Unit 5

Team 8

April 25, 2018

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```
# Libraries
library(fitdistrplus)

# Create frequency table
frequency_table <- data.frame(value=c(0, 1, 2, 3, 4, 5, 6),
                  freq=c(65623, 12571, 1644, 148, 13, 1, 0))

# Create sample vector from frequency table
sample_vector <- rep(frequency_table$value,
                     frequency_table$freq)

# Fit a Poisson distribution to sample data
fitp <- fitdist(sample_vector ,"pois")
summary(fitp)

## Fitting of the distribution ' pois ' by maximum likelihood
## Parameters :
##        estimate  Std. Error
## lambda   0.2045 0.001598789
## Loglikelihood:  -43777.2   AIC:  87556.4   BIC:  87565.69

# Fit a negative binomial distribution to sample data
fitnb <- fitdist(sample_vector ,"nbinom")
summary(fitnb)
```

```
## Fitting of the distribution ' nbinom ' by maximum likelihood
## Parameters :
##       estimate  Std. Error
## size 3.2654415 0.317256623
## mu   0.2044985 0.001648077
## Loglikelihood:  -43709.31   AIC:  87422.62   BIC:  87441.2
## Correlation matrix:
##              size           mu
## size 1.000000e+00 5.760708e-06
## mu   5.760708e-06 1.000000e+00
```

We can say that negative binomial distribution **fits data slightly better** since it has slightly smaller values of AIC and BIC: AIC: **87422.62** BIC: **87441.2** (nbinom) VS AIC: 87556.4 BIC: 87565.69 (pois)