

Formative Assessment 3

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2024-09-01

Find Q1, Q2, Q3, D9, and P95 and other measures for the following sample of test scores: (See expected table of descriptive measures below.)

88 45 53 86 33 86 85 30 89 53 41 96 56 38 62 71 51 86 68 29 28 47 33 37 25 36 33 94 73 46 42 34 79 72 88 99 82 62 57 42 28 55 67 62 60 96 61 57 75 93 34 75 53 32 28 73 51 69 91 35

Descriptive Statistics

```
library(e1071)
library(knitr)
library(kableExtra)

score<-c(88,45,53,86,33,86,85,30,89,53,41,96,56,38,62,71,51,86,68,29,28,47,33,37,25,36,33,94,73,46,42,34,79,72,88,99,82,62,57,42,28,55,67,62,60,96,61,57,75,93,34,75,53,32,28,73,51,69,91,35)

mean_score <- mean(score)
median_score <- median(score)
mode_score <- as.numeric(names(sort(-table(score)))[1])
std_dev <- sd(score)
variance <- var(score)
skewness_val <- skewness(score)
kurtosis_val <- kurtosis(score) - 3
min_score <- min(score)
max_score <- max(score)
percentiles <- quantile(score, probs = c(0.25, 0.50, 0.75, 0.90, 0.95))

stats_table <- data.frame(
  Statistic = c("Valid", "Mode", "Median", "Mean", "Std. Deviation", "Variance",
               "Skewness", "Std. Error of Skewness", "Kurtosis", "Std. Error of Kurtosis",
               "Minimum", "Maximum", "25th percentile", "50th percentile",
               "75th percentile", "90th percentile", "95th percentile"),
  Score = c(length(score), mode_score, median_score, mean_score, std_dev, variance,
            skewness_val, 0.309, kurtosis_val, 0.608,
            min_score, max_score,
            percentiles[1], percentiles[2], percentiles[3], percentiles[4], percentiles[5])
)

kable(stats_table, col.names = c(" ", "Score"), align = c("l","r"), digits = 3, format = "html", caption ="Descriptive Statistics" )%>%
  kable_styling(full_width = F, position = "center",bootstrap_options = c("condensed")) %>%
  row_spec(0, align= "center", extra_css = "border-top: 2px solid black")%>%
  row_spec(1, extra_css = "border-top: 2px solid black") %>%
  row_spec(17, extra_css = "border-bottom: 2px solid black") %>%
  row_spec(2, background = "#f0f0f0") %>%
  row_spec(4, background = "#f0f0f0") %>%
  row_spec(6, background = "#f0f0f0") %>%
  row_spec(8, background = "#f0f0f0") %>%
  row_spec(10, background = "#f0f0f0") %>%
  row_spec(12, background = "#f0f0f0") %>%
  row_spec(14, background = "#f0f0f0") %>%
  row_spec(16, background = "#f0f0f0") %>%
  footnote(alphabet = "More than one mode exists, only the first is reported")
```

Descriptive Statistics	
	Score
Valid	60.000
Mode	28.000
Median	57.000
Mean	59.167
Std. Deviation	22.211
Variance	493.328
Skewness	0.159
Std. Error of Skewness	0.309
Kurtosis	-4.299
Std. Error of Kurtosis	0.608
Minimum	25.000
Maximum	99.000
25th percentile	37.750
50th percentile	57.000
75th percentile	76.000
90th percentile	89.200
95th percentile	94.100

^a More than one mode exists, only the first is reported