Question 1.
Design of Experiments would be useful in my everyday life in determining which combination of food storage methods results in the longest lasting berries. Factors that could varied are: washing before storing (yes/no), store in original or sealed container, and store in fridge crisper drawer or another.

Question 2.
Using the FrF2 function, I set nruns to 16 (for 16 fictitious houses) and 10 for nfactors (for 10 different yes/no features). The set of features for each house is below. Houses are numbered 1:16, and features are labeled A:K.

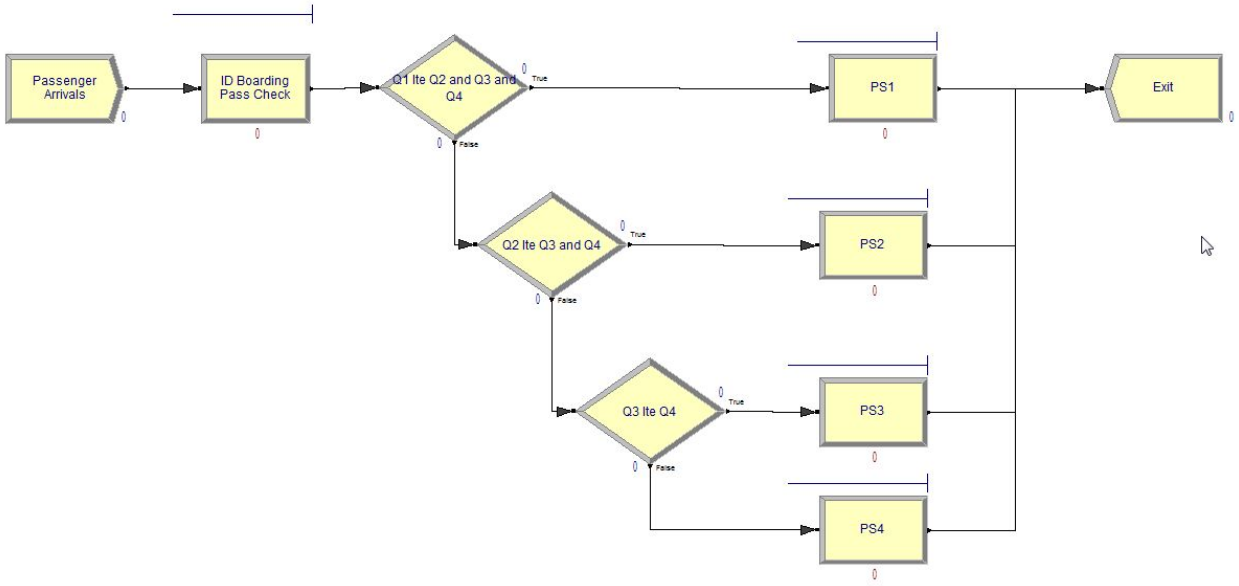
```
require(FrF2)

FrF2(nruns = 16, nfactors = 10)
    A  B  C  D  E  F  G  H  J  K
1   1 -1  1 -1 -1  1 -1 -1  1  1
2  -1 -1 -1 -1  1  1  1  1 -1  1
3  -1 -1  1  1  1 -1 -1 -1 -1  1
4  -1 -1  1 -1  1 -1 -1  1  1 -1
5  -1  1 -1  1 -1  1 -1 -1 -1  1
6  -1 -1 -1  1  1  1  1 -1  1 -1
7   1 -1 -1 -1 -1 -1  1 -1 -1 -1
8  -1  1  1 -1 -1 -1  1  1 -1  1
9   1  1  1  1  1  1  1  1  1  1
10  1  1 -1 -1  1 -1 -1 -1  1  1
11  1 -1 -1  1 -1 -1  1  1  1  1
12  1  1 -1  1  1 -1 -1  1 -1 -1
13 -1  1  1  1 -1 -1  1 -1  1 -1
14  1  1  1 -1  1  1  1 -1 -1 -1
15 -1  1 -1 -1 -1  1 -1  1  1 -1
16  1 -1  1  1 -1  1 -1  1 -1 -1
class=design, type= FrF2
```

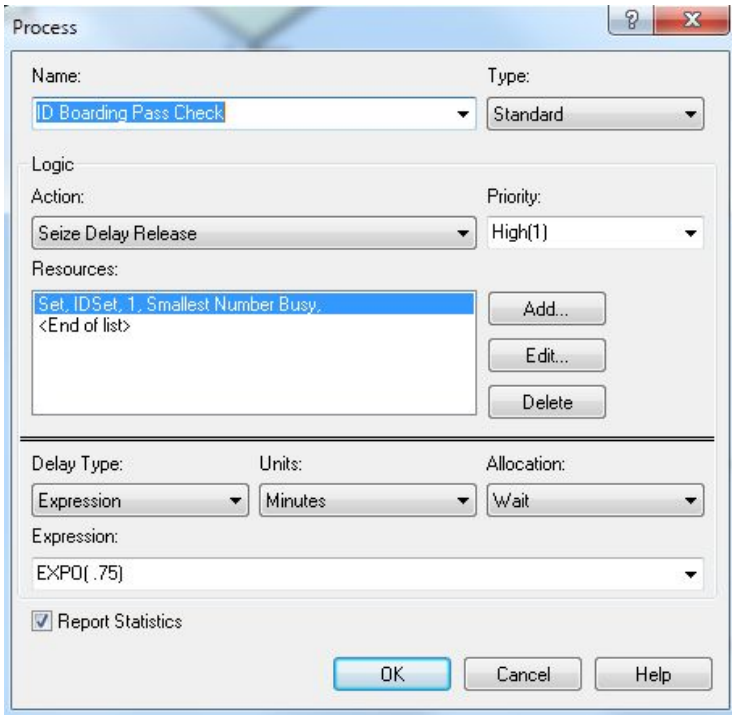
Question 3.

a. Binomial: The answers to whether a sports team won their game
b. Geometric: The answers to a sports team's games played before winning a game
c. Poisson: The number of people who shop on Black Friday
d. Exponential: The time between shoppers lining up at a store for Black Friday
e. Weibull: The time before a computer motherboard fails

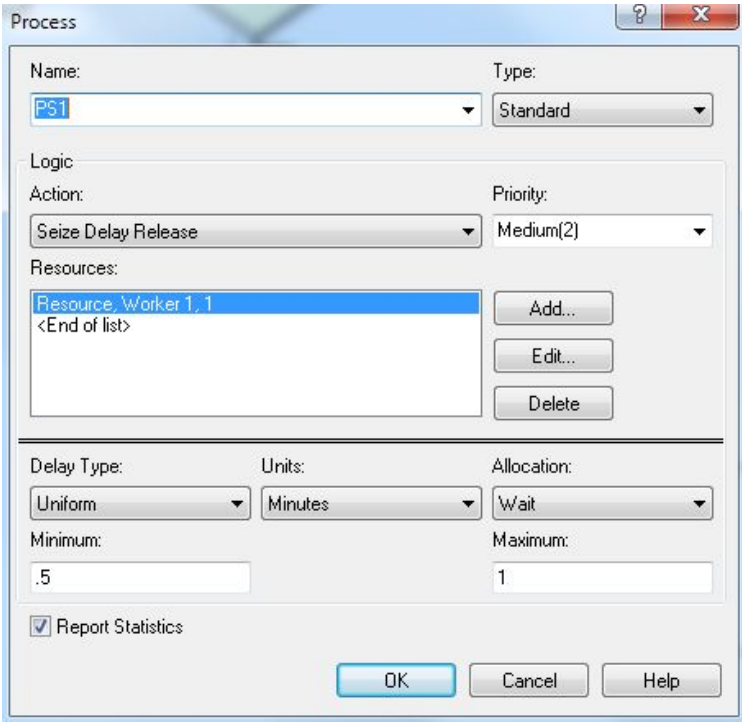
Question 4.



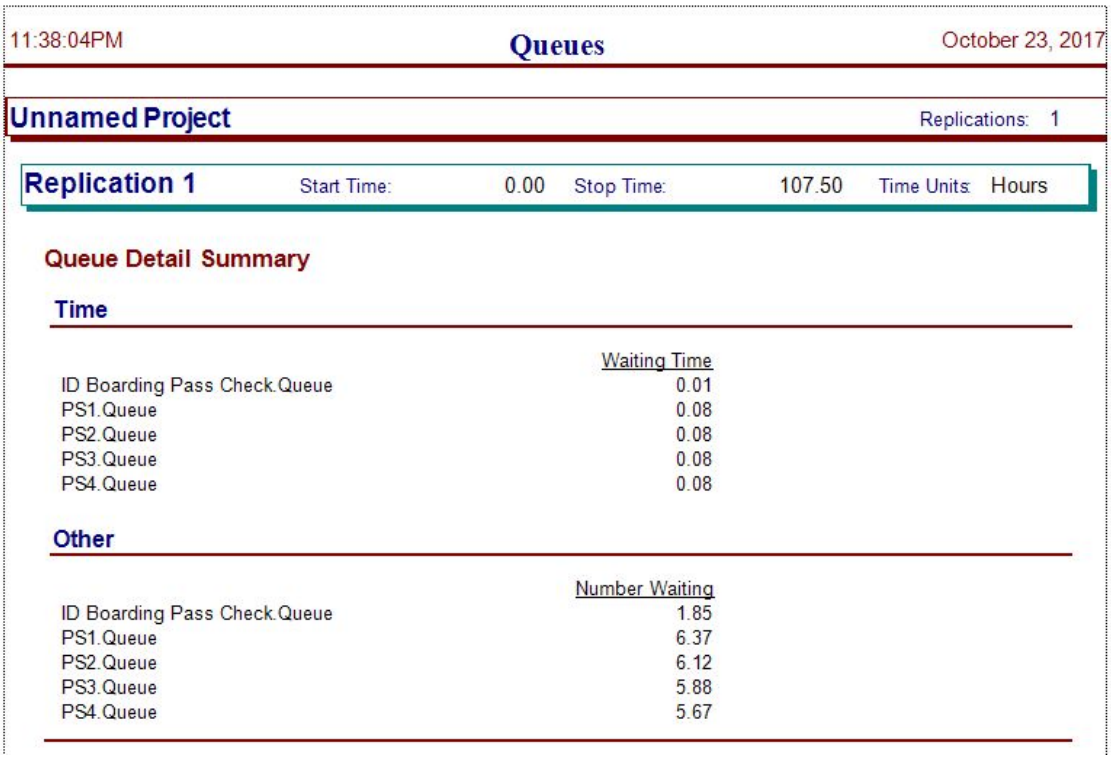
For this question I created a flow that started with a 7-person ID/Boarding Pass Checkpoint:



After passing through the ID/Boarding Pass Check, I created a logic tree that determined with Personal Screener to send the person through. Each Personal Screener was setup as follows:



This setup produced an average wait time of only 5.4 minutes. I think I could have reduced the number of ID/Boarding Pass checkers but each time I tried to reduce it to increase the wait time I kept running into a 150 entity limit due to using a student version of Arena.



11:38:04PM — Queues — October 23, 2017

Unnamed Project — Replications: 1

Replication 1 Start Time: 0.00 Stop Time: 107.50 Time Units: Hours

Queue Detail Summary

Time

	Waiting Time
ID Boarding Pass Check.Queue	0.01
PS1.Queue	0.08
PS2.Queue	0.08
PS3.Queue	0.08
PS4.Queue	0.08

Other

	Number Waiting
ID Boarding Pass Check.Queue	1.85
PS1.Queue	6.37
PS2.Queue	6.12
PS3.Queue	5.88
PS4.Queue	5.67