Teste F-Fisher - Bytebuddy

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Lendo lm_smells

```
lm_smells <- read.csv(file = 'C:\\Users\\audre\\Desktop\\tcc\\bytebuddy\\lm_bytebuddy.csv')
```

Lendo lem_smells

```
lmfe_smells <- read.csv(file = 'C:\\Users\\audre\\Desktop\\tcc\\bytebuddy\\lem_bytebuddy.csv')
```

Teste F-Fisher

```
var.test(lm_smells$metrics.MethodEffectiveLinesOfCode, lmfe_smells$metrics.MethodEffectiveLinesOfCode, a
```

```
##
##  F test to compare two variances
##
## data:  lm_smells$metrics.MethodEffectiveLinesOfCode and lmfe_smells$metrics.MethodEffectiveLinesOfCo
## F = 1.4235, num df = 1407, denom df = 1511, p-value = 1.623e-11
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
##  1.284689 1.577713
## sample estimates:
## ratio of variances
##           1.423547
```

```
var.test(lm_smells$metrics.NumberOfFinallyStatements, lmfe_smells$metrics.NumberOfFinallyStatements, al
```

```
##
##  F test to compare two variances
##
## data:  lm_smells$metrics.NumberOfFinallyStatements and lmfe_smells$metrics.NumberOfFinallyStatements
## F = 0.38848, num df = 1407, denom df = 1511, p-value < 2.2e-16
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
##  0.3505864 0.4305515
## sample estimates:
## ratio of variances
##            0.38848
```

```
var.test(lm_smells$metrics.NumberOfCatchStatements, lmfe_smells$metrics.NumberOfCatchStatements, alterna
```

```
##
##  F test to compare two variances
##
```

```
## data:  lm_smells$metrics.NumberOfCatchStatements and lmfe_smells$metrics.NumberOfCatchStatements
## F = 1.443, num df = 1407, denom df = 1511, p-value = 2.668e-12
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
##  1.302223 1.599246
## sample estimates:
## ratio of variances
##           1.442976
```

```
var.test(lm_smells$metrics.ExceptionalLOC, lmfe_smells$metrics.ExceptionalLOC, alternative = "two.sided
```

```
##
##  F test to compare two variances
##
## data:  lm_smells$metrics.ExceptionalLOC and lmfe_smells$metrics.ExceptionalLOC
## F = 0.52232, num df = 1407, denom df = 1511, p-value < 2.2e-16
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
##  0.4713723 0.5788874
## sample estimates:
## ratio of variances
##          0.5223213
```

```
var.test(lm_smells$metrics.NumberOfDummyExceptionHandlers, lmfe_smells$metrics.NumberOfDummyExceptionHa
```

```
##
##  F test to compare two variances
##
## data:  lm_smells$metrics.NumberOfDummyExceptionHandlers and lmfe_smells$metrics.NumberOfDummyExceptio
## F = 0.15049, num df = 1407, denom df = 1511, p-value < 2.2e-16
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
##  0.1358147 0.1667925
## sample estimates:
## ratio of variances
##          0.1504944
```

```
var.test(lm_smells$metrics.NumberOfTryStatements, lmfe_smells$metrics.NumberOfTryStatements, alternativ
```

```
##
##  F test to compare two variances
##
## data:  lm_smells$metrics.NumberOfTryStatements and lmfe_smells$metrics.NumberOfTryStatements
## F = 0.65033, num df = 1407, denom df = 1511, p-value = 3.396e-16
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
##  0.5868957 0.7207604
## sample estimates:
## ratio of variances
##          0.6503311
```

```
var.test(lm_smells$metrics.NumberOfThrowStatements, lmfe_smells$metrics.NumberOfThrowStatements, alterna
```

```
##
##  F test to compare two variances
##
## data:  lm_smells$metrics.NumberOfThrowStatements and lmfe_smells$metrics.NumberOfThrowStatements
```

```
## F = 0.70103, num df = 1407, denom df = 1511, p-value = 1.52e-11
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
##  0.6326482 0.7769486
## sample estimates:
## ratio of variances
##          0.7010289
```

```
var.test(lm_smells$metrics.NumberOfTryStatementsWithNoCatchAndFinally, lmfe_smells$metrics.NumberOfTryS
```

```
##
##  F test to compare two variances
##
## data:  lm_smells$metrics.NumberOfTryStatementsWithNoCatchAndFinally and lmfe_smells$metrics.NumberOf
## F = 0.38187, num df = 1407, denom df = 1511, p-value < 2.2e-16
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
##  0.3446234 0.4232283
## sample estimates:
## ratio of variances
##          0.3818725
```

```
var.test(lm_smells$metrics.ThrownExceptionTypesCount, lmfe_smells$metrics.ThrownExceptionTypesCount, al
```

```
##
##  F test to compare two variances
##
## data:  lm_smells$metrics.ThrownExceptionTypesCount and lmfe_smells$metrics.ThrownExceptionTypesCount
## F = 3.3076, num df = 1407, denom df = 1511, p-value < 2.2e-16
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
##  2.985010 3.665859
## sample estimates:
## ratio of variances
##           3.307649
```

```
var.test(lm_smells$metrics.changingClasses, lmfe_smells$metrics.changingClasses, alternative = "two.sid
```

```
##
##  F test to compare two variances
##
## data:  lm_smells$metrics.changingClasses and lmfe_smells$metrics.changingClasses
## F = 0.15223, num df = 1407, denom df = 1511, p-value < 2.2e-16
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
##  0.1373850 0.1687211
## sample estimates:
## ratio of variances
##          0.1522345
```

```
var.test(lm_smells$metrics.changingMethods, lmfe_smells$metrics.changingMethods, alternative = "two.sid
```

```
##
##  F test to compare two variances
##
## data:  lm_smells$metrics.changingMethods and lmfe_smells$metrics.changingMethods
## F = 0.13617, num df = 1407, denom df = 1511, p-value < 2.2e-16
```

```
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
##  0.1228833 0.1509116
## sample estimates:
## ratio of variances
##          0.1361653
```

```
var.test(lm_smells$metrics.couplingDispersion, lmfe_smells$metrics.couplingDispersion, alternative = "tw
```

```
##
##  F test to compare two variances
##
## data:  lm_smells$metrics.couplingDispersion and lmfe_smells$metrics.couplingDispersion
## F = 4.0404, num df = 1407, denom df = 1511, p-value < 2.2e-16
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
##  3.64625 4.47792
## sample estimates:
## ratio of variances
##           4.040359
```

```
var.test(lm_smells$metrics.couplingIntensity, lmfe_smells$metrics.couplingIntensity, alternative = "two
```

```
##
##  F test to compare two variances
##
## data:  lm_smells$metrics.couplingIntensity and lmfe_smells$metrics.couplingIntensity
## F = 0.081615, num df = 1407, denom df = 1511, p-value < 2.2e-16
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
##  0.07365404 0.09045375
## sample estimates:
## ratio of variances
##         0.08161504
```

```
var.test(lm_smells$metrics.cyclomaticComplexity, lmfe_smells$metrics.cyclomaticComplexity, alternative =
```

```
##
##  F test to compare two variances
##
## data:  lm_smells$metrics.cyclomaticComplexity and lmfe_smells$metrics.cyclomaticComplexity
## F = 0.56893, num df = 1407, denom df = 1511, p-value < 2.2e-16
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
##  0.5134318 0.6305401
## sample estimates:
## ratio of variances
##          0.5689267
```

```
var.test(lm_smells$metrics.maxCallChain, lmfe_smells$metrics.maxCallChain, alternative = "two.sided")
```

```
##
##  F test to compare two variances
##
## data:  lm_smells$metrics.maxCallChain and lmfe_smells$metrics.maxCallChain
## F = 0.3077, num df = 1407, denom df = 1511, p-value < 2.2e-16
## alternative hypothesis: true ratio of variances is not equal to 1
```

```
## 95 percent confidence interval:
##  0.2776843 0.3410212
## sample estimates:
## ratio of variances
##          0.3076982
```

```
var.test(lm_smells$metrics.maxNesting, lmfe_smells$metrics.maxNesting, alternative = "two.sided")
```

```
##
##  F test to compare two variances
##
## data:  lm_smells$metrics.maxNesting and lmfe_smells$metrics.maxNesting
## F = 0.53978, num df = 1407, denom df = 1511, p-value < 2.2e-16
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
##  0.4871294 0.5982385
## sample estimates:
## ratio of variances
##          0.5397815
```

```
var.test(lm_smells$metrics.numberOfAccessedVariables, lmfe_smells$metrics.numberOfAccessedVariables, al
```

```
##
##  F test to compare two variances
##
## data:  lm_smells$metrics.numberOfAccessedVariables and lmfe_smells$metrics.numberOfAccessedVariables
## F = 1.1018, num df = 1407, denom df = 1511, p-value = 0.06401
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
##  0.9943674 1.2211721
## sample estimates:
## ratio of variances
##           1.101845
```

```
var.test(lm_smells$metrics.parameterCount, lmfe_smells$metrics.parameterCount, alternative = "two.sided
```

```
##
##  F test to compare two variances
##
## data:  lm_smells$metrics.parameterCount and lmfe_smells$metrics.parameterCount
## F = 5.9206, num df = 1407, denom df = 1511, p-value < 2.2e-16
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
##  5.343122 6.561831
## sample estimates:
## ratio of variances
##            5.92064
```