**Airline Overbooking**

An airline company finds that, often a few the reservations made on a certain 20-seat commuter flight turn out to be no-shows. The company reserves the right to over-book and “bump” some passengers into a later flight.

This is a popular route, and you can assume the airline, at its current price point, can sell all the tickets it wants to sell. The airline has estimated that the cost of an empty seat is $90 and the cost of a bumped passenger is $150. Our goal is to find the optimal number of seats the airline should book using simulation.

**What is the optimal number of seats to book?**

Assume that the distribution of no-shows is discrete and independent from the number of reservations.

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| Number of no-shows | Probability |
| 0 | .10 |
| 1 | .20 |
| 2 | .30 |
| 3 | .40 |