Inventory Management project of Newsboy Problem

The objective of this project is to conduct a numerical study of Newsboy problem.

For a newsboy who sells daily news papers on a street corner, the demand is uncertain, and the newsboy must decide how many papers to buy from his supplier. If he buys too many papers he is left with unsold papers that have no or lower value at the end of the day; if he buys too few papers he has lost the opportunity of making a higher profit. The problem for a newsboy is how many papers the newsboy would order to maximize his profit.

Newsboy Problem is very common in our real life. Often managers have to make decisions about inventory level over a very limited period, This is the case, for example with seasonal goods such as Christmas cards that should satisfy all demand in December, but any cards left in January have almost no value. These single-period decision models are phrased as the. Another example is the inventory plan in a shoes store. Given the observations of previous sales, at the beginning of a season, the manager should decide how many shoes the store should order in order to maximize the profit.

Suppose the newsboy buys newspapers from his supplier for $0.25 per copy, and sell to customers for $0.75 per copy. For the unsold papers (if any), the boy would return to his supplier for credit of $0.05 per copy. If the demand of the news paper is uniformly distributed from 50 to 100 (including 50 and 100), and the possible order sizes are 50, 60, 70, 80, 90, or 100, please help the newsboy to decide what amount of news paper he would buy to maximize his profit.

Cost per paper	$ 0.25
Retail price	$ 0.75
Return credit	$ 0.05

I. The project should include the following four parts,
(1). Generate daily demand of 500 days.
(2). For each possible order size and each generated demand, calculate the profit, where profit equals to the revenue minus total cost.
(3) For each possible order size, calculate the average profit.
(4) According to the average profits, choose which order size is the optimal, and write your conclusion.

II. If the demand is normal distributed with mean 100 and standard deviation 10, and the possible order sizes do not change, please do the same work of (1)-(4) in I.