

# Distribusi peluang

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## Pendahuluan

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Distribusi peluang merupakan fungsi statistik yang digunakan untuk mendeskripsikan seluruh kemungkinan nilai dari suatu variabel acak.

Distribusi peluang bergantung pada:

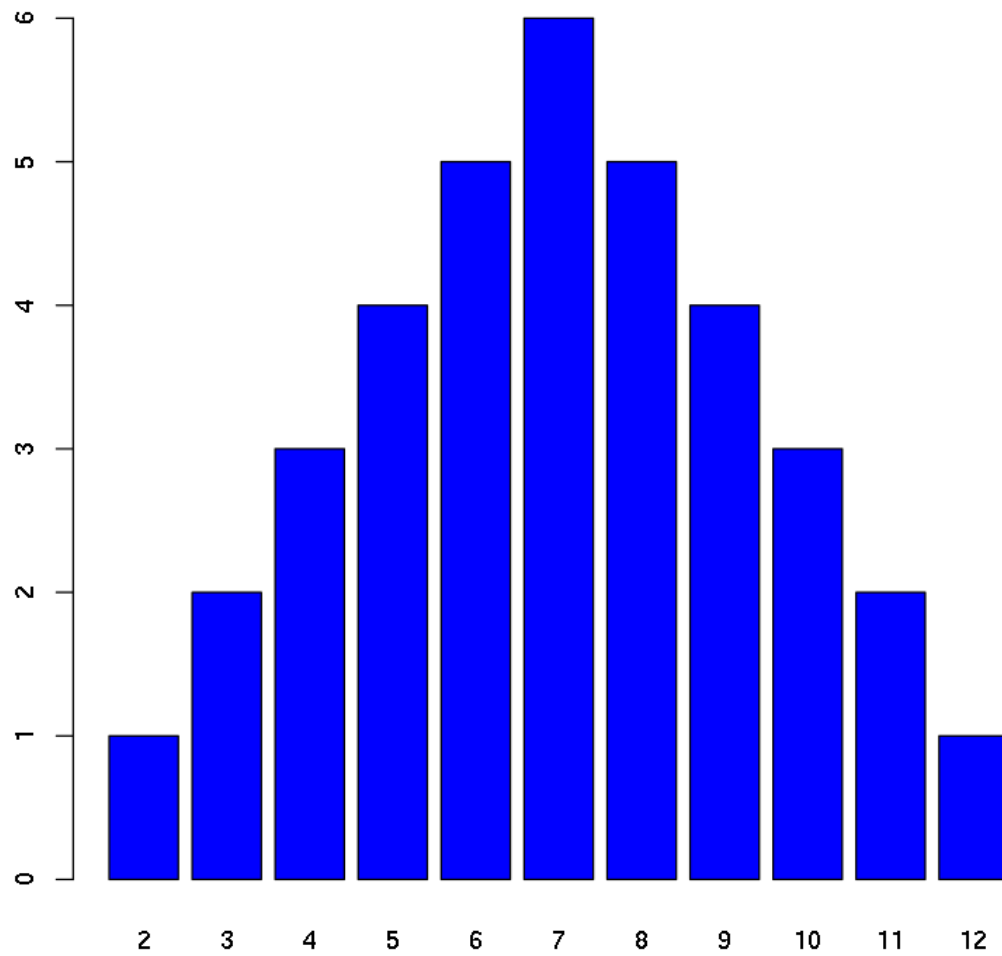
- Rata - rata
- Standar deviasi
- Kemencengan

Jenis - jenis:

- Distribusi normal
- Distribusi seragam
- Distribusi chi-kuadrat
- Distribusi binomial
- Distribusi Poisson

```
# Contoh pelemparan dua buah dadu
```

```
totaldadu <- c(2,3,4,5,6,7,8,9,10,11,12)
posibilitas <- c(1,2,3,4,5,6,5,4,3,2,1)
barplot(posibilitas,
        col='blue',
        names.arg=totaldadu)
```



```
# distribusi acak seragam (0-1)  
runif(5)
```

```
1. 0.123731347266585  
2. 0.60765249398537  
3. 0.533600943861529  
4. 0.681078718043864  
5. 0.986109193181619
```

```
runif(5,1,6) # (1-6)
```

```
1. 4.62048985203728  
2. 3.29562402702868  
3. 1.28878939570859  
4. 2.99522116803564  
5. 1.37944304407574
```

```
as.integer(runif(5,1,6)) # simulasi lempar dadu 5x
```

```
1. 1  
2. 1  
3. 1  
4. 1  
5. 4
```

## Distribusi seragam

---

Distribusi seragam adalah distribusi peluang dengan peluang kemunculan nilai yang sama di antara setiap kemungkinannya. Contoh:

- Pelemparan koin.
- Kartu di dalam dek.

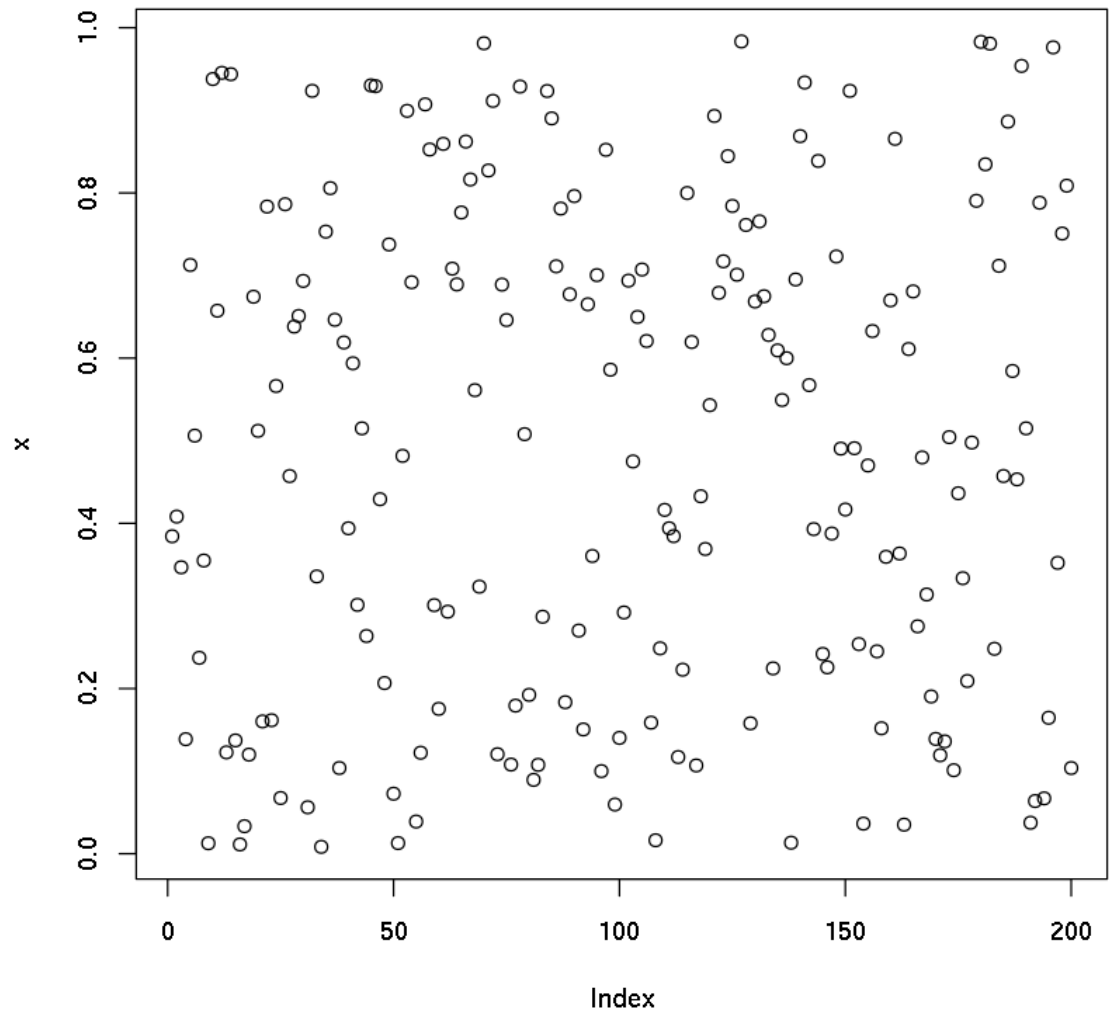
Terdapat dua jenis distribusi seragam:

- Diskrit
- Kontinyu

```
runif(10)
```

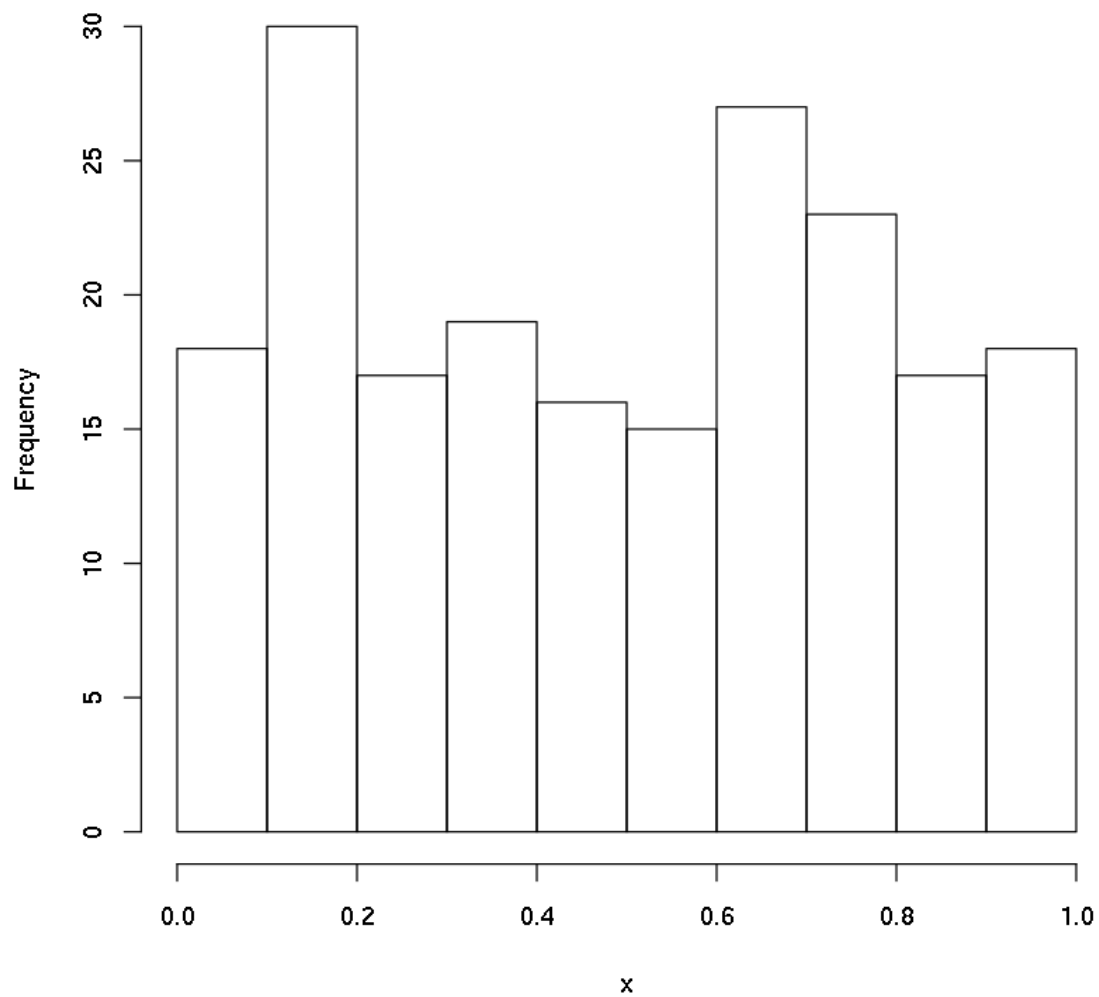
```
1. 0.569517947733402  
2. 0.27695785346441  
3. 0.0101017325650901  
4. 0.216280498541892  
5. 0.926169243408367  
6. 0.289980907225981  
7. 0.590355885447934  
8. 0.356919593410566  
9. 0.0631376963574439  
10. 0.385881984839216
```

```
x <- runif(200)  
plot(x)
```



```
hist(x)
```

Histogram of x



```
h <- hist(x,plot=F)
h
```

```
$breaks
[1] 0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0

$counts
[1] 18 30 17 19 16 15 27 23 17 18

$density
[1] 0.90 1.50 0.85 0.95 0.80 0.75 1.35 1.15 0.85 0.90

$mids
[1] 0.05 0.15 0.25 0.35 0.45 0.55 0.65 0.75 0.85 0.95

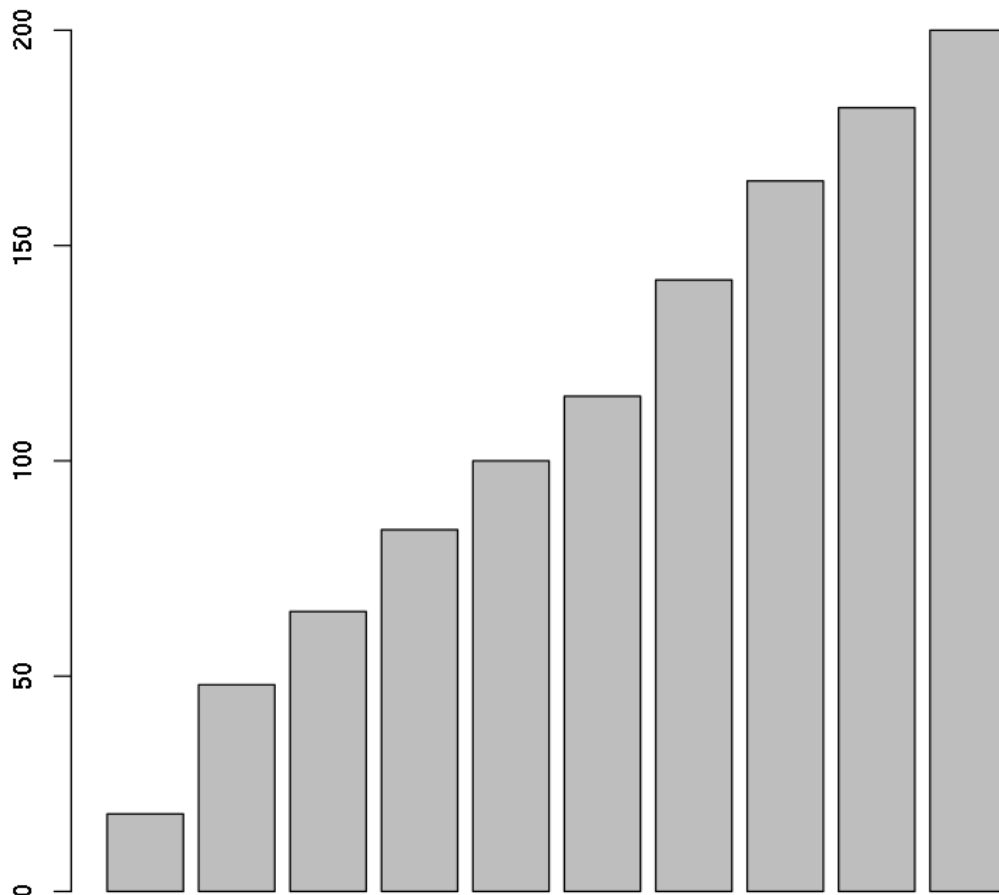
$xname
[1] "x"

$equidist
[1] TRUE
```

```
attr("class")  
[1] "histogram"
```

```
hcum <- cumsum(h$counts)
```

```
barplot(hcum) # distribusi kumulatif
```



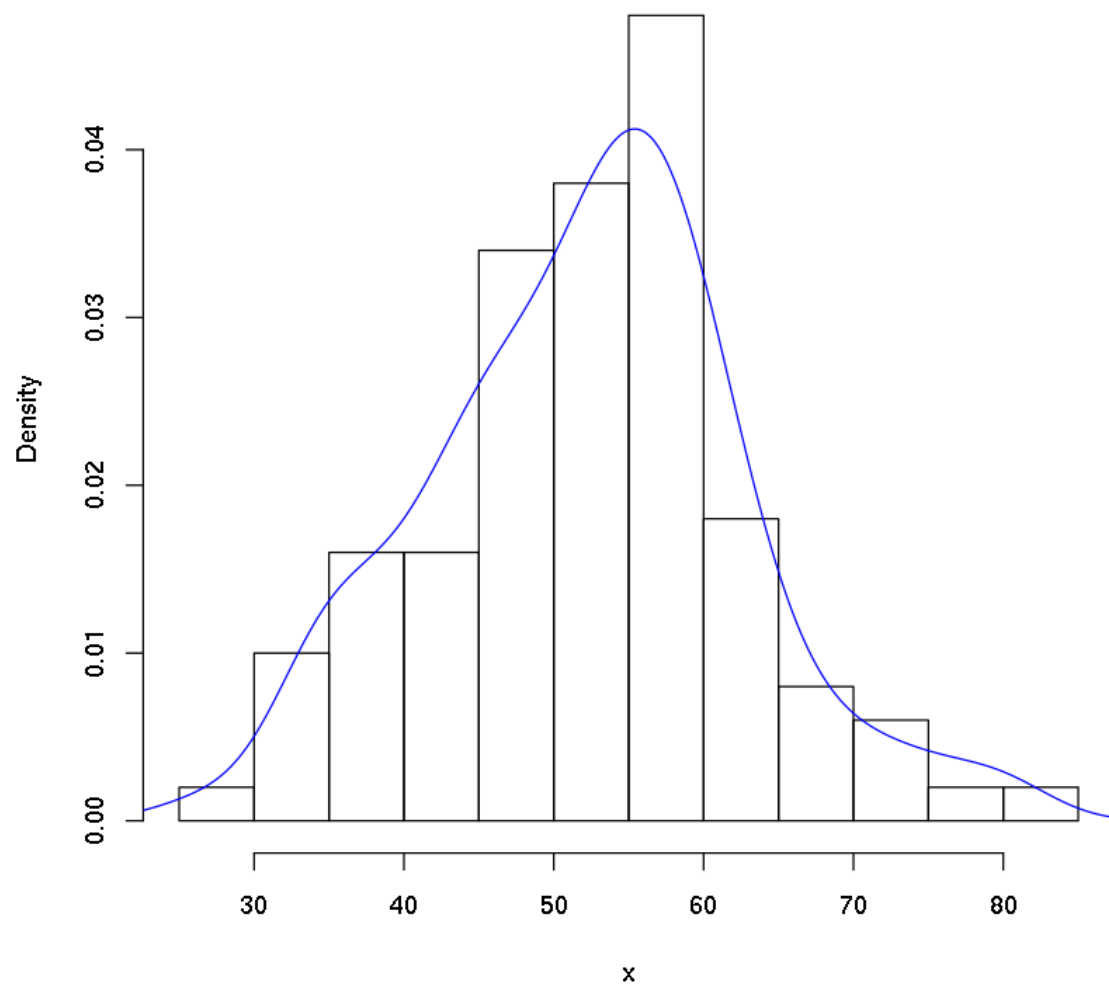
## Distribusi normal

Merupakan distribusi peluang yang simetris terhadap rata - ratanya.

```
x <- rnorm(100, 50, 10) # 100 bilangan acak dlm distribusi normal (rata2 = 50,  
sd = 10)
```

```
hist(x, probability = T)  
lines(density(x), col='blue')
```

Histogram of x



`mean(x)`

52.2726391744786

`sd(x)`

10.3870913897489