1000 $X(i)$ $X[1, 2, \cdots 1000]$ Sort X vector acending order

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$X(i)$

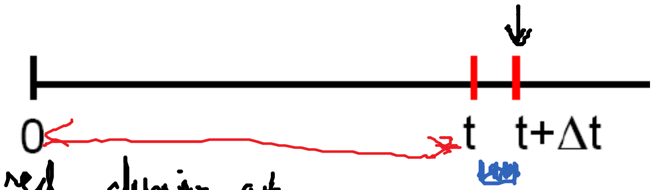
for $i = 1:1000$,

$Y(i) = \frac{i}{1000}$;

end

plot (X, Y) ;

$$P_n(t+\Delta t) = P_{n-1}(t)\lambda\Delta t + P_n(t)(1-\lambda\Delta t) + o(\Delta t)$$



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$P(N(t+\Delta t) = n)$

① n arrived by t, 0 arrived during Δt

② n-1 arrived by t, 1 arrived during Δt

can ignored ← ③ n-2 " " , 2 " " "

$$= P(N(t)=n)\cdot P(N(\Delta t)=0) + P(N(t)=n-1)\cdot P(N(\Delta t)=1)$$

$$= P_n(t)\,(1-\lambda\Delta t) + P_{n-1}(t)\cdot\lambda\Delta t + o(\Delta t)$$

$$dP_0(t)/dt = -\lambda\, P_0(t)$$

$$P_0(t) = c\cdot e^{-\lambda t}$$

$$P_0(0) = 1 \longrightarrow P_0(t) = e^{-\lambda t}$$

$$P(N(t)=0)$$

P(time between failures < *1* day) $\rightarrow p(X<1)$?

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$X \sim \exp(\lambda=2.4) \Rightarrow p(X<1) = 1 - e^{-\lambda \cdot 1}$

$= 1 - e^{-2.4} = 0.909$

P(5 failures in 1 day) $\rightarrow p(N(1)=5)$?

$= e^{-\lambda \cdot 1} \frac{(\lambda \cdot 1)^5}{5!} =$

$$P_n(t) = e^{-\lambda t} \frac{(\lambda t)^n}{n!}$$

$\Leftrightarrow p(N(t)=n)$

P(N(5)<10) $= p(N(5)=0) + p(N(5)=1) + \dots\ p(N(5)=9)$

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X: no deductible claims Y: deductible claims

λ_X

$\lambda_Y = 2\lambda_X$

$\lambda_{combine} = 100/\text{week}$

$\lambda_X + \lambda_Y = \lambda_{combine} = 100$

$\Rightarrow \lambda_X = \frac{100}{3}$

$\lambda_Y = \frac{200}{3}$

$13 \times \frac{100}{3} \times 700 + 13 \times \frac{200}{3} \times (700 - 250)$

$=$