EE 5373 - Lab Report 3

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Int95 Linear Model
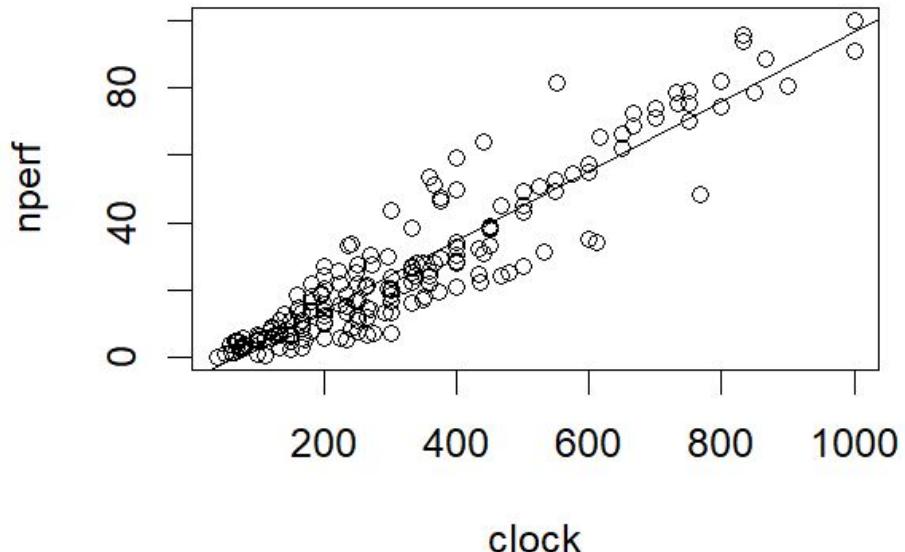
```
Call:

lm(formula = nperf ~ clock,
data = int95.dat)

Coefficients:

(Intercept)          clock

    -6.8081         0.1034
```
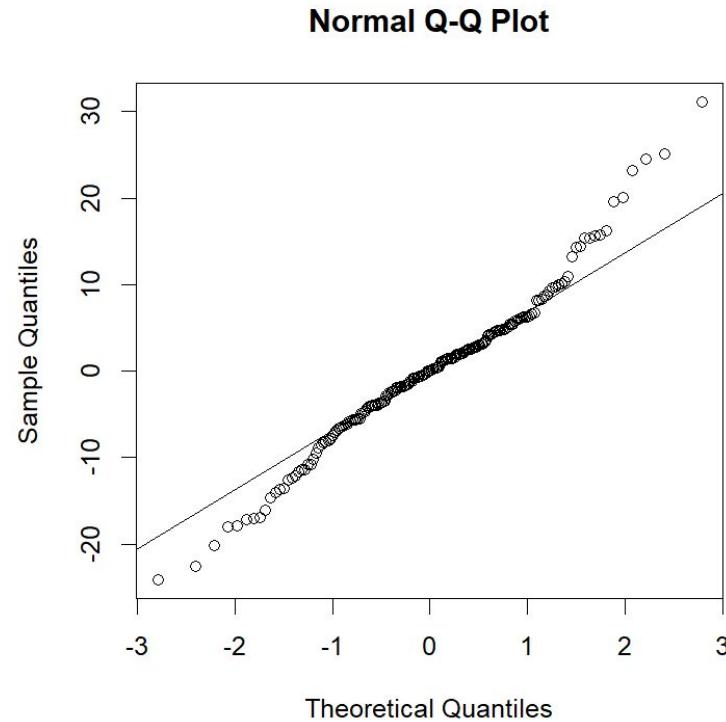

Line Fit for int95

nperf = -6.8081 + 0.1034*clock

Int95 Linear Model - Quality Analysis

- Similarly the **slope estimate is 0.10** and the standard error is **34 times large**r: 0.003.
- The **p-value** for the intercept and standard error are **3.1e-08 and 2e-16** respectively. Since they are quite small, this shows a strong linear relationship.
- The **R-squared value is 0.8655** showing a strong linear relationship, which is close to 1 indicating a good fit.
- Lastly, the QQplot for residuals **mostly follows** the QQLine
- Model is a good fit.

Normal Q-Q Plot

Sample Quantiles / Theoretical Quantiles
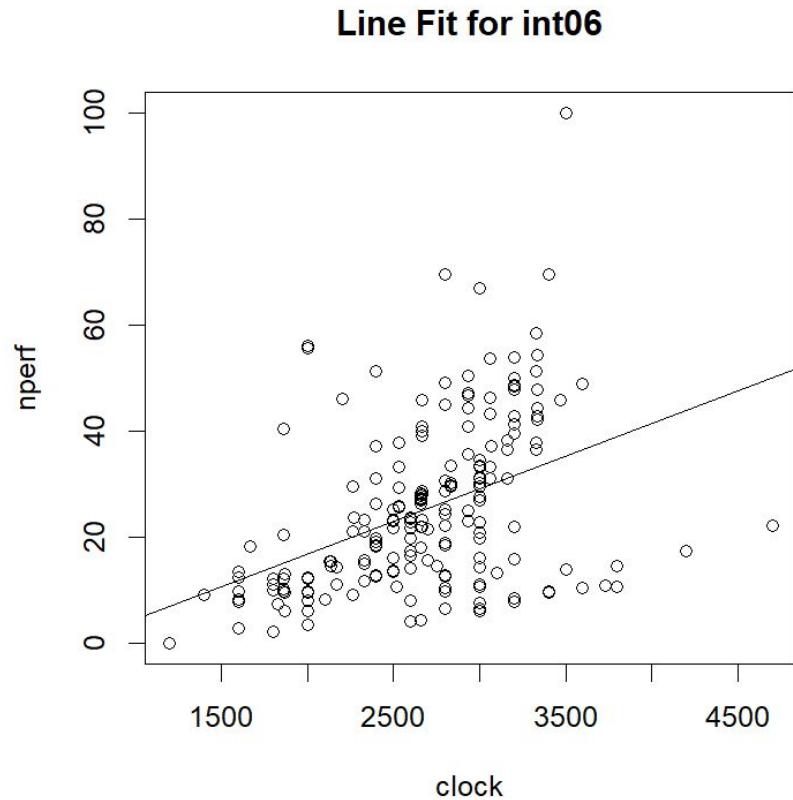
Int06 Linear Model

```
lm(formula = nperf ~ clock, data =
int06.dat)

Coefficients:

(Intercept)          clock

    -7.8366         0.0123
```
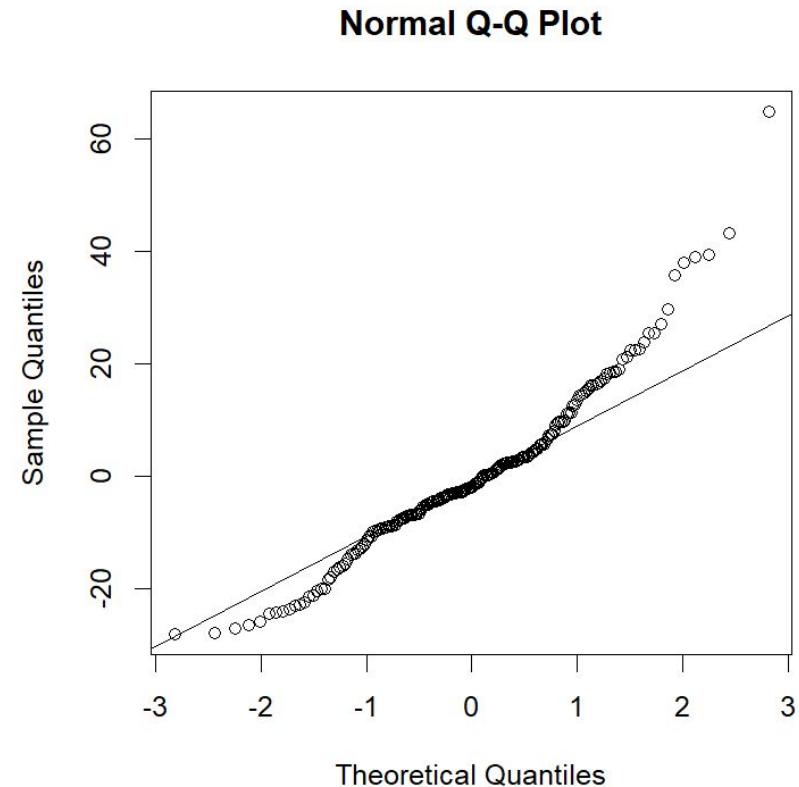

Line Fit for int06

nperf = -7.8366 + 0.0123*clock

Int06 Linear Model - Quality Analysis

- The **slope estimate is 0.01** and the standard error is 6 times larger: 0.0018. We are more confident in the slope.
- The **p-value** for the intercept and standard error are **0.12 and 2e-10** respectively. The p-value for the intercept is quite large, hence our estimate may not be accurate.
- The **R-squared value is 0.18** showing a very weak linear relationship.
- Lastly, the QQplot for residuals do not follow the QQline.
- Hence the model is NOT a good fit.

Normal Q-Q Plot

Fp95 Linear Model
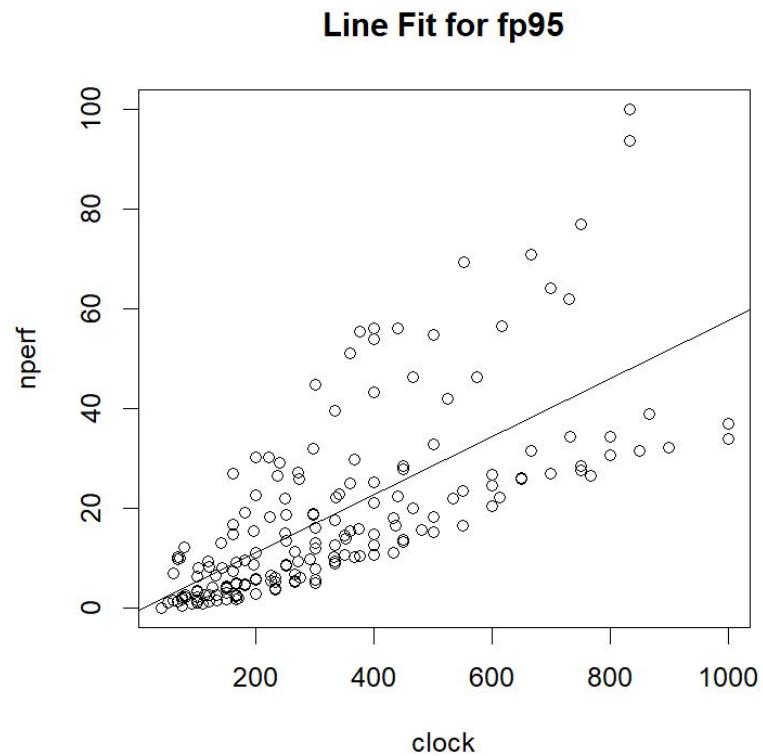
```
Call:
lm(formula = nperf ~ clock, data
= fp95.dat)

Coefficients:
(Intercept)        clock
   -0.41140       0.05797
```
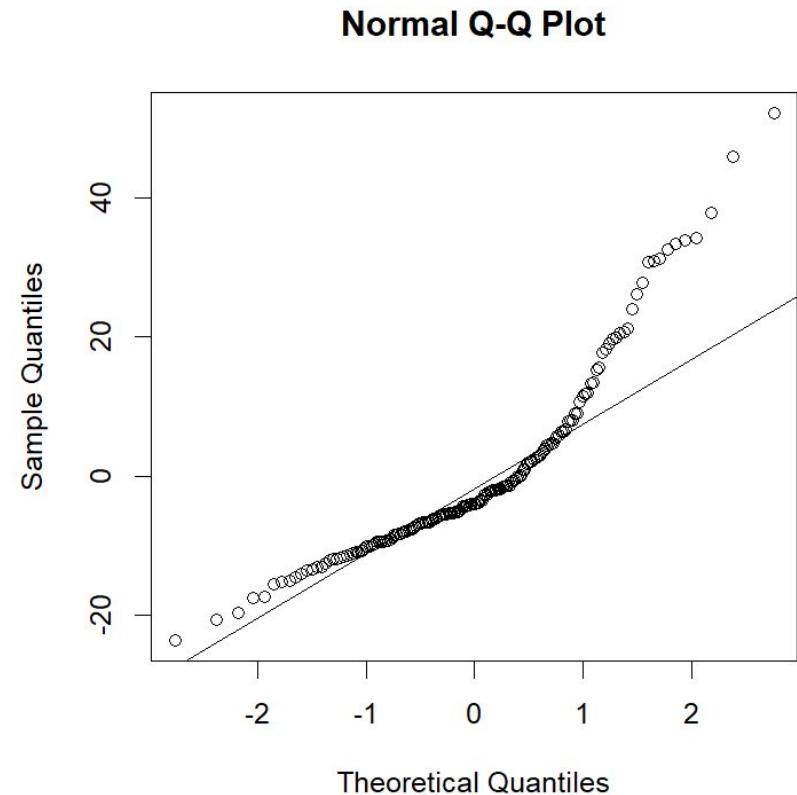
Line Fit for fp95

nperf = -0.41140 + 0.05797*clock

Fp95 Linear Model - Quality Analysis

- The **slope estimate is 0.058** and the standard error is **13 times larger**: 0.004. We are more confident in the slope.
- The **p-value** for the intercept and standard error are **0.82 and 2e-16** respectively. The p-value for the intercept is quite large, hence our estimate may not be accurate.
- The **R-squared value is 0.4859** showing a weak linear relationship.
- Lastly, the QQplot for residuals **do not follow** the QQline. (right skewed)
- Hence the model is not a good fit.

Normal Q-Q Plot

Fp06 Linear Model
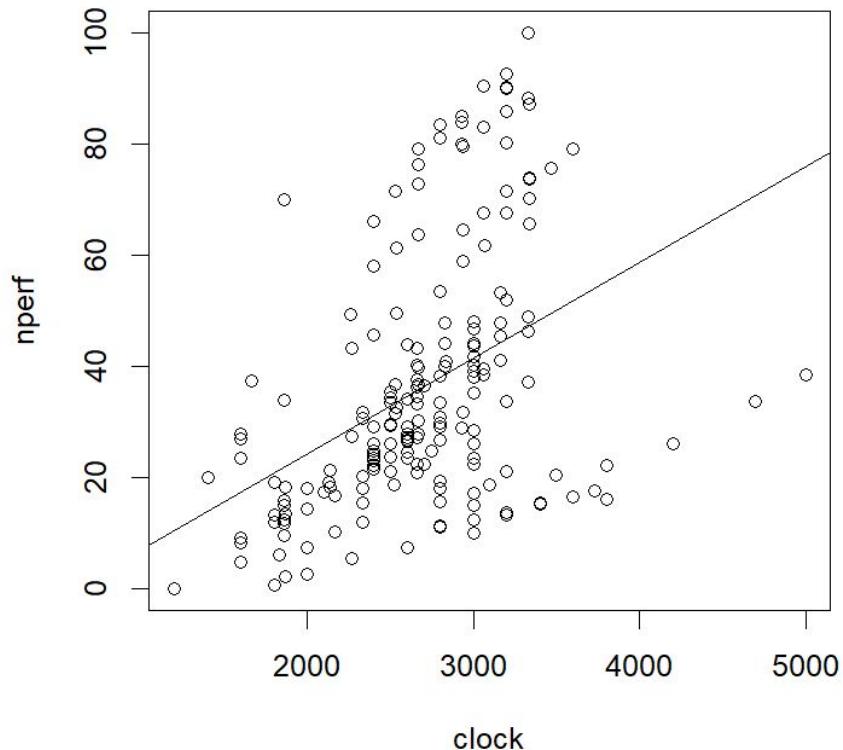
```
lm(formula = nperf ~ clock,
data = fp06.dat)

Coefficients:
(Intercept)          clock
  -10.33388        0.01725
```

nperf = -10.333 + 0.01725*clock

Line Fit for fp06

F06 Linear Model - Quality Analysis

- The **slope estimate is 0.017** and the standard error is **13 times** larger: 0.00268. We are more confident in the slope.
- The **p-value** for the intercept and standard error are **0.163 and 1.06e-09** respectively. The p-value for the slope is very small, so we are very confident in our slope estimate.
- The **R-squared value is 0.174** showing a very weak linear relationship.
- Lastly, the QQplot for residuals **do not follow** the QQline.
- Hence the model is **not a good** fit.

Normal Q-Q Plot