

Mencari Ukuran Pusat dengan R

- Ukuran pusat dapat ditentukan dengan mencari rata-rata, median atau modusnya. Dalam R dapat digunakan fungsi-fungsi berikut. Mencari trimmed point dengan fungsi trim

```
> x<-c(7.5, 8.2, 3.1, 5.6, 8.2, 9.3, 6.5, 7, 9.3, 1.2, 14.5, 6.2)
> mean(x)
[1] 7.216667
> var(x)
[1] 11.00879
> summary(x)
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
 1.200   6.050   7.250   7.217   8.475  14.500
> x[1:6]
[1] 7.5 8.2 3.1 5.6 8.2 9.3
> x[7:12]
[1] 6.5 7.0 9.3 1.2 14.5 6.2
> summary(x[1:6])
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
 3.100   6.075   7.850   6.983   8.200   9.300
> summary(x[7:12])
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
 1.200   6.275   6.750   7.450   8.725  14.500
> x[c(2,4,9)]
[1] 8.2 5.6 9.3
> x[-(1:6)]
[1] 6.5 7.0 9.3 1.2 14.5 6.2
> median(x)
[1] 7.25
> dataset<-c(x)
> dataset
[1] 7.5 8.2 3.1 5.6 8.2 9.3 6.5 7.0 9.3 1.2 14.5 6.2
> mean(x=dataset,trim=0.1)
[1] 7.09
> mean(x=dataset,trim=0.2)
[1] 7.3125
> mean(x=dataset,trim=0.5)
[1] 7.25
```

- Membuat tabel frekuensi dari suatu data dengan fungsi `table`

```
> table(dataset)
dataset
 1.2 3.1 5.6 6.2 6.5  7 7.5 8.2 9.3 14.5
 1   1   1   1   1   1  1   2   2   1
```

Mencari Ukuran Penyimpangan dengan R

- Menghitung nilai maksimal dan minimal dengan `max`, `min` atau jangkauan dengan `range`

```
> max(dataset)
[1] 14.5
> max(x)
[1] 14.5
> min(dataset)
[1] 1.2
> range(x)
[1] 1.2 14.5
> range(dataset)
[1] 1.2 14.5
```

- Menghitung kuartil dengan fungsi `quantile`

```
> quantile(x, probs=0.5)
50%
7.25
> quantile(x, probs=0.25)
25%
6.05
> quantile(x, probs=0.75)
75%
8.475

> quantile(x, probs=c(0.25, 0.5, 0.75))
25% 50% 75%
6.050 7.250 8.475

> IQR(x)
[1] 2.425
```

- Menghitung variansi dan standar deviasi dengan fungsi `var` dan `sd`

```
> var(x)
[1] 11.00879

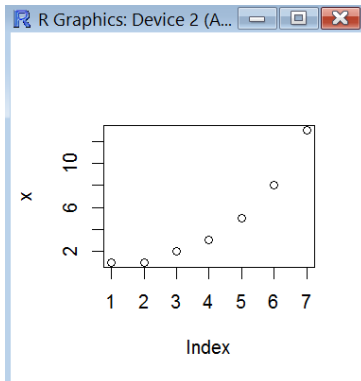
> sd(x)
[1] 3.317949

> mad(x)
[1] 2.00151
```

Membuat Visualisasi Data

- Contoh membuat plot sederhana dengan fungsi `plot()`

```
> x
[1] 1 1 2 3 5 8 13
> plot(x)
```



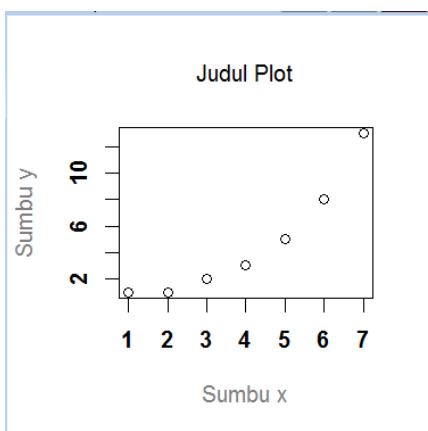
Menambahkan keterangan pada plot

```
> plot(x,
+ main="Judul Plot",
+ xlab="Sumbu x",
+ ylab="Sumbu y",
+ font.main=1,
+ cex.main=1,
+ font.axis=2,
+ col.lab="gray50"
+ )
```

plain text for the title

normal size for title

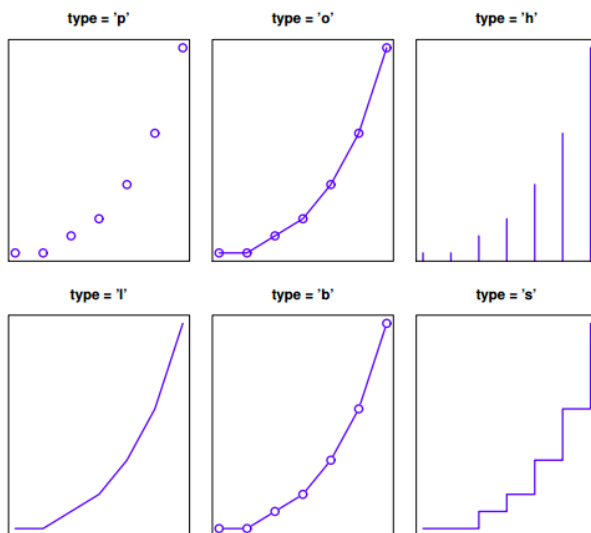
bold text for numbering



Merubah tipe plot

- `type = "p"`. Draw the **p**oints only.
- `type = "l"`. Draw a **l**ine through the points.
- `type = "o"`. Draw the line **o**ver the top of the points.
- `type = "b"`. Draw **b**oth points and lines, but don't overplot.
- `type = "h"`. Draw "histogram-like" vertical bars.
- `type = "s"`. Draw a staircase, going horizontally then vertically.
- `type = "S"`. Draw a Staircase, going vertically then horizontally.
- `type = "c"`. Draw only the **c**onnecting lines from the "b" version.
- `type = "n"`. Draw nothing. (Apparently this is useful sometimes?)

Contoh seperti gambar di bawah ini



Colour of the plot: `col`

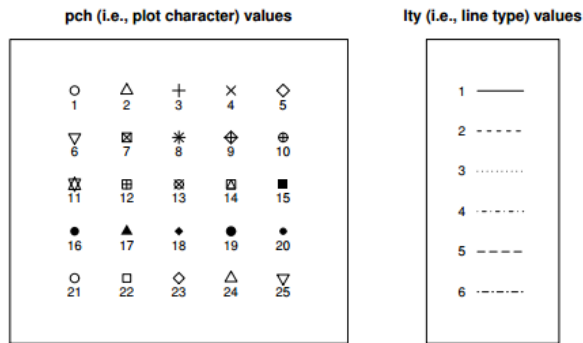
Character used to plot points: `pch`

Plot size: `cex`

Line type: `lty`

Line width: `lwd`

Modul 2



Membuat Grafik

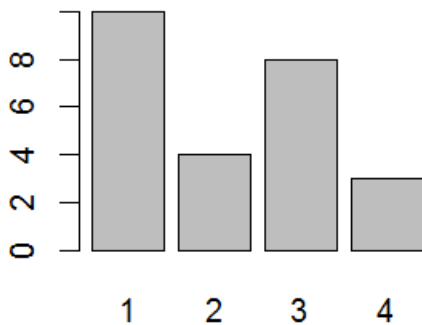
Misal ada 25 mhs yang menyukai olahraga 1) sepakbola, 2) bola voli, 3) basket, 4) lainnya (data dari Anom Yudistira) dengan data sebagai berikut: 3 4 1 1 3 4 3 3 1 3 2 1 2 1 2 3 2 3 1 1 1 1 4 3 1

Masukan data dengan menggunakan fungsi `scan()`

```
> data<-scan()  
1: 3 4 1 1 3 4 3 3 1 3 2 1 2 1 2 3 2 3 1 1 1 1 4 3 1  
26:  
Read 25 items
```

- Diagram batang dengan `barplot()`

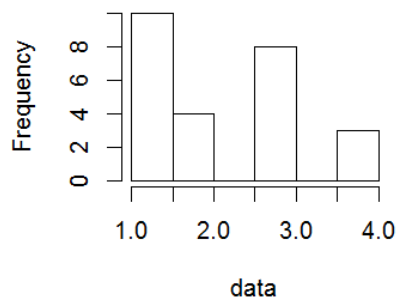
```
> barplot(table(data))
```



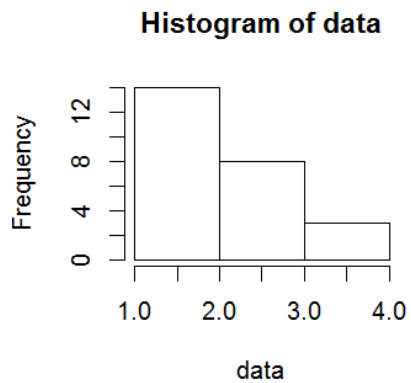
- Histogram dengan fungsi `hist()`

```
> hist(data)
```

Histogram of data



```
> hist(data,breaks=3)
```



- Diagram batang daun dengan `stem()`

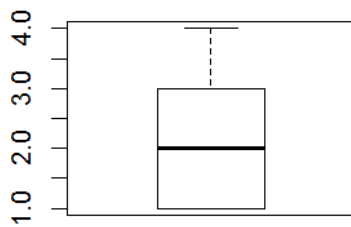
```
> stem(data)
```

The decimal point is at the |

```
1 | 0000000000
2 | 0000
3 | 00000000
4 | 000
```

- Membuat boxplot dengan fungsi `boxplot()`

```
> boxplot(data)
```



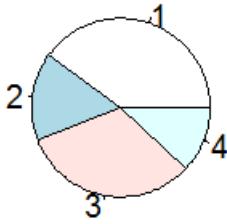
- Mendeteksi outlier

```
> outlier<-data>3
> which(outlier)
[1] 2 6 23
```

- Membuat diagram pie dengan `pie()`

```
> pie(table(data))
```

Modul 2



Referensi:

1. Learning statistics with R:
A tutorial for psychology students and other beginners
(e-Book), Daniel Navarro, University of Adelaide
2. Pengenalan Bahasa R untuk Analisis Data dan Grafik
I.G.A Anom Yudistira (Modul Pembelajaran)