Kelompok 1

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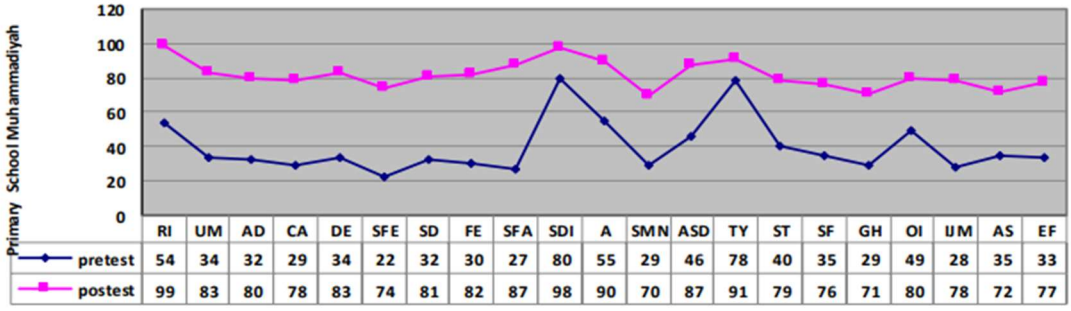
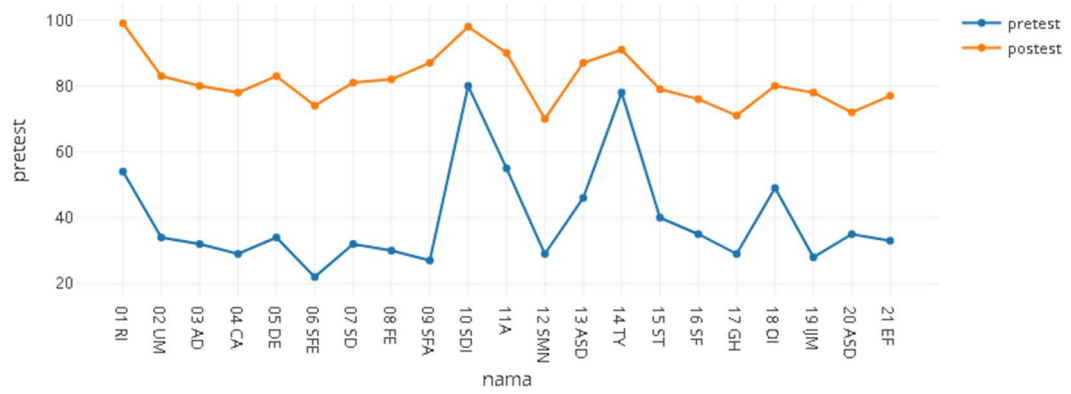
Analisis Artikel Bulkani dkk dengan judul *"Development of Animation Learning Media Based on Local Wisdom to Improve Student Learning Outcomes in Elementary Schools"*.

1. Visualisasi Data
   a. Visualisasi pada artikel



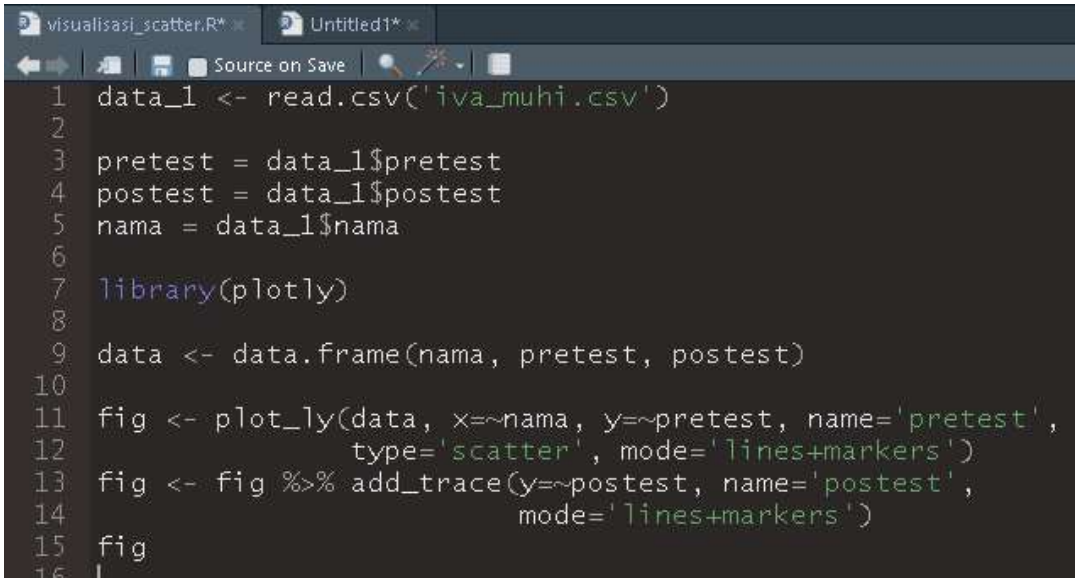
	RI	UM	AD	CA	DE	SFE	SD	FE	SFA	SDI	A	SMN	ASD	TY	ST	SF	GH	OI	UM	AS	EF
pretest	54	34	32	29	34	22	32	30	27	80	55	29	46	78	40	35	29	49	28	35	33
postest	99	83	80	78	83	74	81	82	87	98	90	70	87	91	79	76	71	80	78	72	77

   b. Visualisasi dari program R



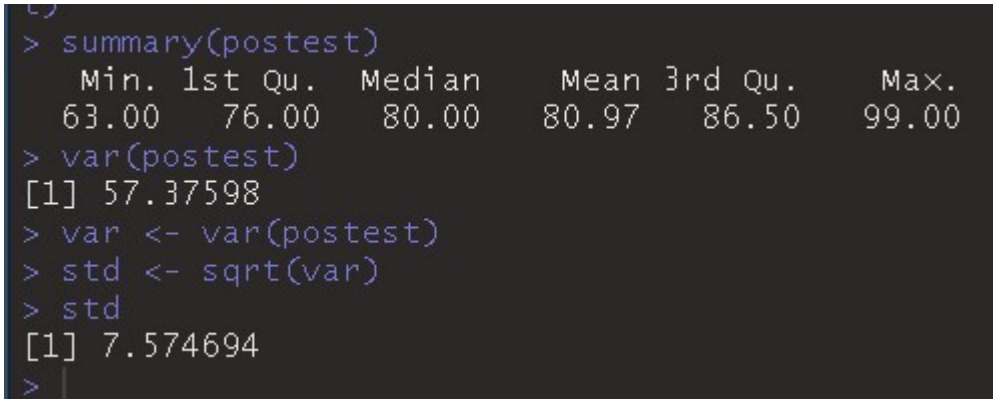
Makna dari visualisasi ini adalah bahwa selalu ada peningkatan nilai siswa dari pretest ke post-test.

c. Kode Program

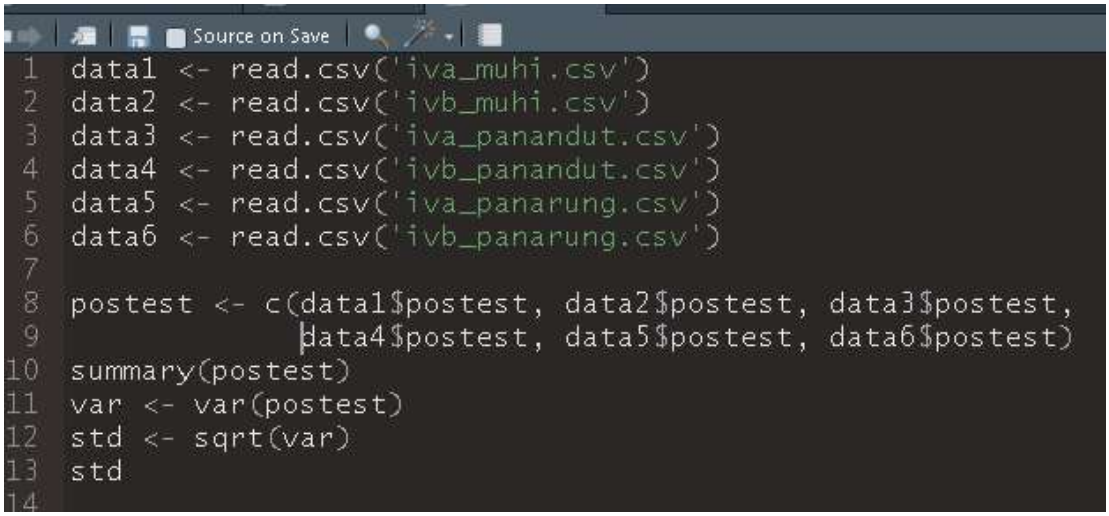


2. Statistik Deskriptif

a. Hasil Statistik Deskriptif



b. Kode Program



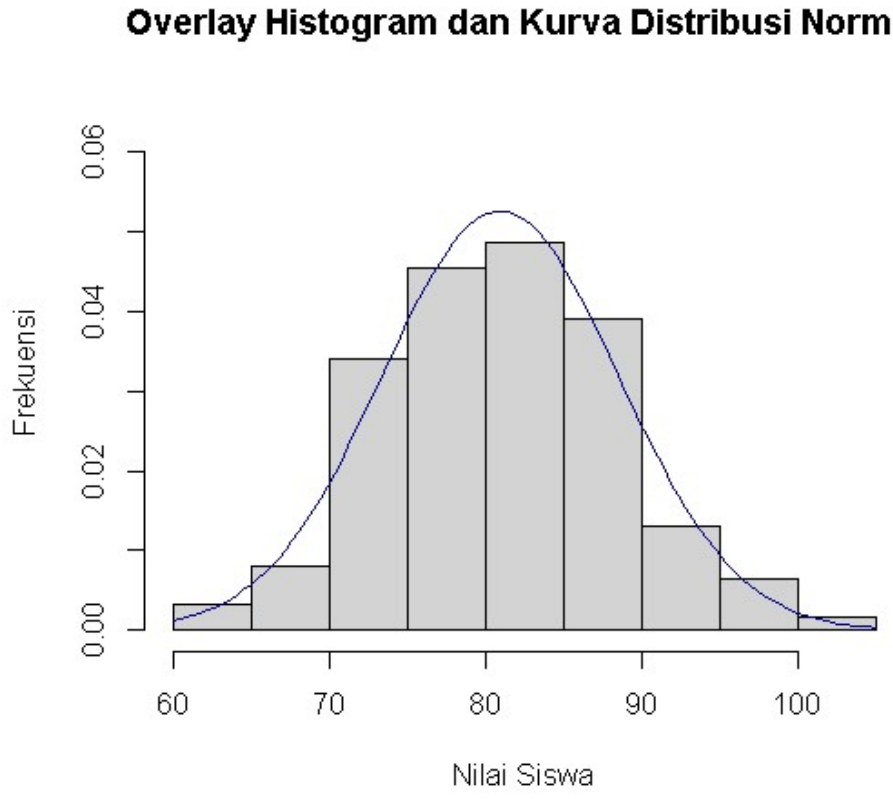
3. Uji Normalitas
   a. Hasil Uji Normalitas

```
> shapiro.test(postest)

        Shapiro-Wilk normality test

data:  postest
W = 0.97506, p-value = 0.02219
```

Dari *output* diatas dapat dilihat bahwa nilai $\mathrm{p-value} = 0.02219$, nilai $\mathrm{p-value} < 0.05$, sehingga dapat disimpulkan bahwa data tidak berdistribusi normal.

P-value atau nilai probabilitas adalah angka yang menjelaskan seberapa besar kemungkinan data kita terjadi secara kebetulan, dengan asumsi hipotesis nol benar. Tingkat signifikansi statistik sering dinyatakan sebagai nilai-p antara 0 dan 1. Semakin kecil nilai p, maka semakin kuat bukti bahwa kita harus menolak hipotesis nol.

   b. Histogram



c. Kode Program

```
library(moments)
library(nortest)

data1 <- read.csv('iva_muhi.csv')
data2 <- read.csv('ivb_muhi.csv')
data3 <- read.csv('iva_panandut.csv')
data4 <- read.csv('ivb_panandut.csv')
data5 <- read.csv('iva_panarung.csv')
data6 <- read.csv('ivb_panarung.csv')

pretest <- c(data1$pretest, data2$pretest, data3$pretest,
             data4$pretest, data5$pretest, data6$pretest)
postest <- c(data1$postest, data2$postest, data3$postest,
             data4$postest, data5$postest, data6$postest)

shapiro.test(postest)

n <- length(postest)
mu <- mean(postest)
var <- var(postest)
std <- sqrt(var)
data <- rnorm(n, mu, std)
hist(data, xlab='X', ylab='Frekuensi', main='Histogram Nilai Post-Test')

hist(data, prob=TRUE, xlab="Nilai Siswa", ylab="Frekuensi",
     ylim=c(0, 0.065), main="Overlay Histogram dan Kurva Distribusi Normal")

curve(dnorm(x, mean=mu, sd=std), col="darkblue", lwd=1, add=TRUE)
```

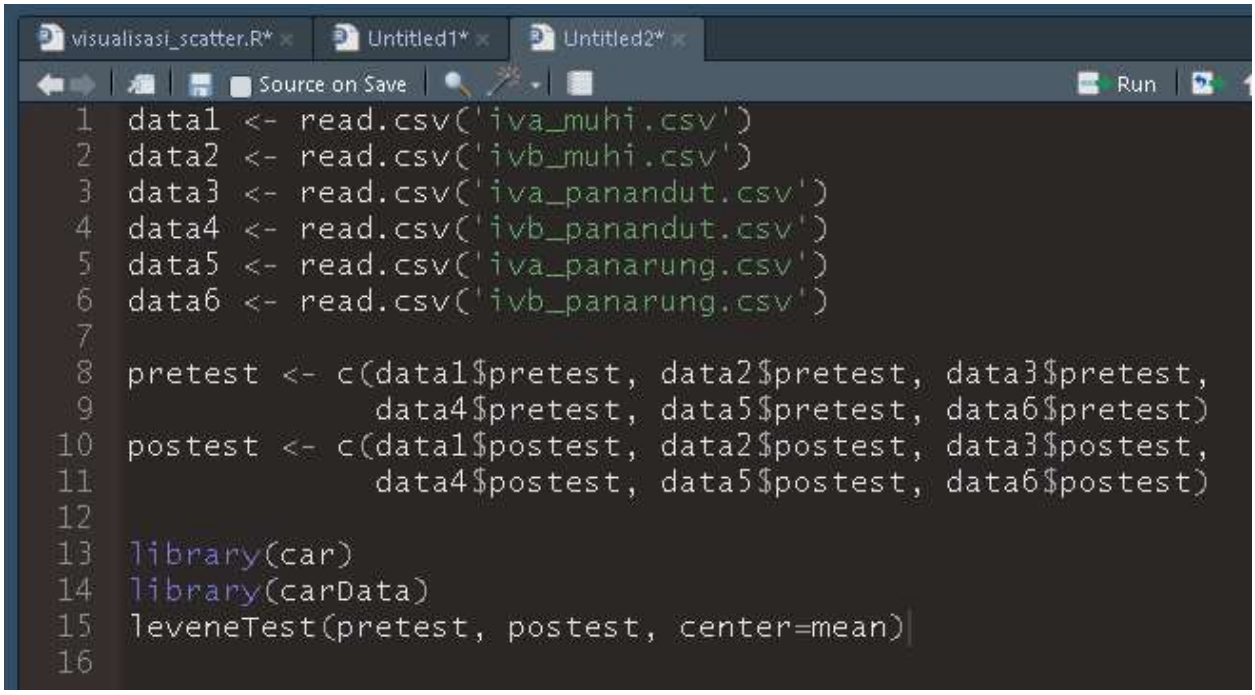
4. Uji Homogenitas

a. Hasil Uji Homogenitas

```
> leveneTest(pretest, postest, center=mean)
Levene's Test for Homogeneity of Variance (center = mean)
      Df F value  Pr(>F)
group 26  1.4819 0.08732 .
      96
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
```

Dari *output* diatas dapat dilihat bahwa nilai Pr $= 0.08732 > 0.05$ yang berarti data homogen.

b. Kode Program



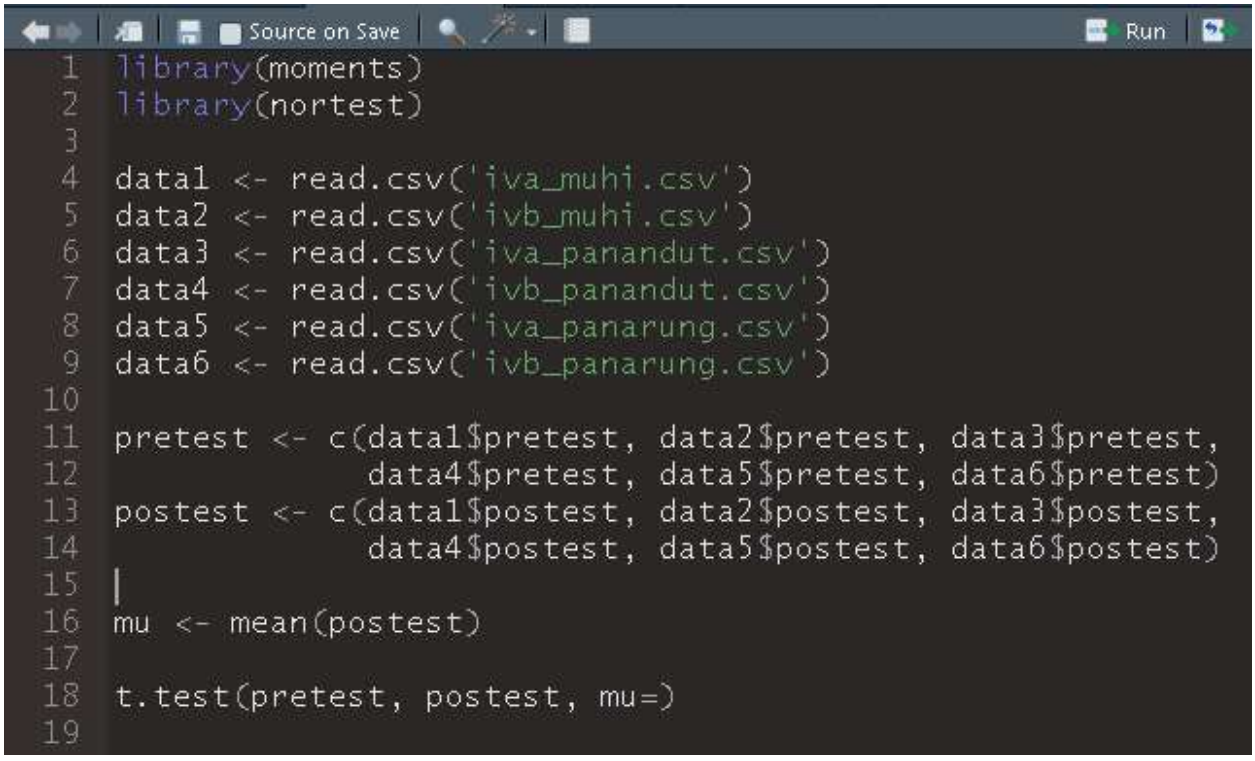
5. Uji T-Test

a. Hasil Uji T-Test

```
> t.test(pretest, postest, mu=mu)

        Welch Two Sample t-test

data:  pretest and postest
t = -68.658, df = 176.77, p-value < 2.2e-16
alternative hypothesis: true difference in means is not equal to 80.96748
95 percent confidence interval:
 -29.22519 -23.06750
sample estimates:
mean of x mean of y
 54.82114  80.96748
```

Dari *output* diatas dapat disimpulkan bahwa terjadi peningkatan nilai dari pretest ke post-test.

b. Kode Program



```
Source on Save                                                    Run
 1  library(moments)
 2  library(nortest)
 3
 4  data1 <- read.csv('iva_muhi.csv')
 5  data2 <- read.csv('ivb_muhi.csv')
 6  data3 <- read.csv('iva_panandut.csv')
 7  data4 <- read.csv('ivb_panandut.csv')
 8  data5 <- read.csv('iva_panarung.csv')
 9  data6 <- read.csv('ivb_panarung.csv')
10
11  pretest <- c(data1$pretest, data2$pretest, data3$pretest,
12               data4$pretest, data5$pretest, data6$pretest)
13  postest <- c(data1$postest, data2$postest, data3$postest,
14               data4$postest, data5$postest, data6$postest)
15
16  mu <- mean(postest)
17
18  t.test(pretest, postest, mu=)
19
```