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Class: TIF K 22KB

UTS: Statistika

1. By referring to this following table

Age	Frequency	Total
20	5	100
21	7	147
22	13	286
23	4	92
24	6	144
25	7	175
26	7	182
27	5	135
28	3	84
29	4	116
30	15	450
31	3	93
33	3	99
35	1	35
Total	83	2138

a. State Mean, Median and Mode

Mean

number of data / lots of data
 $= 2138 / 83$
 $= 25,75903614$

Median

lots of data / 2 + 1
 $= 83 / 2$
 $= 42$
42nd data = 26
Median = 26

Mode

30

b. Make Distribution of Frequency table

Range	largest value - smallest value = 35 – 20 = 15
many classes	= $1 + 3.3 \log 83$ = 7
class length	range / number of classes = 15 / 7 = 2,142857143

Age	Frequency
20 - 21	12
22 - 23	17
24 - 25	13
26 - 27	12
28 - 29	7
30 - 31	18
33 - 35	4
Total	83

c. Calculate Variance

Variance						
Age	Frequency	xi	fi.xi	xi-x	(xi-x) ²	fi.(xi-x) ²
20 - 21	12	20,5	246	-5,259036145	27,65746117	331,8895
22 - 23	17	22,5	382,5	-3,259036145	10,62131659	180,5624
24 - 25	13	24,5	318,5	-1,259036145	1,585172013	20,60724
26 - 27	12	26,5	318	0,740963855	0,549027435	6,588329
28 - 29	7	28,5	199,5	2,740963855	7,512882857	52,59018
30 - 31	18	30,5	549	4,740963855	22,47673828	404,5813
33 - 35	4	34	136	8,240963855	67,91348527	271,6539
total	83		2149,5			1268,473

$$S^2 = \frac{\sum f_i(x_i - \bar{x})^2}{n} = 15,28280592$$

so the number of variants is 15,28280592

2. 10 Students that have difference of time study tested by IPS test Students : A B C D E F G H I J
Time (X) : 2 3 1 3 4 3 4 1 1 2 Score (Y) : 6 7 4 8 8 7 9 5 4 6 Is there correlation between time study and test score ?

data	x	y	x ²	y ²	xy
1	2	6	4	36	12
2	3	7	9	49	21
3	1	4	1	16	4
4	3	8	9	64	24
5	4	8	16	64	32
6	3	7	9	49	21
7	4	9	16	81	36
8	1	5	1	25	5
9	1	4	1	16	4
10	2	6	4	36	12
Total	24	64	70	436	171

$$r = \frac{n(\text{total } xy) - (\text{total } x)(\text{total } y)}{\sqrt{(n(\text{total } x^2) - (\text{total } x * \text{total } x))(n(\text{total } y^2) - (\text{total } y * \text{total } y))}}$$

$$r = 174 / 180,930926$$

$$r = 0,961692972$$

The very strong positive correlation (0.961692972) between study time and test scores indicates that more study time tends to increase test scores.