

Empirical software engineering

Lab 2: ANOVA

Group 9

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Exercise 1 - Time to Develop

a) Minimum amount of users

```
pwr.anova.test(k = 5, n = NULL, f = 0.08, sig.level = 0.05, power = 0.90)
```

```
##
##      Balanced one-way analysis of variance power calculation
##
##              k = 5
##              n = 482.3577
##              f = 0.08
##      sig.level = 0.05
##      power = 0.9
##
## NOTE: n is number in each group
```

b) Descriptive Statistics

```
df <- read.csv(file = 'gotaflix-abn.csv', sep = ",")
df$Cover <- as.factor(df$Cover)
df$Engagement <- as.numeric(df$Engagement)

psych::describeBy(df$Engagement, list(df$Cover), mat=T)
```

```
##      item group1 vars   n    mean      sd    median    trimmed      mad      min      max
## X11      1      A   1 800 0.1603672 0.1026844 0.1565033 0.1605196 0.10165375 -0.1388049 0.5430277 0.6
## X12      2      B   1 800 0.1597526 0.1029644 0.1586958 0.1596599 0.10462177 -0.1653220 0.5239574 0.6
## X13      3      C   1 800 0.1783154 0.1053693 0.1742952 0.1783728 0.10461222 -0.1222303 0.4953971 0.6
## X14      4      D   1 800 0.1582659 0.1047037 0.1580229 0.1596672 0.09966692 -0.2009586 0.4392143 0.6
## X15      5      E   1 800 0.1698140 0.1022803 0.1682641 0.1699041 0.10205328 -0.1498057 0.4774524 0.6
```

- c) Linear Model
- d) Normality
- e) Scatter plot
- f) Independence Assumption
- g) Homoscedasticity
- g) Which art cover had a better engagement?

Exercise 2 - Full Factorial Experiment

- a) Experimental Groups
- b) Linear model equation
- c) ANOVA assumptions
- d) ANOVA table