Teste F-Fisher

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2023-01-12

Lendo lm_smells

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

Lendo lmfe_smells

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

Teste F-Fisher

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

```
##
##  F test to compare two variances
##
## data:  lm_smells$changingClasses and lmfe_smells$changingClasses
## F = 1.0817, num df = 67, denom df = 67, p-value = 0.7489
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
##  0.6673188 1.7533016
## sample estimates:
## ratio of variances
##           1.081671
```

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

```
##
##  F test to compare two variances
##
## data:  lm_smells$changingMethods and lmfe_smells$changingMethods
## F = 0.13369, num df = 67, denom df = 67, p-value = 2.198e-14
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
##  0.0824783 0.2167020
## sample estimates:
## ratio of variances
##          0.1336907
```

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

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

```
## data:  lm_smells$couplingDispersion and lmfe_smells$couplingDispersion
## F = 3.5777, num df = 67, denom df = 67, p-value = 4.736e-07
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
##  2.207207 5.799176
## sample estimates:
## ratio of variances
##           3.577706
```

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

```
##
##  F test to compare two variances
##
## data:  lm_smells$couplingIntensity and lmfe_smells$couplingIntensity
## F = 0.60527, num df = 67, denom df = 67, p-value = 0.04169
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
##  0.3734117 0.9810954
## sample estimates:
## ratio of variances
##          0.6052706
```

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

```
##
##  F test to compare two variances
##
## data:  lm_smells$cyclomaticComplexity and lmfe_smells$cyclomaticComplexity
## F = 1.1108, num df = 67, denom df = 67, p-value = 0.6684
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
##  0.6852766 1.8004835
## sample estimates:
## ratio of variances
##           1.110779
```

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

```
##
##  F test to compare two variances
##
## data:  lm_smells$maxCallChain and lmfe_smells$maxCallChain
## F = 1.2293, num df = 67, denom df = 67, p-value = 0.4003
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
##  0.7584006 1.9926082
## sample estimates:
## ratio of variances
##           1.229307
```

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

```
##
##  F test to compare two variances
##
## data:  lm_smells$maxNesting and lmfe_smells$maxNesting
```

```
## F = 2.3765, num df = 67, denom df = 67, p-value = 0.0005072
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
##  1.466166 3.852178
## sample estimates:
## ratio of variances
##           2.376538
```

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

```
##
##  F test to compare two variances
##
## data:  lm_smells$numberOfAccessedVariables and lmfe_smells$numberOfAccessedVariables
## F = 2.0291, num df = 67, denom df = 67, p-value = 0.004291
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
##  1.251799 3.288954
## sample estimates:
## ratio of variances
##           2.029066
```

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

```
##
##  F test to compare two variances
##
## data:  lm_smells$parameterCount and lmfe_smells$parameterCount
## F = 1.2694, num df = 67, denom df = 67, p-value = 0.3312
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
##  0.783154 2.057645
## sample estimates:
## ratio of variances
##            1.26943
```

```
var.test(lm_smells$additionalProperties.MethodEffectiveLinesOfCode, lmfe_smells$additionalProperties.Me
```

```
##
##  F test to compare two variances
##
## data:  lm_smells$additionalProperties.MethodEffectiveLinesOfCode and lmfe_smells$additionalPropertie
## F = 2.3261, num df = 67, denom df = 67, p-value = 0.0006911
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
##  1.435018 3.770342
## sample estimates:
## ratio of variances
##            2.32605
```

```
var.test(lm_smells$additionalProperties.NumberOfFinallyStatements, lmfe_smells$additionalProperties.Numb
```

```
##
##  F test to compare two variances
##
## data:  lm_smells$additionalProperties.NumberOfFinallyStatements and lmfe_smells$additionalProperties
## F = 0.12104, num df = 67, denom df = 67, p-value = 1.629e-15
```

```
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
##  0.07467538 0.19620076
## sample estimates:
## ratio of variances
##          0.1210428
```

```
var.test(lm_smells$additionalProperties.ExceptionalLOC, lmfe_smells$additionalProperties.ExceptionalLOC
```

```
##
##  F test to compare two variances
##
## data:  lm_smells$additionalProperties.ExceptionalLOC and lmfe_smells$additionalProperties.Exceptional
## F = 0.12634, num df = 67, denom df = 67, p-value = 5.04e-15
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
##  0.07794424 0.20478930
## sample estimates:
## ratio of variances
##          0.1263414
```

```
var.test(lm_smells$additionalProperties.NumberOfCatchStatements, lmfe_smells$additionalProperties.Numbe
```

```
##
##  F test to compare two variances
##
## data:  lm_smells$additionalProperties.NumberOfCatchStatements and lmfe_smells$additionalProperties.Nu
## F = 0.67214, num df = 67, denom df = 67, p-value = 0.1064
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
##  0.414665 1.089483
## sample estimates:
## ratio of variances
##          0.6721388
```

```
var.test(lm_smells$additionalProperties.NumberOfDummyExceptionHandlers, lmfe_smells$additionalProperties
```

```
##
##  F test to compare two variances
##
## data:  lm_smells$additionalProperties.NumberOfDummyExceptionHandlers and lmfe_smells$additionalPrope
## F = 0.46377, num df = 67, denom df = 67, p-value = 0.001963
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
##  0.2861141 0.7517311
## sample estimates:
## ratio of variances
##          0.4637681
```

```
var.test(lm_smells$additionalProperties.NumberOfTryStatements, lmfe_smells$additionalProperties.NumberO
```

```
##
##  F test to compare two variances
##
## data:  lm_smells$additionalProperties.NumberOfTryStatements and lmfe_smells$additionalProperties.Numb
## F = 0.39058, num df = 67, denom df = 67, p-value = 0.0001657
## alternative hypothesis: true ratio of variances is not equal to 1
```

```
## 95 percent confidence interval:
##  0.2409599 0.6330939
## sample estimates:
## ratio of variances
##          0.3905768
```

```
var.test(lm_smells$additionalProperties.NumberOfThrowStatements, lmfe_smells$additionalProperties.Numbe
```

```
##
##  F test to compare two variances
##
## data:  lm_smells$additionalProperties.NumberOfThrowStatements and lmfe_smells$additionalProperties.Nu
## F = 0.31663, num df = 67, denom df = 67, p-value = 4.896e-06
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
##  0.1953396 0.5132319
## sample estimates:
## ratio of variances
##            0.31663
```

```
var.test(lm_smells$additionalProperties.NumberOfTryStatementsWithNoCatchAndFinally, lmfe_smells$additio
```

```
##
##  F test to compare two variances
##
## data:  lm_smells$additionalProperties.NumberOfTryStatementsWithNoCatchAndFinally and lmfe_smells$addi
## F = 0.083969, num df = 67, denom df = 67, p-value < 2.2e-16
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
##  0.05180358 0.13610780
## sample estimates:
## ratio of variances
##          0.08396947
```

```
var.test(lm_smells$additionalProperties.ThrownExceptionTypesCount, lmfe_smells$additionalProperties.Thr
```

```
##
##  F test to compare two variances
##
## data:  lm_smells$additionalProperties.ThrownExceptionTypesCount and lmfe_smells$additionalProperties
## F = 0.46608, num df = 67, denom df = 67, p-value = 0.002096
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
##  0.2875423 0.7554836
## sample estimates:
## ratio of variances
##          0.4660832
```