Cumulative-Killed Graphic for 2014

MCC

2022-06-08

Detemination of Slope, Intercept & R^2 Functions

** Two methods**

```
# linear_model <- lm(gva_2014$Cum_Killed ~ gva_2014$Days)
# cf <- coef(linear_model)
# print(cf[1]); print(cf[2])

slope <- function(x, y) {
  cov(x, y) / var(x)
}
intercept <- function(x, y) {
  mean(y) - slope(x, y) * mean(x)
}

R_Squared = function(x, y) {
  cor(x, y)^2
}
```

Convert ID & Killed/Injured/Grand Total to cumulative numbers

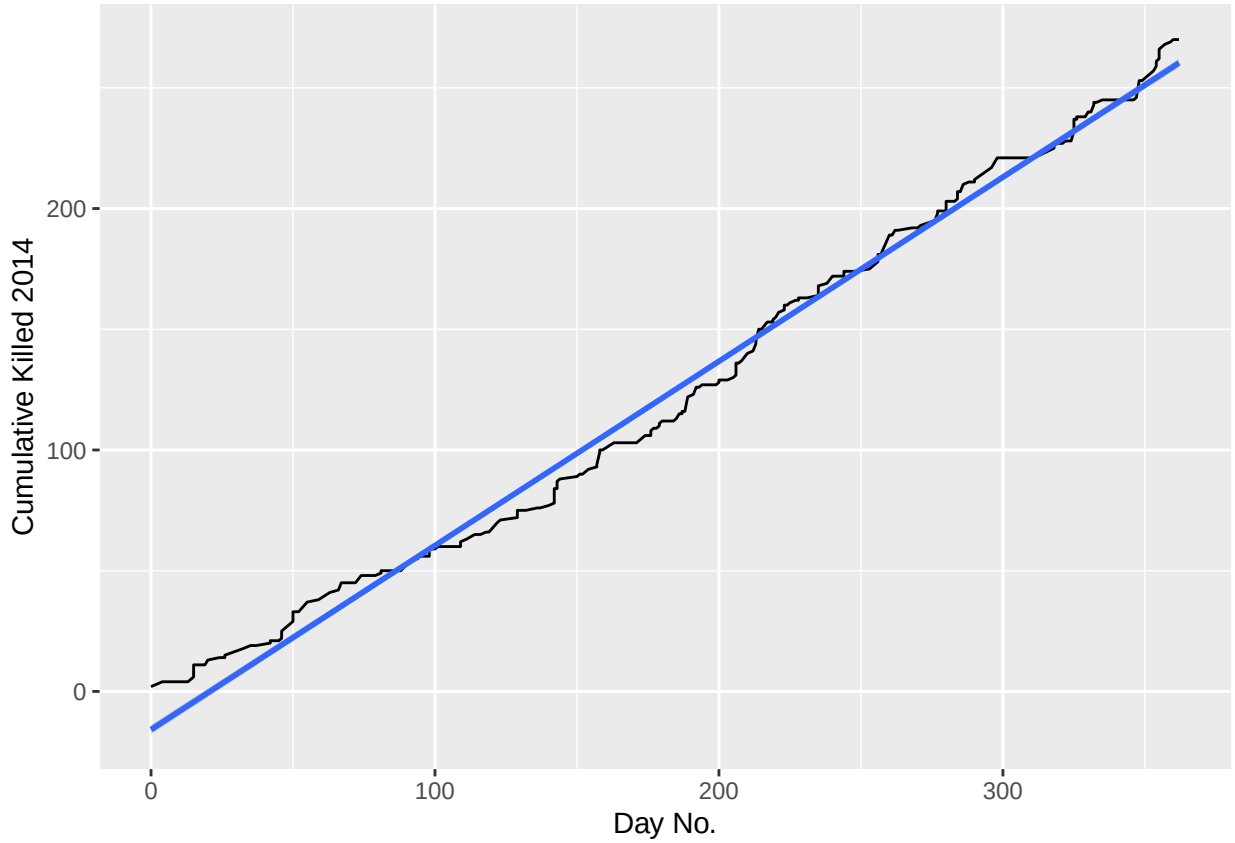
```
date <- ymd(gva_2014$`ID`)
gva_2014$Days <- yday(date) - 1 # so Jan 1 = day 0

gva_2014$Cum_Killed <- cumsum(gva_2014$Killed)
gva_2014$Cum_Injured <- cumsum(gva_2014$Injured)
gva_2014$Grand_Total <- gva_2014$Cum_Killed + gva_2014$Cum_Injured

#tail(gva_2014)
```

```
names(gva_2014)
```

```
## [1] "ID"          "Killed"      "Injured"     "Days"        "Cum_Killed"
## [6] "Cum_Injured" "Grand_Total"
```

Cumulative Deaths (ONLY) vs Days for 2014

```
ggplot(gva_2014, aes(x=gva_2014$Days, y=gva_2014$Cum_Killed)) +
  geom_line() +
  labs(x='Day No.', y='Cumulative Killed 2014') +
  geom_smooth(method = "lm")
```




```
graphic_s  <- slope(gva_2014$Days, gva_2014$Cum_Killed)
graphic_i  <- intercept(gva_2014$Days, gva_2014$Cum_Killed)
graphic_r2 <- R_Squared(gva_2014$Days, gva_2014$Cum_Killed)

print(paste('Slope = ', graphic_s))
```

```
## [1] "Slope =  0.762825665907124"
```

```
print(paste('Intercept = ', graphic_i))
```

```
## [1] "Intercept =  -15.8279273787283"
```

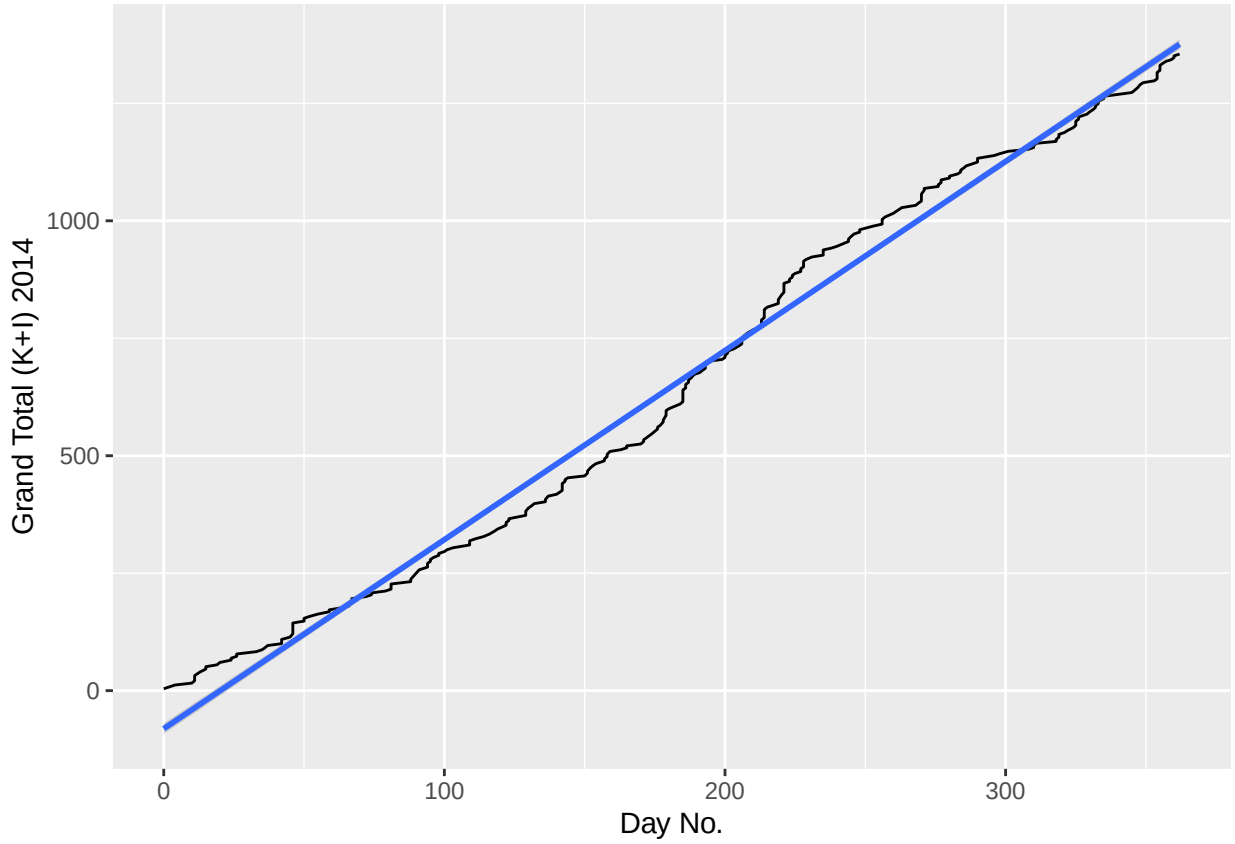
```
print(paste('R_Squared = ', graphic_r2))
```

```
## [1] "R_Squared =  0.990127922945717"
```

Cumulative Total Shot vs Days for 2014

```
ggplot(gva_2014, aes(x=Days, y=Grand_Total)) +
  geom_line() +
  labs(x='Day No.', y='Grand Total (K+I) 2014') +
  geom_smooth(method = "lm")
```

```
## `geom_smooth()` using formula 'y ~ x'
```




```
graphic_s <- slope(gva_2014$Days, gva_2014$Grand_Total)
graphic_i <- intercept(gva_2014$Days, gva_2014$Grand_Total)
graphic_r2 <- R_Squared(gva_2014$Days, gva_2014$Grand_Total)

print(paste('Slope = ', graphic_s))
```

```
## [1] "Slope =  4.02442202295235"
```

```
print(paste('Intercept = ', graphic_i))
```

```
## [1] "Intercept =  -81.0156428756411"
```

```
print(paste('R_Squared = ', graphic_r2))
```

```
## [1] "R_Squared =  0.987876362040067"
```