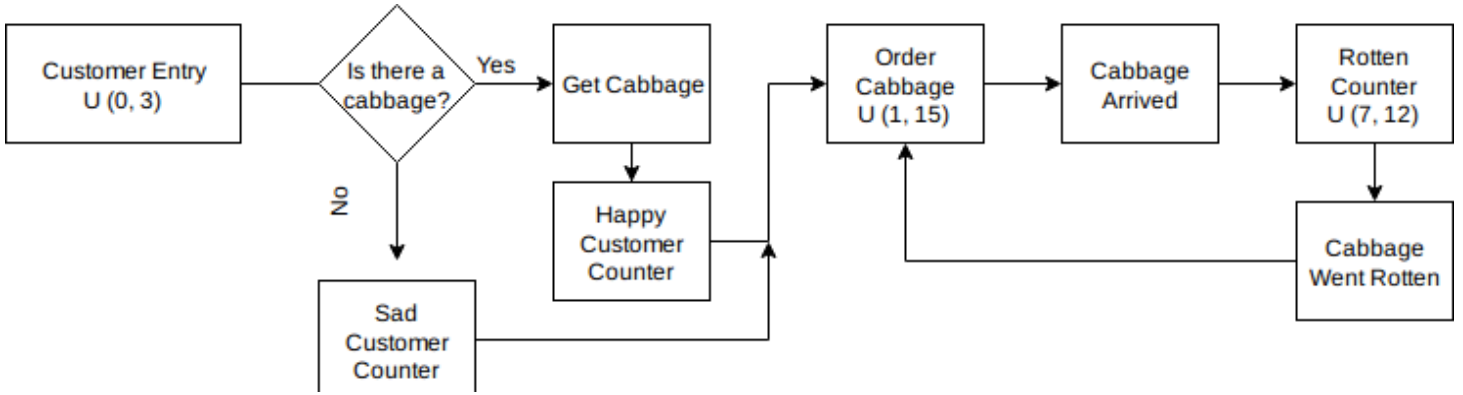
Produce Restock Simulation

Vanita Thompson

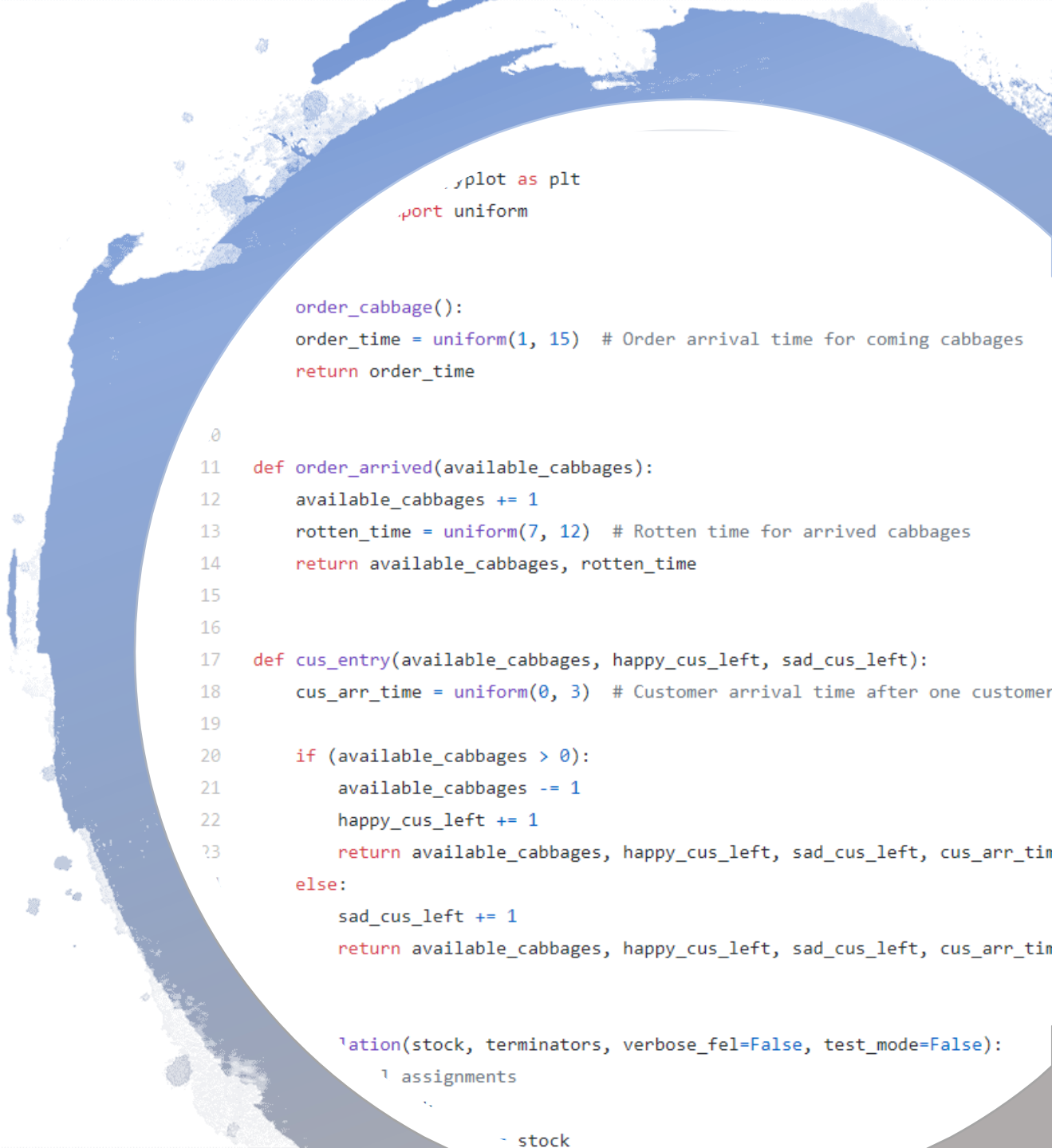
Goals and Flow Diagram

- I assume cabbage rots in 7-12 days.
- In this simulation they are delivered in 1-15 days.
- Customers purchase cabbage every 0-3
- My goal is to limit the amount of rotting cabbage.



Uniform Probability Distribution

- - Customer arrival U(0, 3) days.
- - Order arrival U(1, 15) days.
- - Rotten time for arrived cabbage U(7, 12) days.



Simulation Conditions

- When one customer left, new one's entry will be added to event list.

- One customer can only buy one cabbage.

- When a customer is arrived, one cabbage will be ordered.

- If there is no available cabbage, customer will be sad.

- If there are available cabbage(s), customer will be happy.

- When a cabbage went rotten, new one will be ordered.

- If one cabbage was bought, delete earliest future rotten cabbage event.

- Serve earliest expiry date cabbage to customer to reduce rotten cabbages and improve efficiency.

- Maximum 0.003 sad customer left rate.

- Minimize number of rotten cabbages.

Conclusion

- With lower stock size, most customer left the market as sad, because stock size is not enough for continuous customers.
- Increasing the number of stock size results in rotting much more cabbages, and it leads to waste.
- Therefore, we need to use a larger number of trials and Monte Carlo method to calculate average necessary values of each simulation such as stock size, sad customer rate, and total number of rotten cabbages.