التاريخ :

Task-7

الموضوع :

Distribution : The possible values a variable can take and how frequently they occur. $p(y)$

two characteristics : * mean : avg value μ

* variance : how spread data is σ^2

population D vs sample D

"all" Data — part of Data

Sample mean $\bar{x}$

Sample Variance s^2

Standard deviation $\Rightarrow$ root of variance $\sqrt{\sigma^2}$

* Same units as mean
* directly interpret

$$\sigma^2 = E[(Y-\mu)^2] = E(Y^2) - \mu^2$$

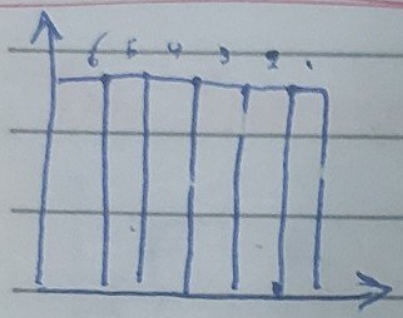
Types of Distributions

* Discrete : ⊓⊓⊓
* Continuous : ∩

التاريخ :

الموضوع :

Uniform Distribution : All outcomes have equal probability



* Completly uninterpretable (نزد)
* No real intuition behind

Binomial Distribution :

Sequence of identical bernoulli events (B)

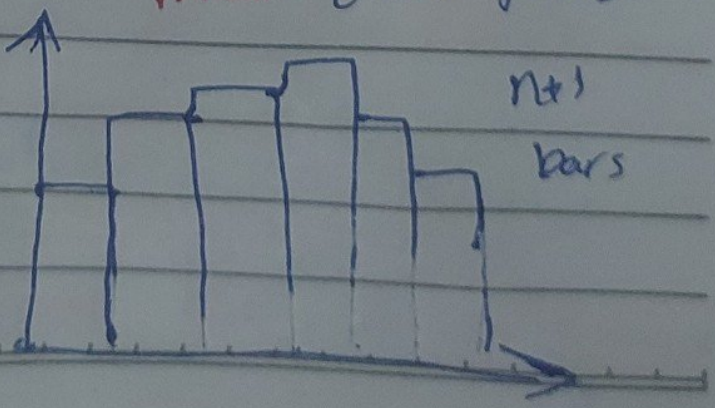
guessing 1 question ⟹ bernoulli

guessing entire quiz ⟹ binomial

The number of times we expect to get a specific outcome

which outcome we expect for single trial. (know part)

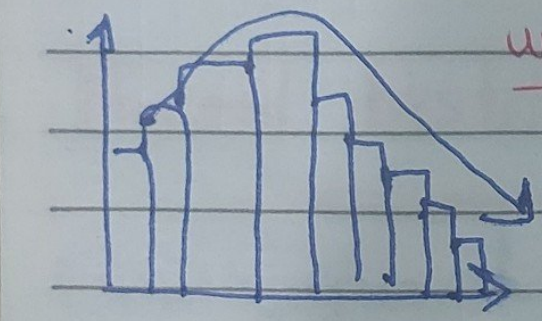
$$\sigma^2 = E(Y^2) - E(Y)^2$$



التاريخ : ____ الموضوع : ____

Poisson Distribution : $po(\lambda)$ (for specific period of disbure or time)

The frequency with which an event occurs.

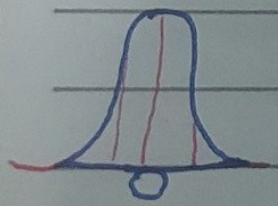


wildly diff

$$P(Y) = \frac{\lambda^Y e^{-\lambda}}{Y!}$$

Normal Distribution : $N(\mu, \sigma^2)$

The frequency appears in nature.



symmitra

68, 95, 99.7

outliers is extremely rare

Transformation : A way in which we can alter similar every element of a distribution to get a new distribution.

addition, Subtraction, multiplication & division

Standardizing : A special kind of transformation

التاريخ :

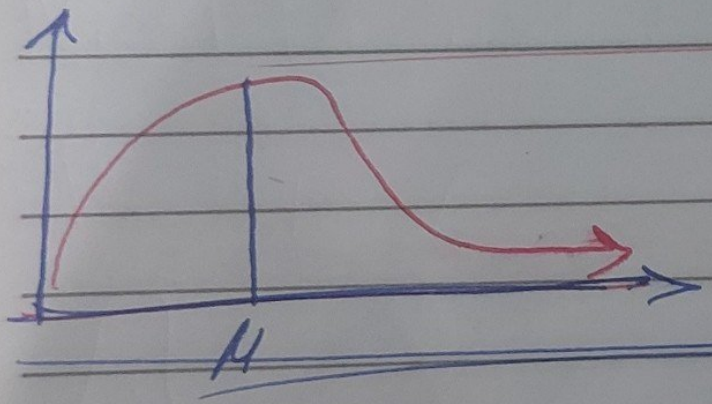
الموضوع :

Student's T Distribution : $t(k)$

Small sample size approximation of a Normal Distribution. Certain characterstics.

Chi-Squared Distribution : $\chi^2(k)$

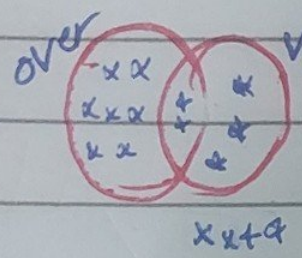
few events in real life - Goodness of fit.



$E(\chi) = k$

التاريخ : ____ الموضوع : ____

Conditional probeuility :



	love valo	hate valo	
love over	2	7	9
hate over	3	4	7
	5	11	

حدث صار

$$P(E|F) = \frac{P(E \cap F)}{P(F)}$$

سبب

Product Rule : $P(E \cap F) = P(F) \cdot P(E|F)$

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independent Event : $P(E|F) = P(E)$

الأحداث غير معتمد على بعض

don't give F about it

Law of total probeuility :

أو نتيجة من

$$B = (B \cap E_1) \cup (B \cap E_2) \cup (B \cap E_3)$$

Bayes Theorem : (is good when A_i is not Available)

$$P(A_j|E) = \frac{P(A_i) \cdot P(E|A_i)}{P(E)}$$

Data

reverced compindiond probeuility