

# Praktikum Komstat W5

Harvest Walukow

2025-03-14

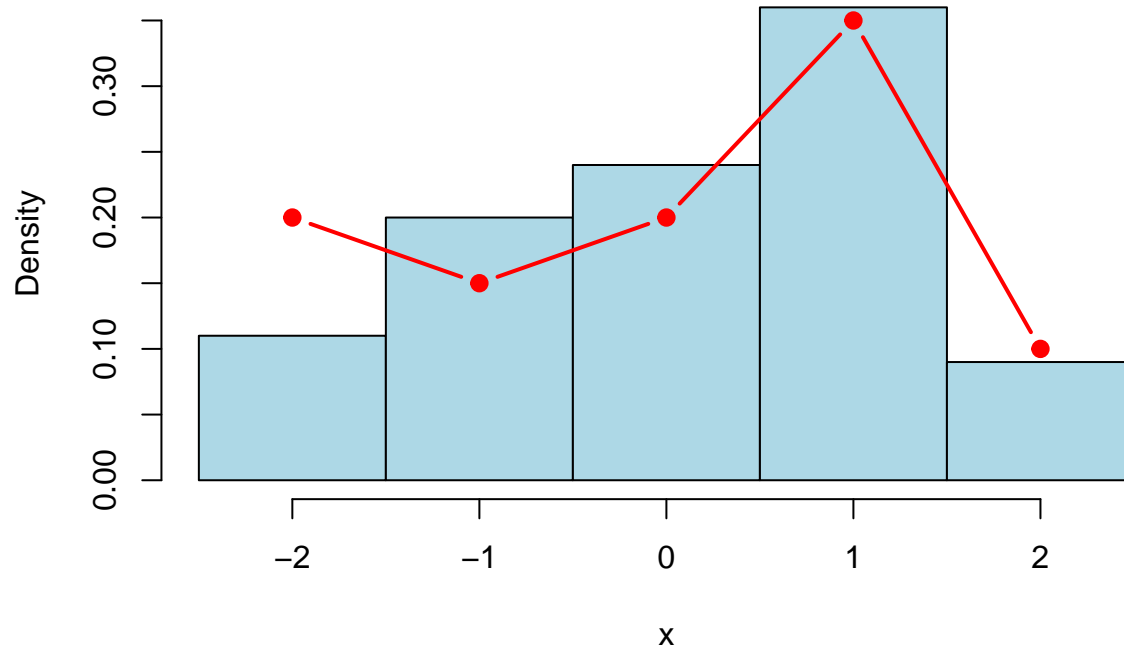
## 1. ITM untuk Variabel Acak Diskrit

```
pmf <- c(0.2, 0.15, 0.2, 0.35, 0.1)
x_values <- c(-2, -1, 0, 1, 2)
cdf <- cumsum(pmf)

simulate_discrete <- function(n) {
  u <- runif(n)
  x_sim <- sapply(u, function(ui) x_values[min(which(cdf >= ui))])
  return(x_sim)
}

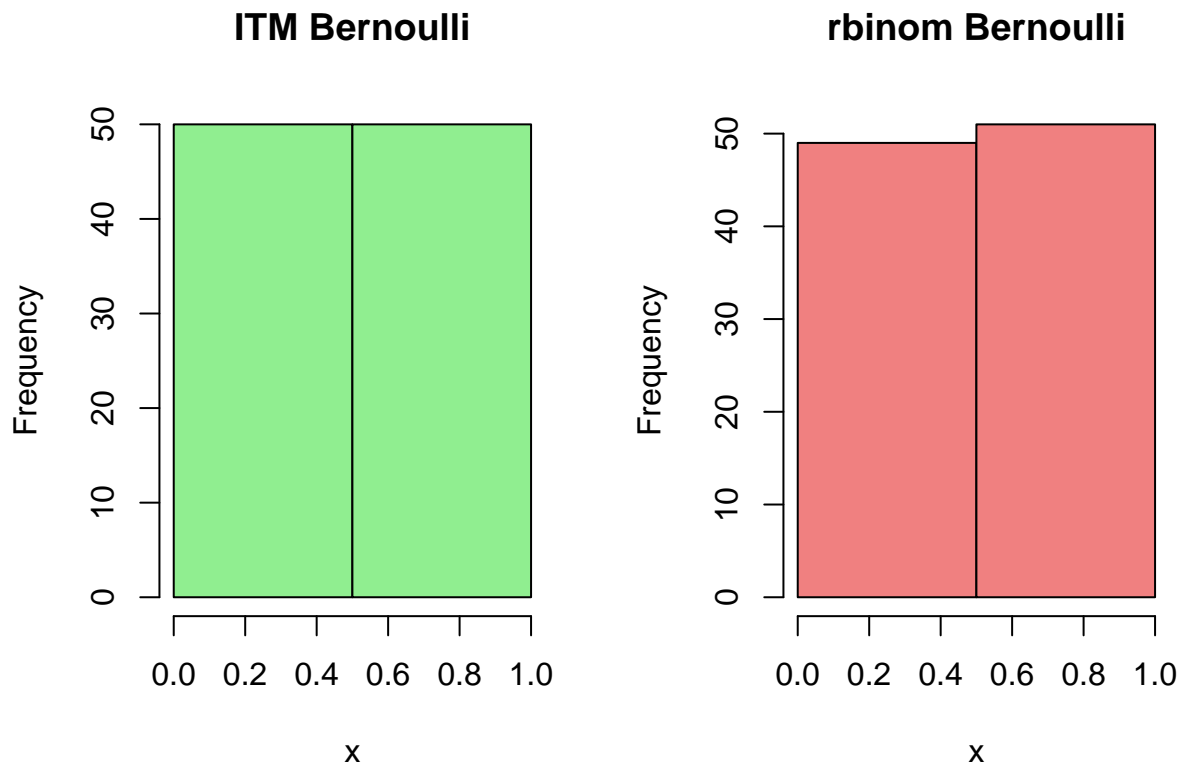
sim_data <- simulate_discrete(100)
hist_data <- hist(sim_data, breaks=seq(-2.5,2.5,1), main="Histogram - Distribusi Diskrit", col="lightblue")
points(x_values, pmf, col="red", type="b", pch=19, lwd=2) # bandingkan dgn pmf
```

## Histogram – Distribusi Diskrit



## 2. Distribusi Bernoulli

```
simulate_bernoulli <- function(n, p) {  
  u <- runif(n)  
  return(ifelse(u < p, 1, 0))  
}  
  
bernoulli_data <- simulate_bernoulli(100, 0.5)  
bernoulli_rbinom <- rbinom(100, 1, 0.5)  
  
par(mfrow=c(1,2))  
hist(bernoulli_data, main="ITM Bernoulli", col="lightgreen", xlab="x", breaks=2)  
hist(bernoulli_rbinom, main="rbinom Bernoulli", col="lightcoral", xlab="x", breaks=2)
```



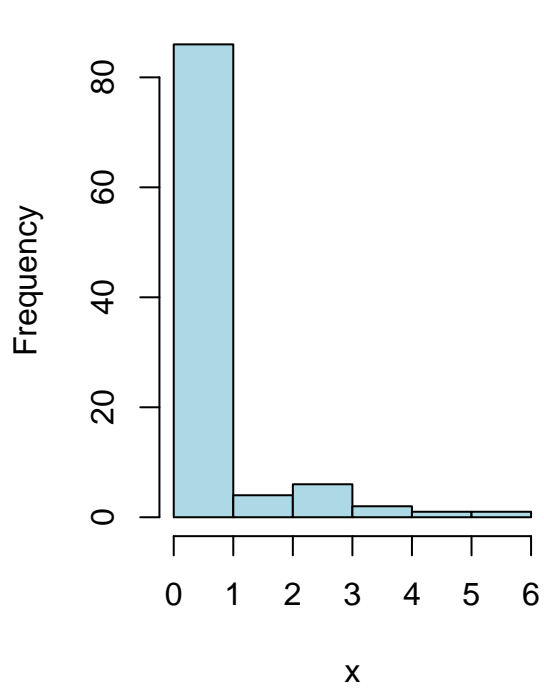
### 3. Distribusi Geometrik

```
simulate_geometric <- function(n, p) {
  u <- runif(n)
  return(ceiling(log(1 - u) / log(1 - p)) - 1)
}

geom_data <- simulate_geometric(100, 0.6)
geom_rgeom <- rgeom(100, 0.6)

par(mfrow=c(1,2))
hist(geom_data, main="ITM Geometrik", col="lightblue", xlab="x")
hist(geom_rgeom, main="rgeom Geometrik", col="lightpink", xlab="x")
```

**ITM Geometrik**



**rgeom Geometrik**

