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CS355

Assignment 4

1. What is the marginal PMF of gift cards bought? Roses bought?

P(1 gift card) = 40 + 20 + 10 / 100 = .7

P(2 gift cards) = 5 + 7 + 13 / 100 = .25

P(3 gift cards) = 1 + 1 + 3 / 100 = .05

P(1 rose) = 40 + 5 + 1 / 100 = .46

P(6 roses) = 20 + 7 + 1 / 100 = .28

P(12 roses)= 10 + 13 + 3 / 100 = .26

1. What is the expected number of gift cards sold per customer? What is the expected number of gift cards sold per day?

Gift cards sold per customer = 1 \* P(1 gift card) + 2\*P(2 gift cards) + 3\*P(3 gift cards)

= 1\*.7 + 2\*.25 + 3\*.05

= .7 + .5 + .15

= 1.35 cards/customer

Gift cards per day = Total customer \* Expected Number of Cards per Customer

= 1.35 \* 100 = 135

1. What is the expected number of roses sold per customer? Roses per day?

Roses per customer = 1 \* P(1 rose) + 6 \*P(6 roses) + 12 \* P(12 roses)

= 1 \* .46 + 6\*.28 + 12\*.26

= 5.26 roses per customer

Roses per day = 5.26 roses per customer \* 100 customers per day

= 526

1. Are the two PMF’s independent?

The probablility of getting 1 rose and one gift card is 40. 40/100 = .40

The probability of P(1 gift card) \* P(1 rose) = .7 \* .46 = .322.

So they are not equal and are not independent.

After running the experiment for 10 days, you get around 5600 roles sold and around 1350 gift cards sold, which is pretty close to the number of roses and gift cards in 10 days.