APRAKSTOŠĀ STATISTIKA

Vidējais aritmētiskais:

$$\overline{x} = \frac{\sum i = 1 n x_i}{0}$$

Mediānas pozīcija:

$$\frac{n+1}{2}$$

Ģeometriskais vidējais:

$$\sqrt[n]{x_1 * x_2 * \cdots * x_n}$$

Amplitūda (rangs):

$$range(X) = X_{max} - X_{min}$$

Dispersija (variance) izlasei:

$$s^2 = VARIANCE.S(X)$$
$$s^2 = \frac{\sum_{i=0}^{n}(x_i - \overline{x})^2}{n-1}$$

Dispersija (variance) ģenerālkopai:

$$\sigma^2 = VARIANCE.P(X)$$
$$\sigma^2 = \frac{\sum_{i=0}^{n}(x_i - \overline{x})^2}{N}$$

Standartnovirze (standartkļūda) izlasei:

$$s = STDEV.S(X)$$
$$s = \sqrt{s^2}$$

Standartnovirze (standartkļūda) ģenerālkopai:

$$s = STDEV.P(X)$$
$$\sigma = \sqrt{\sigma^2}$$

Standartizētā vērtība (Z-score):

$$Z = \frac{x - \overline{x}}{s}$$
$$Z = \frac{x - \overline{x}}{\sigma}$$

Asimetrijas koeficients:

Nobīde pa labi	Simetrija	Nobīde pa kreisi
Mediāna – X_{min} > X_{max}– Mediāna n	Mediāna – X_{min} ≈ X_{max} – Mediāna	Mediāna – X_{min} < X_{max} – Mediāna
Q_1 – X_{min} > X_{max} – Q_3	Q_1 – X_{min} ≈ X_{max} – Q_3	Q_1 – X_{min} < X_{max} – Q_3
Mediāna – Q_1 > Q_3 – Mediāna	Mediāna – Q_1 ≈ Q_3 – Mediāna	Mediāna – Q_1 < Q_3 – Mediāna

Kvartiles:

If we have an ordered dataset $x_1, x_2, ..., x_n$, we can interpolate between data points to find the p pth empirical quantile if x_i is in the $i/(n+1)$ quantile. If we denote the integer part of a number a by $\lfloor a \rfloor$, then the empirical quantile function is given by,

$$q(p/4) = x_k + \alpha(x_{k+1} - x_k)$$
$$k = \lfloor p(n+1)/4 \rfloor$$
$$\alpha = p(n+1)/4 - \lfloor p(n+1)/4 \rfloor$$

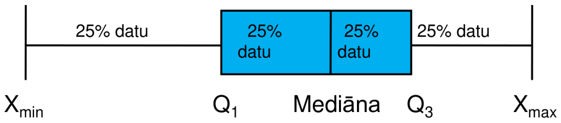
To find the first, second, and third quartiles of the dataset we would evaluate $q(0.25), q(0.5)q(0.5), andq(0.75)q(0.75)$ respectively.

Starpkvartiļu rangs (IQR):

$$IQR = Q_3 - Q_1$$

Kastes diagramma (Box plot)

Example:



Kovariācijas koeficients

$$cov(X,Y) = \frac{\sum_{i=0}^{n}(X_i - \overline{X})(Y_i - \overline{Y_i})}{n-1}$$