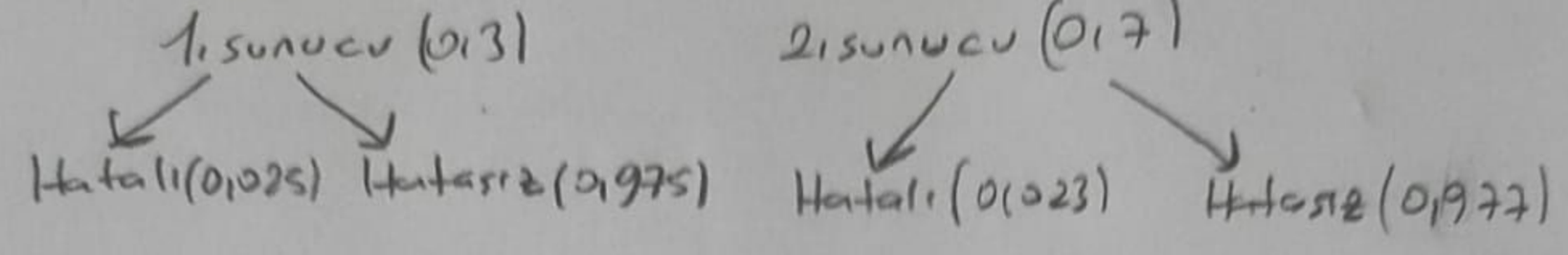
Olasılık ve istatistik ödevi
Mustafa Kunt B201210052 şube: 1-B

2. sorunun çözümü



a) $0,3 \times 0,975 + 0,7 \times 0,977 = 0,9764$

b) $$\frac{0,3 \times 0,025}{0,3 \times 0,025 + 0,7 \times 0,023} = \frac{0,0075}{0,0075 + 0,0161} = \frac{0,0075}{0,0236} = \frac{75}{236}$$

3. sorunun çözümü

yıllık satış gelirleri = {50, 25, 10}

a)

x	10	25	50
$P_x(x)$	$\frac{2}{10}$	$\frac{3}{10}$	$\frac{5}{10}$

b)
$$F(x) = \begin{cases} 0, & x < 10 \\ \frac{2}{10}, & 10 \le x < 25 \\ \frac{5}{10}, & 25 \le x < 50 \\ 1, & 50 \le x \end{cases} \longrightarrow P(X=25) + P(x=10) = \frac{5}{10}$$

c) $E[x] = \sum x_i \cdot P(x=x_i)$ $10 \cdot \frac{2}{10} + 25 \cdot \frac{3}{10} + 50 \cdot \frac{5}{10} = 24,75 + 252 \; 34,5$

d)

$2x+3$	23	53	103
$P_x(2x+3)$	$\frac{2}{10}$	$\frac{3}{10}$	$\frac{5}{10}$

$E = 23 \cdot \frac{2}{10} + 53 \cdot \frac{3}{10} + 103 \cdot \frac{5}{10} = 72$

e) $Var[x] = E[x^2] - (E[x])^2$

$E[x^2] = 100 \cdot \frac{2}{10} + 625 \cdot \frac{3}{10} + 2500 \cdot \frac{5}{10} = 14571,5 - (34,5)^2 = 207,125$

f) $E = 72$ $23^2 \cdot \frac{2}{10} + 53^2 \cdot \frac{3}{10} + 103^2 \cdot \frac{5}{10} = 6253 - (72)^2 = 1069$