EDA

```
#Model 1
Pois1 <- glm(`good hits` ~ offset(log(pitches)) + `hits last week`, family = poisson, data=Dataset)
paste("MSE:", sum(residuals(Pois1)^2)/df.residual(Pois1))
```

```
## [1] "MSE: 1.34462767521591"
```

```
Dataset <- Dataset %>%
  mutate(fittedP1 = fitted(Pois1))
```

$$\hat{y}_t \sim Poisson(\hat{\lambda}_t)$$

$$log(\hat{\lambda}_t) =$$

```
GeneralPois1 <- glmer(
  `good hits` ~ offset(log(pitches))+`hits last week` + (1|week), family="poisson", data=Dataset
)
```

```
## boundary (singular) fit: see help('isSingular')
```

```
paste("MSE:", sum(residuals(GeneralPois1)^2)/df.residual(GeneralPois1))
```

```
## [1] "MSE: 1.36383664200471"
```

```
Dataset <- Dataset %>%
  mutate(fittedP2 = fitted(GeneralPois1))
```

```
#Model 3
GeneralPois2 <- glmer(
  `good hits` ~ offset(log(pitches))+`hits last week` + (1+week|player) + (1|week), family="poisson", da
```

```
## boundary (singular) fit: see help('isSingular')
```

```
paste("MSE:", sum(residuals(GeneralPois2)^2)/df.residual(GeneralPois2))
```

```
## [1] "MSE: 1.34263022558034"
```

```
Dataset <- Dataset %>%
  mutate(fittedP3 = fitted(GeneralPois2))
```

```
Dataset %>%
  ggplot(aes(x=week, color=player))+
  geom_point(aes(y=`good hits`))+
  geom_line(aes(y=`fittedP1`), linetype=1)+
  geom_line(aes(y=`fittedP2`), linetype=2)+
  geom_line(aes(y=`fittedP3`), linetype=3)+
  theme_minimal()
```