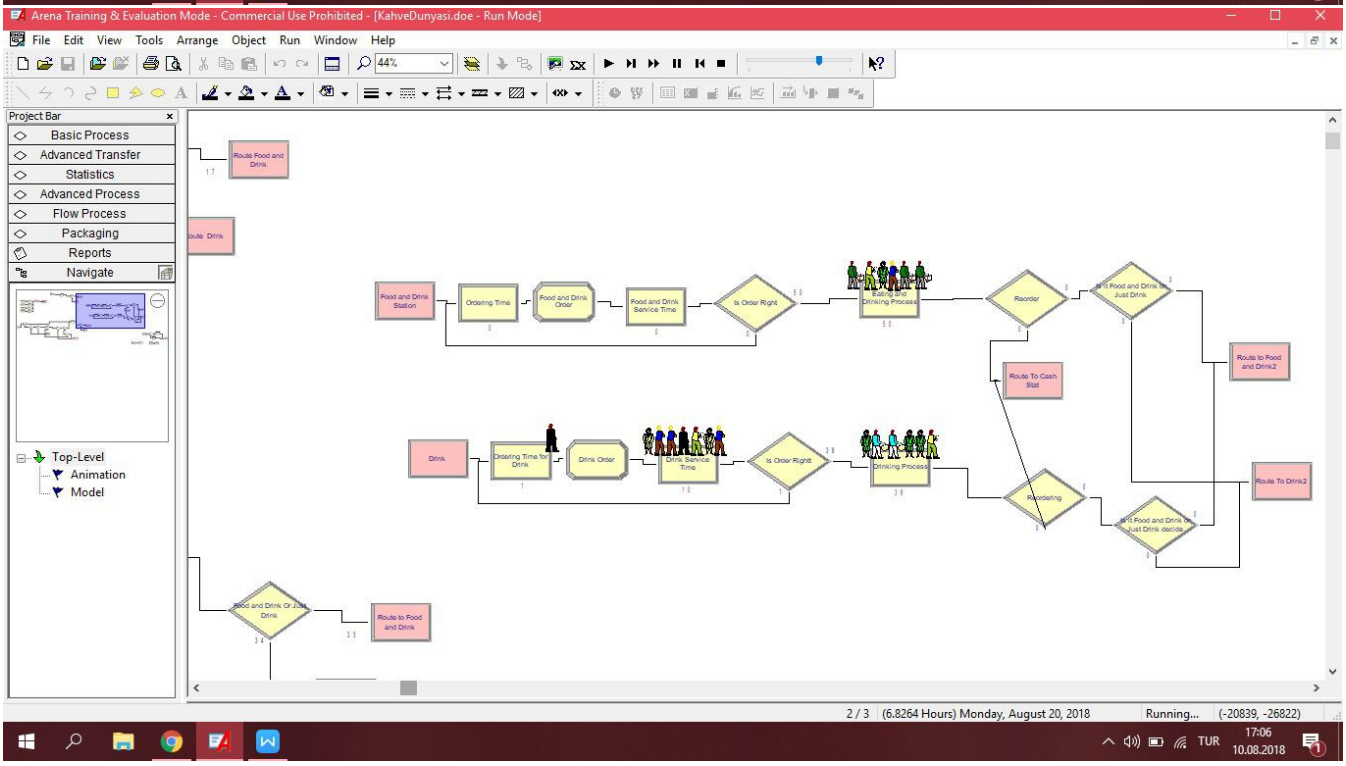
Inside Function ;



These are photos from our running simulation;

Process Function





Process Function