John Michael Guevarra BSIT – 2B

Quantitative Methods

Quiz #2 (Set C)

A recent sampling of 100 rats from vivarium revealed the following rat weights:

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 200 | 319 | 320 | 301 | 219 | 316 | 317 | 295 | 353 | 305 |
| 214 | 234 | 234 | 235 | 217 | 317 | 268 | 296 | 255 | 335 |
| 210 | 300 | 354 | 284 | 335 | 250 | 369 | 319 | 305 | 340 |
| 234 | 215 | 330 | 352 | 300 | 315 | 370 | 230 | 307 | 281 |
| 245 | 369 | 220 | 350 | 280 | 305 | 290 | 331 | 309 | 331 |
| 330 | 200 | 320 | 309 | 320 | 302 | 354 | 280 | 301 | 332 |
| 200 | 267 | 366 | 320 | 260 | 200 | 280 | 270 | 351 | 315 |
| 286 | 234 | 310 | 351 | 266 | 316 | 280 | 360 | 350 | 305 |
| 260 | 244 | 261 | 305 | 365 | 302 | 280 | 289 | 354 | 284 |
| 369 | 319 | 200 | 320 | 300 | 315 | 215 | 330 | 230 | 307 |

1. Construct a grouped frequency distribution for the given scores, use 200 – 215 as the first-class interval.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Class Interval | f | M | fM | F |  |  |  |
| 200 - 216 | 10 | 208 | 2080 | 10 | -33.19 | 11097.56 | 110975.6 |
| 217 - 233 | 8 | 225 | 1800 | 18 | -16.19 | 261.76 | 2094.08 |
| 234 - 250 | 10 | 242 | 2420 | 28 | 0.81 | 0.66 | 6.6 |
| 251 - 267 | 7 | 259 | 1813 | 35 | 17.81 | 317.76 | 2224.32 |
| 268 - 284 | 7 | 276 | 1932 | 42 | 34.81 | 1215.46 | 8511.22 |
| 285 - 301 | 12 | 293 | 3516 | 54 | 51.81 | 2684.06 | 32169.78 |
| 302 - 318 | 10 | 310 | 3100 | 64 | 68.81 | 4726.96 | 47269.61 |
| 319 - 335 | 12 | 327 | 3924 | 76 | 85.81 | 7374.46 | 88493.54 |
| 336 - 352 | 6 | 344 | 2064 | 82 | 102.81 | 10570.26 | 63421.57 |
| 353 - 369 | 8 | 361 | 2888 | 90 | 119.81 | 14355.56 | 114844.5 |

2. Compute the following:

a. Mean b. Median c. Mode

d. Variance e. Standard Deviation

Mean =

Median=

Mode=298.00

305 and 320 both appear 5 times, so the dataset is bimodal.

Variance

Standard Deviation

Mean:217.07

Median:301.5

Mode:305,320

Variance:18443.57

Standard Deviation: 135.79

3. Interpret the result in 2 in terms of mean and its standard deviation

The mean of the rat weights is approximately 217.07 grams, indicating the average weight of the sampled rats. The standard deviation is about 135.79 grams, which suggests that the weights vary significantly from the mean.

This high standard deviation relative to the mean implies that while many rats are around the average weight, there are also a considerable number of rats that weigh much less or much more. In practical terms, this indicates a diverse population in terms of weight, highlighting both lighter and heavier individuals within the sample.