AC_Nov_15_1

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```r
library(pracma)
```

Question:

Fit a Poisson distribution to each of these social classes and then comment on the goodness of fit.

Answer:

```r
a = c(0, 1, 2, 3, 4, 5)
data = data.frame("age_0" = c(13, 98, 33, 25, 87, 42), "age_1" = c(31, 217, 69, 50, 184, 90), "age_2" =
data
```

```
##   age_0 age_1 age_2 age_3 age_4 age_5.
## 1    13    31    40    31    18    22
## 2    98   217   179   124    61    54
## 3    33    69    68    36    24    14
## 4    25    50    43    25     7     9
## 5    87   184   106    38    22    21
## 6    42    90    30    12     4     4
```

Class-Lumpen-proletariat (class_1):

```r
#class-Lumpen-proletariat(class_1)
avg1 = dot(a, as.numeric(data[1, ]))/sum(as.numeric(data[1, ]))
prob1 = dpois(a, avg1)
exp_freq1 = dpois(a, avg1) * sum(as.numeric(data[1, ]))
gfit1 = ((data[, 1] - exp_freq1)^2)/(exp_freq1)
tab1 = data.frame(x = c("0", "1", "2", "3", "4", "5+"), "Probability" = prob1, "Obs_freq" = data[, 1],
format.data.frame(tab1, digits = 3)
```

```
##     x Probability Obs_freq Exp_freq     gfit
## 1   0      0.0829       13     12.8 1.82e-03
## 2   1      0.2064       98     32.0 1.36e+02
## 3   2      0.2570       33     39.8 1.17e+00
## 4   3      0.2133       25     33.1 1.97e+00
## 5   4      0.1328       87     20.6 2.14e+02
## 6  5+      0.0662       42     10.3 9.83e+01
```

Woking class (class_2):

```
#class-Lumpen-proletariat(class_1)
avg2 = dot(a, as.numeric(data[2, ]))/sum(as.numeric(data[2, ]))
prob2 = dpois(a, avg2)
exp_freq2 = dpois(a, avg2) * sum(as.numeric(data[2, ]))
gfit2 = ((data[, 2] - exp_freq2)^2)/(exp_freq2)
tab2 = data.frame(x = c("0", "1", "2", "3", "4", "5+"), "Probability" = prob2, "Obs_freq" = data[, 2],
format.data.frame(tab2, digits = 3)
```

```
##     x Probability Obs_freq Exp_freq   gfit
## 1   0      0.1363       31     99.9  47.50
## 2   1      0.2716      217    199.1   1.61
## 3   2      0.2707       69    198.4  84.40
## 4   3      0.1798       50    131.8  50.78
## 5   4      0.0896      184     65.7 213.13
## 6  5+      0.0357       90     26.2 155.54
```

complete this...