IS310/TOM3020 Assignment 3, Due 11/10/21 (MW), 11/11/21 (TTH)

A group of 8 students apply for MBA program at COB, CSULB and or CBA, CSUP. According to the historical data, probability of admittance at MBA program is .65. Using the formula and showing all work and steps, compute the followings:

1. Probability for the following number of students to get admitted:

3, 2, 1, 0

F(3) = (8 | 3) (.65^3)(.35)^(8-3) = 112(.65^3)(.35)^(5) = 0.1615

F(2) = (8 | 2) (.65^2)(.35)^(8-2) = 28(.65^2)(.35)^(6) = .0217

F(1) = (8 | 1) (.65^1)(.35)^(8-3) = 8(.65^1)(.35)^(7) = .0033

F(0) = (8 | 0) (.65^0)(.35)^(8-0) = (.65^0)(.35)^(8) = 0

1. Probability of at least 4 students get admitted

(8 | 4) (.65^4)(.35)^(8-4) = 420(.65^4)(.35)^(4) = 1.125

1.125 + .0217 + .0033 + 0 = **1.141**

1. Expected value of the discrete probability

(4 \* 1.125) + (3 \* 0.1615) + (2 \* .0217) + (1 \* .0033) + 0 = 5.0312

1. Standard deviation

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| x | x - mu | (x - mu)^2 | f(x) | (x-mu)^2\*f(x) |  | mu |
| 0 | -5.0312 | 25.3129734 | 0 | 0 |  | 5.0312 |
| 1 | -4.0312 | 16.2505734 | 0.0033 | 0.053626892 |  |  |
| 2 | -3.0312 | 9.18817344 | 0.0217 | 0.199383364 |  |  |
| 3 | -2.0312 | 4.12577344 | 0.1615 | 0.666312411 |  |  |
| 4 | -1.0312 | 1.06337344 | 1.141 | 1.213309095 |  |  |
|  |  |  |  |  |  |  |
|  |  |  | variance | 2.132631762 |  |  |
|  |  |  | sd | 1.4603533 |  |  |