PL03: Descriptive	Statustics 11
Videoz: Understanding	Z-scores
· Z-Score and Stame	dard Deviation
- Z-score is a measure	of DISTANCE from the MEAN.
x = 50 & == 5 ; 1	f value = 55, then 2-500e = +1.0
forw movement away more with the	f value = 40, then 2-score = -2.0
z = doda point -	mean value
Standard o	deviation
rappy = 8 . Wentermer of	ob highward of Transland do
マニ ユール で	2 - 2 - u (Appulation)
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(sample)	1-11
which the series we dried to	us cifes , topic in
seaso data point ou class to the	
ma dist	
hor	PAIRAY TO THEIR OF VARIATION
10 (ODIX mo'Acive)	t hantmil)
	mada)

Video 2: Standard Deviation

- Greater variability means the values are none spread out.

PEOS : Italogical tive Statistics II

- How for is each data point from the mean? (distance)

 4 This is the question, Variance & Standard Deviation
 will help us answer.
- The standard deviation is just the possitive equale voot of the variance.

Mean = x ; Standard dentation = 6; Variance - 62

 $\sigma = \sum (\chi - \bar{\chi})^2$ $\sqrt{n-1}$ Formula

- e eg class 1, 6 = 7'9, data points are spread away, farther class 2, 6 = 4.74, mean data points are closes to the mean.
- · COEFFICIENT OF VARIATION

Sandard deviation x 100) %
Mean

The coefficient of variation is a relative measure of variability. · Usually expressed as Percentage It mossures the standard doviation relative to the man 4) How large is - relative to u ? percowage streamental se significant · Since it is a ratio, it is helpful to compare data having different means & standard deviation. · By the same property, it is also UNIT-INDEPENDENT. eg coefficient of variation, con 1 = 9.29% 11 11 , care 2 = 5.58 1/2 The c.o.v ii much smaller relative to the mean 3 7 Wideo 3: NFL field Goals-I Video 4: NFL field Goals - II

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Video 5: Bivariate Relationships: COVARIANCE
and also a is weld in a relative of a relative of the
· COVERIANCE - simplified CO-vary
ic, vary together
- one variable up, the other is also up
S was not extend to a disposit total to
· LINEAR RELATIONSHIP - 'One change, the other change
· How do variables behave as a PAIR.
· covariance - A descriptive measure of the
linear association between two variable.
* The the some populary it is also court independent
- Positive value, increasing linear relationship
- Negative value, de creasing linear relationship
A STATE CHOICE
· Graph: 7 (4+)
· Graph: ponitive vaniance (Slope is the)
regative variance (stope is -ve)
· FORMULA:
San - E(2; - 2) (y; -4) = - E(2; -4x)(y; -4y)
$Sxy = \frac{\sum(x_i - \bar{x})(y_i - \bar{y})}{n - 1} \qquad Sxy = \frac{\sum(x_i - u_x)(y_i - u_y)}{N}$
sample Covariance Population Covariance
Wilder of the Fill Goden T
The state of the s
8

3							
3	· Aov	ARIANCE	- A	descri	ptine	measure of the linear anociation	
	between two variables						
3	COVARIANCE VALVE BOUNTAINAVOO						
3	- Direction = Sign +						
3	* Acres and a Property of a pr						
3							
3	Video 6: Bivariate Relationships - The COVARIANCE MATRIX						
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	The second second						

Video 7: BIVARIATE RELATIONSHIPS: Understanding CORRELATION
politicism test most of
COVARIANCE YS CORRELATION.
1 mole 2 mole mole mole - 2/
Provides the DIRECTION OF Provides DIRECTION
the linear Relationship as well STRENGITH
between two variables
(positive, negative, near Zeno)
COVACUANCE AND AUGUST SERVICE STATEMENT OF THE STATEMENT
Has NO UPPER BOUND . Correlation is ALWAYS BETWEEN
or LOWER BOUND, and -1 & +1, and its scale is
its SIZE is dependent on INDEPENDENT of the scale
the SLALE of the variables of the variables themselves.
Since Correlations is Independent, the comparison of variables
which are different regardles of their UNITS
61. Temperature vs Energy Consumption.
Covariance is NOT STANDARDIZED. • It is STADARDIZED
(in other words) Standorized measure of Variation)
At amount a Da for this page of the page of a Continuous the
line Standardization allows to Compare Variables
that are measured using different scales.
Carried Cardinal Cardina Cardina Cardina Cardina Cardina Cardina Cardina Cardina Car

(works

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3	
3	· CORRELATION CAVEATS ALLEMAND MORTAL PARAMETER
3	(i) Before computing Correlation, always look at Scatter plot (ii) Correlation is only applicable to LINEAR RELATIONSHPS.
3	(iv) Correlation is NOT CAUSATION. (dog harste ve moon please)
3	statistically significant.
3	· General Correlation Patterns
3	Stronger 1051 IVE Goods Relational
3 3	near +1 near -1 near 0
=	(Stope is +ve) (Stope is -ve) (No stope)
3	· Non-linear Pelationships
3	5 RELIMINATION RULE OF THUMS
	- Red of Triple : To 141 2 2
7	Quadratie Exponential Polynomial
7	i. Always look at Scatter Plot of the Data.
3	

a constant conduit i attativa domestadas e	1
· CORRELATION FORMULA:	1
r is called the (Peasson) correlation coefficient.	19
The cauca the Creation of the confirmation.	3
Covariance (x,y)	1
The conditional control of the contr	3
Standard Deviation (x) & Standard Deviation (y)	3
1	3
$ \gamma = \frac{\text{Cov}(x,y)}{\text{SuSy}} \int \frac{\text{Cov}(x,y)}{\text{Cov}(x,y)} = \frac{\text{E}(x_1-\overline{x})(y_1-\overline{y})}{\text{N-1}} $	-
SxSy 12 n-1	5
000	5
eg for example, r = .989 Signifies, STRONG, POSITIVE linear Relationship.	5
Signifies, STRONG, POSITIVE linear Kelasionship.	3
Ide and Court to all and Advantage and the court of	_3
We can say, that no . of Workers causes the no . of tables	3
produced.	3
In this case, we can say, it is CAUSATION,	
because, the variables are real/practical.	-
* was linear Peter authins	5
· RELATIONSHIP RULE OF THUMB	-
	-
- Rule of Thomb: If r ≥ 2	- X
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then a Relationship exists.	T
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is Aways book at Labor Plat of the sam.	T
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3 PLON - INTRODUCTION to PROBABILITY 1 Video 8: Geometric Hean & Standard Deviation 3 · The sample mean is only suitable for additive processes. 3 o The geometric mean is suitable for multiplicative process 3 3 All values must be positive for Geometric Mean 3 · Geometric mean i often used for financial growth growth in biology, agriculture, medicine, etc. · Any vate of change over sequential periods of any length. Unequal periods should not be used. 3 of COMBINATIONS - The , GEOMEAN () in Excel. can be relieved from a large na of eller · NATURAL · LOGARITHM METHOD -> Geometric mean formula: Tg = V(x1)(x2) (x3)...(xn) -> ln xg = lnx1 + lnx2 + lnx3 - lnxn La elining = rig 3 7 3 e-g length = 4; 6; 9 7 ln(x) = 1-386, ,1.791, 2.19722 7 Arerge = 100 (4)/3 ent = ity