> data<-Base\_With\_ExcepFlow\_Metrics

> names(data)

[1] "file\_name" "specificPercentage...2"

[3] "numofRevoverableException" "Percentage\_Action\_Continue"

[5] "Percentage\_Action\_Empty" "Percentage\_Action\_Log"

[7] "Percentage\_Action\_Method" "Percentage\_Action\_Return"

[9] "Percentage\_Action\_ThrowCurrent" "Percentage\_Action\_ThrowNew"

[11] "specificPercentage...11" "doNothingPercentage"

[13] "catchGenericPercentage" "destructiveWrappingPercentage"

[15] "dummyPercentage" "logThrowPercentage"

[17] "number\_of\_Catch\_Blocks" "Number\_of\_Catch\_Block\_LOC"

[19] "Number\_of\_Catch\_Block\_SLOC" "Number\_of\_Invoked\_methods"

[21] "Number\_of\_Try\_Blocks" "Number\_of\_Try\_Block\_LOC"

[23] "Number\_of\_Try\_Block\_SLOC" "Number\_of\_Throws\_Generic\_AP"

[25] "Number\_of\_Throws\_Kitchen\_Sink\_AP" "Number\_of\_Try\_in\_Declaration"

[27] "Number\_of\_Try\_in\_Condition" "Number\_of\_Try\_in\_EH"

[29] "Number\_of\_Try\_in\_Other" "Action\_Empty"

[31] "Action\_Log" "Action\_Method"

[33] "Action\_NestedTry" "Action\_Return"

[35] "Code\_Ownership\_count" "lines\_added"

[37] "lines\_deleted" "Pre\_release\_bugs"

[39] "Post\_release\_bugs" "AvgCyclomatic"

[41] "AvgCyclomaticModified" "AvgCyclomaticStrict"

[43] "AvgEssential" "AvgLine"

[45] "AvgLineBlank" "AvgLineCode"

[47] "AvgLineComment" "CountDeclClass"

[49] "CountDeclClassMethod" "CountDeclClassVariable"

[51] "CountDeclExecutableUnit" "CountDeclFunction"

[53] "CountDeclInstanceMethod" "CountDeclInstanceVariable"

[55] "CountDeclMethod" "CountDeclMethodAll"

[57] "CountDeclMethodDefault" "CountDeclMethodPrivate"

[59] "CountDeclMethodProtected" "CountDeclMethodPublic"

[61] "CountLine" "CountLineBlank"

[63] "CountLineCode" "CountLineCodeDecl"

[65] "CountLineCodeExe" "CountLineComment"

[67] "CountSemicolon" "CountStmt"

[69] "CountStmtDecl" "CountStmtExe"

[71] "MaxCyclomatic" "MaxCyclomaticModified"

[73] "MaxCyclomaticStrict" "MaxEssential"

[75] "MaxEssentialKnots" "MaxInheritanceTree"

[77] "MaxNesting" "MinEssentialKnots"

[79] "PercentLackOfCohesion" "PercentLackOfCohesionModified"

[81] "RatioCommentToCode" "SumCyclomatic"

[83] "SumCyclomaticModified" "SumCyclomaticStrict"

[85] "SumEssential"

> summary(data)

file\_name specificPercentage...2 numofRevoverableException

Length:484 Min. : 0.0 Min. : 0.00

Class :character 1st Qu.: 0.0 1st Qu.: 12.00

Mode :character Median : 200.0 Median : 35.00

Mean : 348.2 Mean : 45.67

3rd Qu.: 800.0 3rd Qu.: 78.50

Max. :1200.0 Max. :110.00

NA's :1 NA's :1

Percentage\_Action\_Continue Percentage\_Action\_Empty Percentage\_Action\_Log

Min. : 0.000 Min. : 0.000 Min. : 0.00

1st Qu.: 0.000 1st Qu.: 0.000 1st Qu.: 0.00

Median : 0.000 Median : 0.000 Median : 0.00

Mean : 0.207 Mean : 2.277 Mean : 11.59

3rd Qu.: 0.000 3rd Qu.: 0.000 3rd Qu.: 0.00

Max. :100.000 Max. :100.000 Max. :100.00

NA's :1 NA's :1 NA's :1

Percentage\_Action\_Method Percentage\_Action\_Return Percentage\_Action\_ThrowCurrent

Min. : 0.00 Min. : 0.000 Min. : 0.000

1st Qu.: 0.00 1st Qu.: 0.000 1st Qu.: 0.000

Median : 0.00 Median : 0.000 Median : 0.000

Mean : 21.74 Mean : 9.524 Mean : 3.934

3rd Qu.: 0.00 3rd Qu.: 0.000 3rd Qu.: 0.000

Max. :100.00 Max. :100.000 Max. :100.000

NA's :1 NA's :1 NA's :1

Percentage\_Action\_ThrowNew specificPercentage...11 doNothingPercentage

Min. : 0.00 Min. : 0.0 Min. : 0.000

1st Qu.: 0.00 1st Qu.: 0.0 1st Qu.: 0.000

Median : 0.00 Median : 200.0 Median : 0.000

Mean : 31.06 Mean : 348.2 Mean : 2.692

3rd Qu.:100.00 3rd Qu.: 800.0 3rd Qu.: 0.000

Max. :100.00 Max. :1200.0 Max. :100.000

NA's :1 NA's :1 NA's :1

catchGenericPercentage destructiveWrappingPercentage dummyPercentage

Min. : 0.0 Min. : 0.0000 Min. : 0.00

1st Qu.: 0.0 1st Qu.: 0.0000 1st Qu.: 0.00

Median : 0.0 Median : 0.0000 Median : 0.00

Mean : 23.6 Mean : 0.6211 Mean : 10.77

3rd Qu.: 0.0 3rd Qu.: 0.0000 3rd Qu.: 0.00

Max. :100.0 Max. :100.0000 Max. :100.00

NA's :1 NA's :1 NA's :1

logThrowPercentage number\_of\_Catch\_Blocks Number\_of\_Catch\_Block\_LOC

Min. : 0.000 Min. : 1.000 Min. :0

1st Qu.: 0.000 1st Qu.: 1.000 1st Qu.:1

Median : 0.000 Median : 2.000 Median :1

Mean : 1.449 Mean : 3.056 Mean :1

3rd Qu.: 0.000 3rd Qu.: 3.000 3rd Qu.:1

Max. :100.000 Max. :32.000 Max. :3

NA's :1 NA's :1 NA's :1

Number\_of\_Catch\_Block\_SLOC Number\_of\_Invoked\_methods Number\_of\_Try\_Blocks

Min. :0 Min. : 0.000 Min. : 1.000

1st Qu.:1 1st Qu.: 1.000 1st Qu.: 1.000

Median :1 Median : 2.000 Median : 2.000

Mean :1 Mean : 5.075 Mean : 3.472

3rd Qu.:1 3rd Qu.: 5.000 3rd Qu.: 4.000

Max. :3 Max. :76.000 Max. :46.000

NA's :1 NA's :1 NA's :1

Number\_of\_Try\_Block\_LOC Number\_of\_Try\_Block\_SLOC Number\_of\_Throws\_Generic\_AP

Min. : 1.000 Min. : 1.000 Min. :0.0000

1st Qu.: 1.000 1st Qu.: 1.000 1st Qu.:0.0000

Median : 1.000 Median : 1.000 Median :0.0000

Mean : 2.108 Mean : 2.108 Mean :0.4037

3rd Qu.: 3.000 3rd Qu.: 3.000 3rd Qu.:0.0000

Max. :14.000 Max. :14.000 Max. :9.0000

NA's :1 NA's :1 NA's :1

Number\_of\_Throws\_Kitchen\_Sink\_AP Number\_of\_Try\_in\_Declaration

Min. : 0.00000 Min. : 0.000

1st Qu.: 0.00000 1st Qu.: 1.000

Median : 0.00000 Median : 1.000

Mean : 0.09731 Mean : 2.114

3rd Qu.: 0.00000 3rd Qu.: 2.000

Max. :10.00000 Max. :30.000

NA's :1 NA's :1

Number\_of\_Try\_in\_Condition Number\_of\_Try\_in\_EH Number\_of\_Try\_in\_Other

Min. :0.0000 Min. :0.00000 Min. : 0.0000

1st Qu.:0.0000 1st Qu.:0.00000 1st Qu.: 0.0000

Median :0.0000 Median :0.00000 Median : 0.0000

Mean :0.6646 Mean :0.04969 Mean : 0.5735

3rd Qu.:1.0000 3rd Qu.:0.00000 3rd Qu.: 0.0000

Max. :9.0000 Max. :2.00000 Max. :19.0000

NA's :1 NA's :1 NA's :1

Action\_Empty Action\_Log Action\_Method Action\_NestedTry

Min. :0.0000 Min. : 0.0000 Min. : 0.000 Min. :0.00000

1st Qu.:0.0000 1st Qu.: 0.0000 1st Qu.: 0.000 1st Qu.:0.00000

Median :0.0000 Median : 0.0000 Median : 1.000 Median :0.00000

Mean :0.2174 Mean : 0.8944 Mean : 1.244 Mean :0.06418

3rd Qu.:0.0000 3rd Qu.: 1.0000 3rd Qu.: 1.000 3rd Qu.:0.00000

Max. :7.0000 Max. :19.0000 Max. :25.000 Max. :2.00000

NA's :1 NA's :1 NA's :1 NA's :1

Action\_Return Code\_Ownership\_count lines\_added lines\_deleted

Min. : 0.0000 Min. : 1.000 Min. : 0.000 Min. : 0.000

1st Qu.: 0.0000 1st Qu.: 4.000 1st Qu.: 0.000 1st Qu.: 0.000

Median : 0.0000 Median : 4.000 Median : 0.000 Median : 0.000

Mean : 0.3623 Mean : 7.252 Mean : 7.757 Mean : 1.237

3rd Qu.: 0.0000 3rd Qu.:11.000 3rd Qu.: 2.000 3rd Qu.: 1.000

Max. :16.0000 Max. :18.000 Max. :544.000 Max. :56.000

NA's :1 NA's :2 NA's :2

Pre\_release\_bugs Post\_release\_bugs AvgCyclomatic AvgCyclomaticModified

Min. :0.00000 Min. : 0.000 Min. : 1.000 Min. : 1.000

1st Qu.:0.00000 1st Qu.: 0.000 1st Qu.: 1.000 1st Qu.: 1.000

Median :0.00000 Median : 0.000 Median : 1.000 Median : 1.000

Mean :0.09731 Mean : 1.197 Mean : 1.874 Mean : 1.834

3rd Qu.:0.00000 3rd Qu.: 2.000 3rd Qu.: 2.000 3rd Qu.: 2.000

Max. :4.00000 Max. :23.000 Max. :23.000 Max. :23.000

NA's :1 NA's :1 NA's :1 NA's :1

AvgCyclomaticStrict AvgEssential AvgLine AvgLineBlank

Min. : 1.000 Min. : 1.000 Min. : 1.00 Min. : 0.0000

1st Qu.: 1.000 1st Qu.: 1.000 1st Qu.: 7.00 1st Qu.: 0.0000

Median : 2.000 Median : 1.000 Median : 9.00 Median : 0.0000

Mean : 2.027 Mean : 1.104 Mean :11.01 Mean : 0.1988

3rd Qu.: 2.000 3rd Qu.: 1.000 3rd Qu.:13.50 3rd Qu.: 0.0000

Max. :33.000 Max. :10.000 Max. :87.00 Max. :10.0000

NA's :1 NA's :1 NA's :1 NA's :1

AvgLineCode AvgLineComment CountDeclClass CountDeclClassMethod

Min. : 1.0 Min. : 0.0000 Min. : 0.000 Min. : 0.000

1st Qu.: 6.0 1st Qu.: 0.0000 1st Qu.: 1.000 1st Qu.: 0.000

Median : 8.0 Median : 0.0000 Median : 2.000 Median : 0.000

Mean : 9.3 Mean : 0.9772 Mean : 3.433 Mean : 2.416

3rd Qu.:11.0 3rd Qu.: 1.5000 3rd Qu.: 4.000 3rd Qu.: 2.000

Max. :66.0 Max. :19.0000 Max. :46.000 Max. :117.000

NA's :1 NA's :1 NA's :1 NA's :1

CountDeclClassVariable CountDeclExecutableUnit CountDeclFunction

Min. : 0.000 Min. : 0.00 Min. : 1.00

1st Qu.: 0.000 1st Qu.: 7.00 1st Qu.: 7.00

Median : 1.000 Median : 14.00 Median : 14.00

Mean : 2.795 Mean : 23.22 Mean : 23.75

3rd Qu.: 3.000 3rd Qu.: 27.00 3rd Qu.: 28.00

Max. :70.000 Max. :269.00 Max. :269.00

NA's :1 NA's :1 NA's :3

CountDeclInstanceMethod CountDeclInstanceVariable CountDeclMethod

Min. : 0.0 Min. : 0.000 Min. : 1.00

1st Qu.: 5.0 1st Qu.: 2.000 1st Qu.: 7.00

Median : 12.0 Median : 5.000 Median : 14.00

Mean : 19.9 Mean : 8.217 Mean : 22.31

3rd Qu.: 25.5 3rd Qu.:11.000 3rd Qu.: 27.00

Max. :229.0 Max. :78.000 Max. :233.00

NA's :1 NA's :1 NA's :1

CountDeclMethodAll CountDeclMethodDefault CountDeclMethodPrivate

Min. : 0.0000 Min. : 0.000 Min. : 0.000

1st Qu.: 0.0000 1st Qu.: 0.000 1st Qu.: 0.000

Median : 0.0000 Median : 1.000 Median : 1.000

Mean : 0.1346 Mean : 2.323 Mean : 2.652

3rd Qu.: 0.0000 3rd Qu.: 3.000 3rd Qu.: 3.000

Max. :39.0000 Max. :32.000 Max. :65.000

NA's :1 NA's :1 NA's :1

CountDeclMethodProtected CountDeclMethodPublic CountLine CountLineBlank

Min. : 0.000 Min. : 0.00 Min. : 36.0 Min. : 3.00

1st Qu.: 0.000 1st Qu.: 3.00 1st Qu.: 125.0 1st Qu.: 15.00

Median : 0.000 Median : 8.00 Median : 227.0 Median : 26.00

Mean : 1.919 Mean : 15.42 Mean : 346.6 Mean : 39.07

3rd Qu.: 3.000 3rd Qu.: 19.00 3rd Qu.: 404.0 3rd Qu.: 46.50

Max. :34.000 Max. :168.00 Max. :3415.0 Max. :284.00

NA's :1 NA's :1 NA's :1 NA's :1

CountLineCode CountLineCodeDecl CountLineCodeExe CountLineComment

Min. : 13.0 Min. : 6.00 Min. : 1.0 Min. : 8.00

1st Qu.: 82.0 1st Qu.: 33.00 1st Qu.: 35.0 1st Qu.: 24.00

Median : 152.0 Median : 59.00 Median : 76.0 Median : 37.00

Mean : 245.4 Mean : 87.73 Mean : 133.5 Mean : 63.73

3rd Qu.: 284.0 3rd Qu.:105.00 3rd Qu.: 160.0 3rd Qu.: 64.00

Max. :2408.0 Max. :717.00 Max. :1429.0 Max. :953.00

NA's :1 NA's :1 NA's :1 NA's :1

CountSemicolon CountStmt CountStmtDecl CountStmtExe

Min. : 5.0 Min. : 9.0 Min. : 6.00 Min. : 1.00

1st Qu.: 40.5 1st Qu.: 57.0 1st Qu.: 31.00 1st Qu.: 24.00

Median : 76.0 Median : 106.0 Median : 54.00 Median : 54.00

Mean : 121.3 Mean : 171.5 Mean : 80.06 Mean : 91.47

3rd Qu.: 145.0 3rd Qu.: 207.5 3rd Qu.: 96.00 3rd Qu.:114.50

Max. :1130.0 Max. :1576.0 Max. :625.00 Max. :951.00

NA's :1 NA's :1 NA's :1 NA's :1

MaxCyclomatic MaxCyclomaticModified MaxCyclomaticStrict MaxEssential

Min. : 1.00 Min. : 1.000 Min. : 1.000 Min. : 1.0

1st Qu.: 4.00 1st Qu.: 3.000 1st Qu.: 4.000 1st Qu.: 1.0

Median : 6.00 Median : 6.000 Median : 7.000 Median : 3.0

Mean : 8.64 Mean : 8.395 Mean : 9.888 Mean : 3.7

3rd Qu.:11.00 3rd Qu.:10.000 3rd Qu.: 12.500 3rd Qu.: 5.0

Max. :86.00 Max. :86.000 Max. :160.000 Max. :56.0

NA's :1 NA's :1 NA's :1 NA's :1

MaxEssentialKnots MaxInheritanceTree MaxNesting MinEssentialKnots

Min. :0 Min. :0 Min. :0.000 Min. :0

1st Qu.:0 1st Qu.:0 1st Qu.:2.000 1st Qu.:0

Median :0 Median :0 Median :3.000 Median :0

Mean :0 Mean :0 Mean :2.803 Mean :0

3rd Qu.:0 3rd Qu.:0 3rd Qu.:4.000 3rd Qu.:0

Max. :0 Max. :0 Max. :8.000 Max. :0

NA's :1 NA's :1 NA's :1 NA's :1

PercentLackOfCohesion PercentLackOfCohesionModified RatioCommentToCode

Min. : 0.0000 Min. : 0.0000 Min. :0.0000

1st Qu.: 0.0000 1st Qu.: 0.0000 1st Qu.:0.1700

Median : 0.0000 Median : 0.0000 Median :0.2800

Mean : 0.3008 Mean : 0.2774 Mean :0.3655

3rd Qu.: 0.0000 3rd Qu.: 0.0000 3rd Qu.:0.4600

Max. :82.0000 Max. :75.0000 Max. :3.4700

NA's :2 NA's :1 NA's :1

SumCyclomatic SumCyclomaticModified SumCyclomaticStrict SumEssential

Min. : 0.00 Min. : 0.00 Min. : 0.00 Min. : 0.00

1st Qu.: 14.00 1st Qu.: 14.00 1st Qu.: 15.00 1st Qu.: 8.00

Median : 28.00 Median : 27.00 Median : 30.00 Median : 18.00

Mean : 47.76 Mean : 47.22 Mean : 51.37 Mean : 28.65

3rd Qu.: 55.50 3rd Qu.: 55.50 3rd Qu.: 59.50 3rd Qu.: 34.00

Max. :468.00 Max. :460.00 Max. :525.00 Max. :302.00

NA's :1 NA's :1 NA's :1 NA's :1

> data$Code\_Ownership\_count<-as.numeric(data$Code\_Ownership\_count)

> data$lines\_added<-as.numeric(data$lines\_added)

> data$lines\_deleted<-as.numeric(data$lines\_deleted)

> str(data)

tibble [484 × 85] (S3: tbl\_df/tbl/data.frame)

$ file\_name : chr [1:484] "C:\\Users\\ktanu\\Downloads\\elasticsearch-2.4.0\\plugins\\analysis-icu\\src\\main\\java\\org\\elasticsearch\\i"| \_\_truncated\_\_ "C:\\Users\\ktanu\\Downloads\\elasticsearch-2.4.0\\plugins\\analysis-icu\\src\\main\\java\\org\\elasticsearch\\i"| \_\_truncated\_\_ "C:\\Users\\ktanu\\Downloads\\elasticsearch-2.4.0\\plugins\\analysis-kuromoji\\src\\main\\java\\org\\elasticsear"| \_\_truncated\_\_ "C:\\Users\\ktanu\\Downloads\\elasticsearch-2.4.0\\plugins\\analysis-stempel\\src\\main\\java\\org\\elasticsearc"| \_\_truncated\_\_ ...

$ specificPercentage...2 : num [1:484] 0 0 0 0 0 0 0 0 0 0 ...

$ numofRevoverableException : num [1:484] 0 1 0 0 0 0 0 0 0 0 ...

$ Percentage\_Action\_Continue : num [1:484] 0 0 0 0 0 0 0 0 0 0 ...

$ Percentage\_Action\_Empty : num [1:484] 0 0 0 0 0 0 0 0 0 0 ...

$ Percentage\_Action\_Log : num [1:484] 0 0 0 0 0 0 0 0 0 0 ...

$ Percentage\_Action\_Method : num [1:484] 0 0 0 0 0 0 0 0 0 0 ...

$ Percentage\_Action\_Return : num [1:484] 0 0 0 0 0 0 0 0 0 0 ...

$ Percentage\_Action\_ThrowCurrent : num [1:484] 0 0 0 0 0 0 0 0 0 0 ...

$ Percentage\_Action\_ThrowNew : num [1:484] 100 0 0 100 100 0 100 0 0 0 ...

$ specificPercentage...11 : num [1:484] 0 0 0 0 0 0 0 0 0 0 ...

$ doNothingPercentage : num [1:484] 0 0 0 0 0 0 0 0 0 0 ...

$ catchGenericPercentage : num [1:484] 0 0 0 0 0 0 0 0 0 0 ...

$ destructiveWrappingPercentage : num [1:484] 0 0 0 0 0 0 0 0 0 0 ...

$ dummyPercentage : num [1:484] 0 0 0 0 0 0 0 0 0 0 ...

$ logThrowPercentage : num [1:484] 0 0 0 0 0 0 0 0 0 0 ...

$ number\_of\_Catch\_Blocks : num [1:484] 1 2 1 1 1 2 1 2 7 2 ...

$ Number\_of\_Catch\_Block\_LOC : num [1:484] 1 1 1 1 1 1 1 1 1 1 ...

$ Number\_of\_Catch\_Block\_SLOC : num [1:484] 1 1 1 1 1 1 1 1 1 1 ...

$ Number\_of\_Invoked\_methods : num [1:484] 1 5 1 2 2 2 1 2 10 0 ...

$ Number\_of\_Try\_Blocks : num [1:484] 1 2 2 1 1 2 1 2 6 2 ...

$ Number\_of\_Try\_Block\_LOC : num [1:484] 1 1 1 1 1 1 1 1 1 2 ...

$ Number\_of\_Try\_Block\_SLOC : num [1:484] 1 1 1 1 1 1 1 1 1 2 ...

$ Number\_of\_Throws\_Generic\_AP : num [1:484] 0 0 0 0 0 0 0 0 1 0 ...

$ Number\_of\_Throws\_Kitchen\_Sink\_AP: num [1:484] 0 0 0 0 0 0 0 0 0 0 ...

$ Number\_of\_Try\_in\_Declaration : num [1:484] 1 0 1 1 1 0 0 2 5 1 ...

$ Number\_of\_Try\_in\_Condition : num [1:484] 0 2 1 0 0 2 1 0 0 0 ...

$ Number\_of\_Try\_in\_EH : num [1:484] 0 0 0 0 0 0 0 0 0 0 ...

$ Number\_of\_Try\_in\_Other : num [1:484] 0 0 0 0 0 0 0 0 0 0 ...

$ Action\_Empty : num [1:484] 0 0 0 0 0 0 0 0 0 0 ...

$ Action\_Log : num [1:484] 0 0 0 0 0 1 0 1 0 1 ...

$ Action\_Method : num [1:484] 0 0 0 0 0 0 0 1 2 1 ...

$ Action\_NestedTry : num [1:484] 0 0 0 0 0 0 0 0 0 0 ...

$ Action\_Return : num [1:484] 0 0 0 0 0 0 0 0 2 0 ...

$ Code\_Ownership\_count : num [1:484] 4 7 13 13 8 6 6 6 6 7 ...

$ lines\_added : num [1:484] 0 0 0 0 0 4 6 0 1 0 ...

$ lines\_deleted : num [1:484] 0 0 0 0 0 8 1 0 2 0 ...

$ Pre\_release\_bugs : num [1:484] 0 0 0 0 0 1 1 0 0 0 ...

$ Post\_release\_bugs : num [1:484] 0 0 0 0 0 3 2 0 3 0 ...

$ AvgCyclomatic : num [1:484] 2 14 4 1 2 1 4 2 2 1 ...

$ AvgCyclomaticModified : num [1:484] 2 14 4 1 2 1 4 2 2 1 ...

$ AvgCyclomaticStrict : num [1:484] 2 14 4 1 2 1 6 2 2 1 ...

$ AvgEssential : num [1:484] 1 1 1 1 2 1 2 1 1 1 ...

$ AvgLine : num [1:484] 16 60 15 3 11 7 19 9 10 6 ...

$ AvgLineBlank : num [1:484] 0 5 0 0 0 0 1 0 0 0 ...

$ AvgLineCode : num [1:484] 13 54 15 3 10 6 17 6 9 6 ...

$ AvgLineComment : num [1:484] 3 1 0 0 1 1 0 2 0 0 ...

$ CountDeclClass : num [1:484] 1 1 1 1 1 1 1 1 1 4 ...

$ CountDeclClassMethod : num [1:484] 0 0 2 0 14 2 1 2 3 2 ...

$ CountDeclClassVariable : num [1:484] 0 0 4 0 1 1 0 1 2 0 ...

$ CountDeclExecutableUnit : num [1:484] 2 2 4 2 14 10 8 3 43 17 ...

$ CountDeclFunction : num [1:484] 2 2 4 2 14 10 8 3 43 17 ...

$ CountDeclInstanceMethod : num [1:484] 2 2 2 2 0 5 7 1 18 15 ...

$ CountDeclInstanceVariable : num [1:484] 3 1 5 0 0 1 1 0 2 12 ...

$ CountDeclMethod : num [1:484] 2 2 4 2 14 7 8 3 21 17 ...

$ CountDeclMethodAll : num [1:484] 0 0 0 0 0 0 0 0 0 0 ...

$ CountDeclMethodDefault : num [1:484] 0 0 0 0 0 3 0 0 6 3 ...

$ CountDeclMethodPrivate : num [1:484] 0 0 0 0 2 1 3 1 5 0 ...

$ CountDeclMethodProtected : num [1:484] 0 0 0 0 0 0 3 1 0 0 ...

$ CountDeclMethodPublic : num [1:484] 2 2 4 2 12 3 2 1 10 14 ...

$ CountLine : num [1:484] 109 177 120 43 299 131 220 62 477 190 ...

$ CountLineBlank : num [1:484] 6 18 12 8 25 14 27 9 48 36 ...

$ CountLineCode : num [1:484] 41 125 89 17 233 85 164 28 379 133 ...

$ CountLineCodeDecl : num [1:484] 20 34 39 12 100 41 47 10 124 59 ...

$ CountLineCodeExe : num [1:484] 22 83 48 2 123 43 104 12 227 58 ...

$ CountLineComment : num [1:484] 62 34 19 18 41 32 29 25 50 21 ...

$ CountSemicolon : num [1:484] 23 62 53 11 114 49 81 12 195 70 ...

$ CountStmt : num [1:484] 29 91 72 14 150 63 120 19 262 96 ...

$ CountStmtDecl : num [1:484] 17 33 40 12 95 35 41 10 110 54 ...

$ CountStmtExe : num [1:484] 12 58 32 2 55 28 79 9 152 42 ...

$ MaxCyclomatic : num [1:484] 3 27 8 1 5 2 13 3 9 4 ...

$ MaxCyclomaticModified : num [1:484] 3 27 8 1 5 2 13 3 9 4 ...

$ MaxCyclomaticStrict : num [1:484] 3 27 10 1 5 2 22 3 10 5 ...

$ MaxEssential : num [1:484] 1 1 3 1 5 1 13 1 4 4 ...

$ MaxEssentialKnots : num [1:484] 0 0 0 0 0 0 0 0 0 0 ...

$ MaxInheritanceTree : num [1:484] 0 0 0 0 0 0 0 0 0 0 ...

$ MaxNesting : num [1:484] 2 4 4 0 3 1 2 1 3 2 ...

$ MinEssentialKnots : num [1:484] 0 0 0 0 0 0 0 0 0 0 ...

$ PercentLackOfCohesion : num [1:484] 0 0 0 0 0 0 0 0 0 0 ...

$ PercentLackOfCohesionModified : num [1:484] 0 0 0 0 0 0 0 0 0 0 ...

$ RatioCommentToCode : num [1:484] 1.51 0.27 0.21 1.06 0.18 0.38 0.18 0.89 0.13 0.16 ...

$ SumCyclomatic : num [1:484] 5 28 16 2 35 16 37 6 86 23 ...

$ SumCyclomaticModified : num [1:484] 5 28 16 2 35 16 37 6 86 23 ...

$ SumCyclomaticStrict : num [1:484] 5 28 18 2 37 16 49 6 88 25 ...

$ SumEssential : num [1:484] 2 2 6 2 30 10 20 3 52 22 ...

> nrow(data)

[1] 484

> drop=c("file\_name","Post\_release\_bugs")

> independant=data[,!(names(data) %in% drop)]

> names(independant)

[1] "specificPercentage...2" "numofRevoverableException"

[3] "Percentage\_Action\_Continue" "Percentage\_Action\_Empty"

[5] "Percentage\_Action\_Log" "Percentage\_Action\_Method"

[7] "Percentage\_Action\_Return" "Percentage\_Action\_ThrowCurrent"

[9] "Percentage\_Action\_ThrowNew" "specificPercentage...11"

[11] "doNothingPercentage" "catchGenericPercentage"

[13] "destructiveWrappingPercentage" "dummyPercentage"

[15] "logThrowPercentage" "number\_of\_Catch\_Blocks"

[17] "Number\_of\_Catch\_Block\_LOC" "Number\_of\_Catch\_Block\_SLOC"

[19] "Number\_of\_Invoked\_methods" "Number\_of\_Try\_Blocks"

[21] "Number\_of\_Try\_Block\_LOC" "Number\_of\_Try\_Block\_SLOC"

[23] "Number\_of\_Throws\_Generic\_AP" "Number\_of\_Throws\_Kitchen\_Sink\_AP"

[25] "Number\_of\_Try\_in\_Declaration" "Number\_of\_Try\_in\_Condition"

[27] "Number\_of\_Try\_in\_EH" "Number\_of\_Try\_in\_Other"

[29] "Action\_Empty" "Action\_Log"

[31] "Action\_Method" "Action\_NestedTry"

[33] "Action\_Return" "Code\_Ownership\_count"

[35] "lines\_added" "lines\_deleted"

[37] "Pre\_release\_bugs" "AvgCyclomatic"

[39] "AvgCyclomaticModified" "AvgCyclomaticStrict"

[41] "AvgEssential" "AvgLine"

[43] "AvgLineBlank" "AvgLineCode"

[45] "AvgLineComment" "CountDeclClass"

[47] "CountDeclClassMethod" "CountDeclClassVariable"

[49] "CountDeclExecutableUnit" "CountDeclFunction"

[51] "CountDeclInstanceMethod" "CountDeclInstanceVariable"

[53] "CountDeclMethod" "CountDeclMethodAll"

[55] "CountDeclMethodDefault" "CountDeclMethodPrivate"

[57] "CountDeclMethodProtected" "CountDeclMethodPublic"

[59] "CountLine" "CountLineBlank"

[61] "CountLineCode" "CountLineCodeDecl"

[63] "CountLineCodeExe" "CountLineComment"

[65] "CountSemicolon" "CountStmt"

[67] "CountStmtDecl" "CountStmtExe"

[69] "MaxCyclomatic" "MaxCyclomaticModified"

[71] "MaxCyclomaticStrict" "MaxEssential"

[73] "MaxEssentialKnots" "MaxInheritanceTree"

[75] "MaxNesting" "MinEssentialKnots"

[77] "PercentLackOfCohesion" "PercentLackOfCohesionModified"

[79] "RatioCommentToCode" "SumCyclomatic"

[81] "SumCyclomaticModified" "SumCyclomaticStrict"

[83] "SumEssential"

>

> independant<-na.omit(independant)

> is.na(independant)

specificPercentage...2 numofRevoverableException Percentage\_Action\_Continue

[1,] FALSE FALSE FALSE

[2,] FALSE FALSE FALSE

[3,] FALSE FALSE FALSE

[4,] FALSE FALSE FALSE

[5,] FALSE FALSE FALSE

[6,] FALSE FALSE FALSE

[7,] FALSE FALSE FALSE

[8,] FALSE FALSE FALSE

[9,] FALSE FALSE FALSE

[10,] FALSE FALSE FALSE

[11,] FALSE FALSE FALSE

[12,] FALSE FALSE FALSE

Percentage\_Action\_Empty Percentage\_Action\_Log Percentage\_Action\_Method

[1,] FALSE FALSE FALSE

[2,] FALSE FALSE FALSE

[3,] FALSE FALSE FALSE

[4,] FALSE FALSE FALSE

[5,] FALSE FALSE FALSE

[6,] FALSE FALSE FALSE

[7,] FALSE FALSE FALSE

[8,] FALSE FALSE FALSE

[9,] FALSE FALSE FALSE

[10,] FALSE FALSE FALSE

[11,] FALSE FALSE FALSE

[12,] FALSE FALSE FALSE

Percentage\_Action\_Return Percentage\_Action\_ThrowCurrent

[1,] FALSE FALSE

[2,] FALSE FALSE

[3,] FALSE FALSE

[4,] FALSE FALSE

[5,] FALSE FALSE

[6,] FALSE FALSE

[7,] FALSE FALSE

[8,] FALSE FALSE

[9,] FALSE FALSE

[10,] FALSE FALSE

[11,] FALSE FALSE

[12,] FALSE FALSE

Percentage\_Action\_ThrowNew specificPercentage...11 doNothingPercentage

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[2,] FALSE FALSE FALSE

[3,] FALSE FALSE FALSE

[4,] FALSE FALSE FALSE

[5,] FALSE FALSE FALSE

[6,] FALSE FALSE FALSE

[7,] FALSE FALSE FALSE

[8,] FALSE FALSE FALSE

[9,] FALSE FALSE FALSE

[10,] FALSE FALSE FALSE

[11,] FALSE FALSE FALSE

[12,] FALSE FALSE FALSE

catchGenericPercentage destructiveWrappingPercentage dummyPercentage

[1,] FALSE FALSE FALSE

[2,] FALSE FALSE FALSE

[3,] FALSE FALSE FALSE

[4,] FALSE FALSE FALSE

[5,] FALSE FALSE FALSE

[6,] FALSE FALSE FALSE

[7,] FALSE FALSE FALSE

[8,] FALSE FALSE FALSE

[9,] FALSE FALSE FALSE

[10,] FALSE FALSE FALSE

[11,] FALSE FALSE FALSE

[12,] FALSE FALSE FALSE

logThrowPercentage number\_of\_Catch\_Blocks Number\_of\_Catch\_Block\_LOC

[1,] FALSE FALSE FALSE

[2,] FALSE FALSE FALSE

[3,] FALSE FALSE FALSE

[4,] FALSE FALSE FALSE

[5,] FALSE FALSE FALSE

[6,] FALSE FALSE FALSE

[7,] FALSE FALSE FALSE

[8,] FALSE FALSE FALSE

[9,] FALSE FALSE FALSE

[10,] FALSE FALSE FALSE

[11,] FALSE FALSE FALSE

[12,] FALSE FALSE FALSE

Number\_of\_Catch\_Block\_SLOC Number\_of\_Invoked\_methods Number\_of\_Try\_Blocks

[1,] FALSE FALSE FALSE

[2,] FALSE FALSE FALSE

[3,] FALSE FALSE FALSE

[4,] FALSE FALSE FALSE

[5,] FALSE FALSE FALSE

[6,] FALSE FALSE FALSE

[7,] FALSE FALSE FALSE

[8,] FALSE FALSE FALSE

[9,] FALSE FALSE FALSE

[10,] FALSE FALSE FALSE

[11,] FALSE FALSE FALSE

[12,] FALSE FALSE FALSE

Number\_of\_Try\_Block\_LOC Number\_of\_Try\_Block\_SLOC

[1,] FALSE FALSE

[2,] FALSE FALSE

[3,] FALSE FALSE

[4,] FALSE FALSE

[5,] FALSE FALSE

[6,] FALSE FALSE

[7,] FALSE FALSE

[8,] FALSE FALSE

[9,] FALSE FALSE

[10,] FALSE FALSE

[11,] FALSE FALSE

[12,] FALSE FALSE

Number\_of\_Throws\_Generic\_AP Number\_of\_Throws\_Kitchen\_Sink\_AP

[1,] FALSE FALSE

[2,] FALSE FALSE

[3,] FALSE FALSE

[4,] FALSE FALSE

[5,] FALSE FALSE

[6,] FALSE FALSE

[7,] FALSE FALSE

[8,] FALSE FALSE

[9,] FALSE FALSE

[10,] FALSE FALSE

[11,] FALSE FALSE

[12,] FALSE FALSE

Number\_of\_Try\_in\_Declaration Number\_of\_Try\_in\_Condition Number\_of\_Try\_in\_EH

[1,] FALSE FALSE FALSE

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[3,] FALSE FALSE FALSE

[4,] FALSE FALSE FALSE

[5,] FALSE FALSE FALSE

[6,] FALSE FALSE FALSE

[7,] FALSE FALSE FALSE

[8,] FALSE FALSE FALSE

[9,] FALSE FALSE FALSE

[10,] FALSE FALSE FALSE

[11,] FALSE FALSE FALSE

[12,] FALSE FALSE FALSE

Number\_of\_Try\_in\_Other Action\_Empty Action\_Log Action\_Method

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[5,] FALSE FALSE FALSE FALSE

[6,] FALSE FALSE FALSE FALSE

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[10,] FALSE FALSE FALSE FALSE

[11,] FALSE FALSE FALSE FALSE

[12,] FALSE FALSE FALSE FALSE

Action\_NestedTry Action\_Return Code\_Ownership\_count lines\_added

[1,] FALSE FALSE FALSE FALSE

[2,] FALSE FALSE FALSE FALSE

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[7,] FALSE FALSE FALSE FALSE

[8,] FALSE FALSE FALSE FALSE

[9,] FALSE FALSE FALSE FALSE

[10,] FALSE FALSE FALSE FALSE

[11,] FALSE FALSE FALSE FALSE

[12,] FALSE FALSE FALSE FALSE

lines\_deleted Pre\_release\_bugs AvgCyclomatic AvgCyclomaticModified

[1,] FALSE FALSE FALSE FALSE

[2,] FALSE FALSE FALSE FALSE

[3,] FALSE FALSE FALSE FALSE

[4,] FALSE FALSE FALSE FALSE

[5,] FALSE FALSE FALSE FALSE

[6,] FALSE FALSE FALSE FALSE

[7,] FALSE FALSE FALSE FALSE

[8,] FALSE FALSE FALSE FALSE

[9,] FALSE FALSE FALSE FALSE

[10,] FALSE FALSE FALSE FALSE

[11,] FALSE FALSE FALSE FALSE

[12,] FALSE FALSE FALSE FALSE

AvgCyclomaticStrict AvgEssential AvgLine AvgLineBlank AvgLineCode

[1,] FALSE FALSE FALSE FALSE FALSE

[2,] FALSE FALSE FALSE FALSE FALSE

[3,] FALSE FALSE FALSE FALSE FALSE

[4,] FALSE FALSE FALSE FALSE FALSE

[5,] FALSE FALSE FALSE FALSE FALSE

[6,] FALSE FALSE FALSE FALSE FALSE

[7,] FALSE FALSE FALSE FALSE FALSE

[8,] FALSE FALSE FALSE FALSE FALSE

[9,] FALSE FALSE FALSE FALSE FALSE

[10,] FALSE FALSE FALSE FALSE FALSE

[11,] FALSE FALSE FALSE FALSE FALSE

[12,] FALSE FALSE FALSE FALSE FALSE

AvgLineComment CountDeclClass CountDeclClassMethod CountDeclClassVariable

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[2,] FALSE FALSE FALSE FALSE

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[5,] FALSE FALSE FALSE FALSE

[6,] FALSE FALSE FALSE FALSE

[7,] FALSE FALSE FALSE FALSE

[8,] FALSE FALSE FALSE FALSE

[9,] FALSE FALSE FALSE FALSE

[10,] FALSE FALSE FALSE FALSE

[11,] FALSE FALSE FALSE FALSE

[12,] FALSE FALSE FALSE FALSE

CountDeclExecutableUnit CountDeclFunction CountDeclInstanceMethod

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[2,] FALSE FALSE FALSE

[3,] FALSE FALSE FALSE

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[6,] FALSE FALSE FALSE

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[8,] FALSE FALSE FALSE

[9,] FALSE FALSE FALSE

[10,] FALSE FALSE FALSE

[11,] FALSE FALSE FALSE

[12,] FALSE FALSE FALSE

CountDeclInstanceVariable CountDeclMethod CountDeclMethodAll

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[5,] FALSE FALSE FALSE

[6,] FALSE FALSE FALSE

[7,] FALSE FALSE FALSE

[8,] FALSE FALSE FALSE

[9,] FALSE FALSE FALSE

[10,] FALSE FALSE FALSE

[11,] FALSE FALSE FALSE

[12,] FALSE FALSE FALSE

CountDeclMethodDefault CountDeclMethodPrivate CountDeclMethodProtected

[1,] FALSE FALSE FALSE

[2,] FALSE FALSE FALSE

[3,] FALSE FALSE FALSE

[4,] FALSE FALSE FALSE

[5,] FALSE FALSE FALSE

[6,] FALSE FALSE FALSE

[7,] FALSE FALSE FALSE

[8,] FALSE FALSE FALSE

[9,] FALSE FALSE FALSE

[10,] FALSE FALSE FALSE

[11,] FALSE FALSE FALSE

[12,] FALSE FALSE FALSE

CountDeclMethodPublic CountLine CountLineBlank CountLineCode

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[6,] FALSE FALSE FALSE FALSE

[7,] FALSE FALSE FALSE FALSE

[8,] FALSE FALSE FALSE FALSE

[9,] FALSE FALSE FALSE FALSE

[10,] FALSE FALSE FALSE FALSE

[11,] FALSE FALSE FALSE FALSE

[12,] FALSE FALSE FALSE FALSE

CountLineCodeDecl CountLineCodeExe CountLineComment CountSemicolon

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[5,] FALSE FALSE FALSE FALSE

[6,] FALSE FALSE FALSE FALSE

[7,] FALSE FALSE FALSE FALSE

[8,] FALSE FALSE FALSE FALSE

[9,] FALSE FALSE FALSE FALSE

[10,] FALSE FALSE FALSE FALSE

[11,] FALSE FALSE FALSE FALSE

[12,] FALSE FALSE FALSE FALSE

CountStmt CountStmtDecl CountStmtExe MaxCyclomatic MaxCyclomaticModified

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[2,] FALSE FALSE FALSE FALSE FALSE

[3,] FALSE FALSE FALSE FALSE FALSE

[4,] FALSE FALSE FALSE FALSE FALSE

[5,] FALSE FALSE FALSE FALSE FALSE

[6,] FALSE FALSE FALSE FALSE FALSE

[7,] FALSE FALSE FALSE FALSE FALSE

[8,] FALSE FALSE FALSE FALSE FALSE

[9,] FALSE FALSE FALSE FALSE FALSE

[10,] FALSE FALSE FALSE FALSE FALSE

[11,] FALSE FALSE FALSE FALSE FALSE

[12,] FALSE FALSE FALSE FALSE FALSE

MaxCyclomaticStrict MaxEssential MaxEssentialKnots MaxInheritanceTree

[1,] FALSE FALSE FALSE FALSE

[2,] FALSE FALSE FALSE FALSE

[3,] FALSE FALSE FALSE FALSE

[4,] FALSE FALSE FALSE FALSE

[5,] FALSE FALSE FALSE FALSE

[6,] FALSE FALSE FALSE FALSE

[7,] FALSE FALSE FALSE FALSE

[8,] FALSE FALSE FALSE FALSE

[9,] FALSE FALSE FALSE FALSE

[10,] FALSE FALSE FALSE FALSE

[11,] FALSE FALSE FALSE FALSE

[12,] FALSE FALSE FALSE FALSE

MaxNesting MinEssentialKnots PercentLackOfCohesion

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[2,] FALSE FALSE FALSE

[3,] FALSE FALSE FALSE

[4,] FALSE FALSE FALSE

[5,] FALSE FALSE FALSE

[6,] FALSE FALSE FALSE

[7,] FALSE FALSE FALSE

[8,] FALSE FALSE FALSE

[9,] FALSE FALSE FALSE

[10,] FALSE FALSE FALSE

[11,] FALSE FALSE FALSE

[12,] FALSE FALSE FALSE

PercentLackOfCohesionModified RatioCommentToCode SumCyclomatic

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[2,] FALSE FALSE FALSE

[3,] FALSE FALSE FALSE

[4,] FALSE FALSE FALSE

[5,] FALSE FALSE FALSE

[6,] FALSE FALSE FALSE

[7,] FALSE FALSE FALSE

[8,] FALSE FALSE FALSE

[9,] FALSE FALSE FALSE

[10,] FALSE FALSE FALSE

[11,] FALSE FALSE FALSE

[12,] FALSE FALSE FALSE

SumCyclomaticModified SumCyclomaticStrict SumEssential

[1,] FALSE FALSE FALSE

[2,] FALSE FALSE FALSE

[3,] FALSE FALSE FALSE

[4,] FALSE FALSE FALSE

[5,] FALSE FALSE FALSE

[6,] FALSE FALSE FALSE

[7,] FALSE FALSE FALSE

[8,] FALSE FALSE FALSE

[9,] FALSE FALSE FALSE

[10,] FALSE FALSE FALSE

[11,] FALSE FALSE FALSE

[12,] FALSE FALSE FALSE

[ reached getOption("max.print") -- omitted 468 rows ]

> ##########correlation

> zv <- apply(independant, 2, function(independant) length(unique(independant)) == 1)

> dfr <- independant[, !zv]

> n=length(colnames(dfr))

> correlationMatrix <- cor(dfr[,1:n],method="spearman",use="complete.obs")

> correlationMatrix

specificPercentage...2 numofRevoverableException

specificPercentage...2 1.000000000 0.674987217

numofRevoverableException 0.674987217 1.000000000

Percentage\_Action\_Continue 0.050551485 0.014028738

Percentage\_Action\_Empty 0.086197264 0.006437165

Percentage\_Action\_Log 0.035875849 -0.012025631

Percentage\_Action\_Method 0.001789609 -0.173331418

Percentage\_Action\_Return 0.074124806 0.006402775

Percentage\_Action\_ThrowCurrent 0.093816137 -0.021806633

Percentage\_Action\_ThrowNew 0.240657384 0.031879858

specificPercentage...11 1.000000000 0.674987217

doNothingPercentage 0.044489212 -0.009158144

catchGenericPercentage -0.011908498 -0.008789445

Percentage\_Action\_Continue

specificPercentage...2 0.0505514849

numofRevoverableException 0.0140287380

Percentage\_Action\_Continue 1.0000000000

Percentage\_Action\_Empty -0.0069974880

Percentage\_Action\_Log -0.0166051701

Percentage\_Action\_Method -0.0240300675

Percentage\_Action\_Return -0.0146958216

Percentage\_Action\_ThrowCurrent -0.0092759539

Percentage\_Action\_ThrowNew -0.0306557101

specificPercentage...11 0.0505514849

doNothingPercentage -0.0073164421

catchGenericPercentage 0.0828222722

Percentage\_Action\_Empty Percentage\_Action\_Log

specificPercentage...2 0.086197264 0.035875849

numofRevoverableException 0.006437165 -0.012025631

Percentage\_Action\_Continue -0.006997488 -0.016605170

Percentage\_Action\_Empty 1.000000000 -0.012287943

Percentage\_Action\_Log -0.012287943 1.000000000

Percentage\_Action\_Method -0.080543903 0.139673522

Percentage\_Action\_Return -0.049257407 -0.050095178

Percentage\_Action\_ThrowCurrent -0.031091112 0.059356674

Percentage\_Action\_ThrowNew -0.072659690 -0.187724717

specificPercentage...11 0.086197264 0.035875849

doNothingPercentage 0.688879739 -0.058194077

catchGenericPercentage 0.014264208 0.198445770

Percentage\_Action\_Method Percentage\_Action\_Return

specificPercentage...2 0.001789609 0.074124806

numofRevoverableException -0.173331418 0.006402775

Percentage\_Action\_Continue -0.024030067 -0.014695822

Percentage\_Action\_Empty -0.080543903 -0.049257407

Percentage\_Action\_Log 0.139673522 -0.050095178

Percentage\_Action\_Method 1.000000000 0.160480213

Percentage\_Action\_Return 0.160480213 1.000000000

Percentage\_Action\_ThrowCurrent 0.360078452 -0.065296209

Percentage\_Action\_ThrowNew -0.167048123 -0.215794696

specificPercentage...11 0.001789609 0.074124806

doNothingPercentage -0.084215192 -0.051502620

catchGenericPercentage 0.152243876 -0.092943735

Percentage\_Action\_ThrowCurrent

specificPercentage...2 0.093816137

numofRevoverableException -0.021806633

Percentage\_Action\_Continue -0.009275954

Percentage\_Action\_Empty -0.031091112

Percentage\_Action\_Log 0.059356674

Percentage\_Action\_Method 0.360078452

Percentage\_Action\_Return -0.065296209

Percentage\_Action\_ThrowCurrent 1.000000000

Percentage\_Action\_ThrowNew -0.066925671

specificPercentage...11 0.093816137

doNothingPercentage -0.032508283

catchGenericPercentage 0.014315572

Percentage\_Action\_ThrowNew

specificPercentage...2 0.24065738

numofRevoverableException 0.03187986

Percentage\_Action\_Continue -0.03065571

Percentage\_Action\_Empty -0.07265969

Percentage\_Action\_Log -0.18772472

Percentage\_Action\_Method -0.16704812

Percentage\_Action\_Return -0.21579470

Percentage\_Action\_ThrowCurrent -0.06692567

Percentage\_Action\_ThrowNew 1.00000000

specificPercentage...11 0.24065738

doNothingPercentage -0.10743526

catchGenericPercentage -0.10397946

specificPercentage...11 doNothingPercentage

specificPercentage...2 1.000000000 4.448921e-02

numofRevoverableException 0.674987217 -9.158144e-03

Percentage\_Action\_Continue 0.050551485 -7.316442e-03

Percentage\_Action\_Empty 0.086197264 6.888797e-01

Percentage\_Action\_Log 0.035875849 -5.819408e-02

Percentage\_Action\_Method 0.001789609 -8.421519e-02

Percentage\_Action\_Return 0.074124806 -5.150262e-02

Percentage\_Action\_ThrowCurrent 0.093816137 -3.250828e-02

Percentage\_Action\_ThrowNew 0.240657384 -1.074353e-01

specificPercentage...11 1.000000000 4.448921e-02

doNothingPercentage 0.044489212 1.000000e+00

catchGenericPercentage -0.011908498 3.785960e-02

catchGenericPercentage

specificPercentage...2 -0.011908498

numofRevoverableException -0.008789445

Percentage\_Action\_Continue 0.082822272

Percentage\_Action\_Empty 0.014264208

Percentage\_Action\_Log 0.198445770

Percentage\_Action\_Method 0.152243876

Percentage\_Action\_Return -0.092943735

Percentage\_Action\_ThrowCurrent 0.014315572

Percentage\_Action\_ThrowNew -0.103979458

specificPercentage...11 -0.011908498

doNothingPercentage 0.037859599

catchGenericPercentage 1.000000000

destructiveWrappingPercentage dummyPercentage

specificPercentage...2 0.100345891 0.0214993247

numofRevoverableException 0.042396557 0.0165857246

Percentage\_Action\_Continue -0.003623545 -0.0159261951

Percentage\_Action\_Empty -0.012145387 -0.0533813691

Percentage\_Action\_Log -0.028821231 0.7711861919

Percentage\_Action\_Method 0.150792135 0.0282026020

Percentage\_Action\_Return -0.025507216 -0.0431189392

Percentage\_Action\_ThrowCurrent 0.119479470 -0.0363842052

Percentage\_Action\_ThrowNew 0.118201313 -0.2338616043

specificPercentage...11 0.100345891 0.0214993247

doNothingPercentage -0.012698989 -0.0558145572

catchGenericPercentage 0.018750366 0.1722190169

logThrowPercentage number\_of\_Catch\_Blocks

specificPercentage...2 -0.046353086 -0.45098659

numofRevoverableException -0.065035068 0.05618835

Percentage\_Action\_Continue -0.005558411 -0.04627590

Percentage\_Action\_Empty -0.018630666 -0.10374066

Percentage\_Action\_Log 0.334739809 -0.04356285

Percentage\_Action\_Method 0.146942049 -0.19366093

Percentage\_Action\_Return -0.039127318 -0.16083389

Percentage\_Action\_ThrowCurrent 0.242699418 -0.11228527

Percentage\_Action\_ThrowNew 0.068629822 -0.32739816

specificPercentage...11 -0.046353086 -0.45098659

doNothingPercentage -0.019479874 -0.11365627

catchGenericPercentage 0.179423270 -0.15977052

Number\_of\_Catch\_Block\_LOC

specificPercentage...2 -0.0145984813

numofRevoverableException -0.0593772636

Percentage\_Action\_Continue 0.0007669093

Percentage\_Action\_Empty -0.3761533408

Percentage\_Action\_Log 0.2148036741

Percentage\_Action\_Method 0.2703118760

Percentage\_Action\_Return 0.0401888573

Percentage\_Action\_ThrowCurrent 0.1074264677

Percentage\_Action\_ThrowNew 0.0658802205

specificPercentage...11 -0.0145984813

doNothingPercentage -0.3932988700

catchGenericPercentage 0.0823176159

Number\_of\_Catch\_Block\_SLOC

specificPercentage...2 -0.0145984813

numofRevoverableException -0.0593772636

Percentage\_Action\_Continue 0.0007669093

Percentage\_Action\_Empty -0.3761533408

Percentage\_Action\_Log 0.2148036741

Percentage\_Action\_Method 0.2703118760

Percentage\_Action\_Return 0.0401888573

Percentage\_Action\_ThrowCurrent 0.1074264677

Percentage\_Action\_ThrowNew 0.0658802205

specificPercentage...11 -0.0145984813

doNothingPercentage -0.3932988700

catchGenericPercentage 0.0823176159

Number\_of\_Invoked\_methods Number\_of\_Try\_Blocks

specificPercentage...2 -0.436903608 -0.49605916

numofRevoverableException 0.042028604 0.07010201

Percentage\_Action\_Continue 0.036093339 -0.04752179

Percentage\_Action\_Empty -0.106381170 -0.15928339

Percentage\_Action\_Log 0.019182896 -0.11710093

Percentage\_Action\_Method -0.105795134 -0.27445376

Percentage\_Action\_Return -0.186397370 -0.19281873

Percentage\_Action\_ThrowCurrent -0.156635232 -0.16754440

Percentage\_Action\_ThrowNew -0.370783636 -0.39537403

specificPercentage...11 -0.436903608 -0.49605916

doNothingPercentage -0.056105253 -0.10810202

catchGenericPercentage -0.062184373 -0.11047135

Number\_of\_Try\_Block\_LOC Number\_of\_Try\_Block\_SLOC

specificPercentage...2 -0.135581769 -0.135581769

numofRevoverableException -0.023075608 -0.023075608

Percentage\_Action\_Continue -0.041056542 -0.041056542

Percentage\_Action\_Empty -0.137613185 -0.137613185

Percentage\_Action\_Log -0.077081494 -0.077081494

Percentage\_Action\_Method 0.047166455 0.047166455

Percentage\_Action\_Return 0.073114715 0.073114715

Percentage\_Action\_ThrowCurrent -0.062344529 -0.062344529

Percentage\_Action\_ThrowNew 0.014841808 0.014841808

specificPercentage...11 -0.135581769 -0.135581769

doNothingPercentage -0.070686237 -0.070686237

catchGenericPercentage -0.014843726 -0.014843726

Number\_of\_Throws\_Generic\_AP

specificPercentage...2 -8.746217e-02

numofRevoverableException 7.199686e-02

Percentage\_Action\_Continue -2.181317e-02

Percentage\_Action\_Empty -7.311331e-02

Percentage\_Action\_Log 5.184323e-02

Percentage\_Action\_Method -3.535483e-02

Percentage\_Action\_Return -9.933319e-02

Percentage\_Action\_ThrowCurrent -9.691987e-02

Percentage\_Action\_ThrowNew -2.024069e-01

specificPercentage...11 -8.746217e-02

doNothingPercentage -7.078324e-05

catchGenericPercentage 1.706439e-01

Number\_of\_Throws\_Kitchen\_Sink\_AP

specificPercentage...2 -0.089489990

numofRevoverableException 0.011680240

Percentage\_Action\_Continue -0.010479622

Percentage\_Action\_Empty -0.035125561

Percentage\_Action\_Log -0.022760995

Percentage\_Action\_Method 0.019185893

Percentage\_Action\_Return -0.039753394

Percentage\_Action\_ThrowCurrent 0.003880239

Percentage\_Action\_ThrowNew -0.010241697

specificPercentage...11 -0.089489990

doNothingPercentage -0.036726628

catchGenericPercentage -0.037281585

Number\_of\_Try\_in\_Declaration

specificPercentage...2 -0.38580957

numofRevoverableException 0.01805924

Percentage\_Action\_Continue -0.07252266

Percentage\_Action\_Empty -0.11996976

Percentage\_Action\_Log -0.24468382

Percentage\_Action\_Method -0.20078070

Percentage\_Action\_Return -0.09152251

Percentage\_Action\_ThrowCurrent -0.11434412

Percentage\_Action\_ThrowNew -0.19557423

specificPercentage...11 -0.38580957

doNothingPercentage -0.07298202

catchGenericPercentage -0.15404743

Number\_of\_Try\_in\_Condition Number\_of\_Try\_in\_EH

specificPercentage...2 -0.266122483 -0.136076373

numofRevoverableException 0.041733712 0.153453215

Percentage\_Action\_Continue 0.050662167 -0.010249821

Percentage\_Action\_Empty -0.054665877 -0.034355317

Percentage\_Action\_Log -0.006038766 0.039750162

Percentage\_Action\_Method -0.095783039 -0.117979564

Percentage\_Action\_Return -0.126303140 0.028024081

Percentage\_Action\_ThrowCurrent -0.119449998 -0.045541820

Percentage\_Action\_ThrowNew -0.235738595 -0.150509245

specificPercentage...11 -0.266122483 -0.136076373

doNothingPercentage -0.085409385 -0.035921275

catchGenericPercentage -0.083230252 -0.054720116

Number\_of\_Try\_in\_Other Action\_Empty Action\_Log

specificPercentage...2 -0.201800098 -0.139323780 -0.262325317

numofRevoverableException 0.173338527 0.033565732 0.071070116

Percentage\_Action\_Continue -0.024395521 -0.017560046 -0.029209696

Percentage\_Action\_Empty -0.052241196 0.378777809 -0.073070839

Percentage\_Action\_Log 0.039430206 -0.084035581 0.507395719

Percentage\_Action\_Method -0.205726658 -0.187672386 -0.049803821

Percentage\_Action\_Return -0.156568707 -0.123610405 -0.161552968

Percentage\_Action\_ThrowCurrent -0.063071210 -0.078022478 -0.053547243

Percentage\_Action\_ThrowNew -0.308761705 -0.244985668 -0.375229988

specificPercentage...11 -0.201800098 -0.139323780 -0.262325317

doNothingPercentage 0.008773890 0.406796011 -0.102367594

catchGenericPercentage 0.004675439 -0.138344804 0.145863344

Action\_Method Action\_NestedTry Action\_Return

specificPercentage...2 -0.32939950 -0.1508982350 -0.148678141

numofRevoverableException -0.00365143 0.1888747816 0.005309974

Percentage\_Action\_Continue -0.04508288 -0.0117966165 -0.024452220

Percentage\_Action\_Empty -0.15110864 -0.0395398611 -0.081958873

Percentage\_Action\_Log 0.02300158 0.0131807167 -0.043734510

Percentage\_Action\_Method 0.38821318 -0.1149375069 0.036835710

Percentage\_Action\_Return -0.06004103 0.0053514606 0.591463414

Percentage\_Action\_ThrowCurrent 0.10679142 -0.0524145131 -0.108645663

Percentage\_Action\_ThrowNew -0.48226136 -0.1732225214 -0.359058484

specificPercentage...11 -0.32939950 -0.1508982350 -0.148678141

doNothingPercentage -0.15799636 -0.0413421363 -0.085694658

catchGenericPercentage 0.03979576 -0.0409070683 -0.110982457

Code\_Ownership\_count lines\_added lines\_deleted

specificPercentage...2 -0.377558942 -0.252469899 -0.2664150123

numofRevoverableException -0.379228036 0.005426035 -0.0736745230

Percentage\_Action\_Continue -0.027077061 0.072823958 -0.0302877241

Percentage\_Action\_Empty 0.004601307 -0.013504581 -0.0247531064

Percentage\_Action\_Log -0.042033169 0.015462924 0.0554115264

Percentage\_Action\_Method 0.022975516 -0.030163689 -0.0040181434

Percentage\_Action\_Return 0.064620567 -0.051723232 -0.1131441976

Percentage\_Action\_ThrowCurrent -0.035029039 -0.060766154 -0.0421217614

Percentage\_Action\_ThrowNew -0.049828526 -0.152272822 -0.0727441607

specificPercentage...11 -0.377558942 -0.252469899 -0.2664150123

doNothingPercentage 0.020327104 -0.012889751 0.0011715853

catchGenericPercentage 0.019067157 0.067861089 0.0862342278

Pre\_release\_bugs AvgCyclomatic

specificPercentage...2 -0.009252994 -0.054459544

numofRevoverableException 0.050338583 0.082143832

Percentage\_Action\_Continue -0.011150895 0.031403566

Percentage\_Action\_Empty -0.037375534 -0.001714666

Percentage\_Action\_Log -0.088692843 0.009436366

Percentage\_Action\_Method -0.039766959 -0.103003825

Percentage\_Action\_Return 0.014859037 -0.044297003

Percentage\_Action\_ThrowCurrent -0.003959773 -0.087488578

Percentage\_Action\_ThrowNew -0.106107877 -0.095063773

specificPercentage...11 -0.009252994 -0.054459544

doNothingPercentage -0.039079157 -0.034405809

catchGenericPercentage -0.070657413 0.031095075

AvgCyclomaticModified AvgCyclomaticStrict

specificPercentage...2 -0.068675853 -0.072722799

numofRevoverableException 0.076563707 0.064443009

Percentage\_Action\_Continue 0.033586462 0.024069638

Percentage\_Action\_Empty 0.002391662 0.003694279

Percentage\_Action\_Log 0.002125940 -0.005469912

Percentage\_Action\_Method -0.107315305 -0.123666664

Percentage\_Action\_Return -0.048284408 -0.026774655

Percentage\_Action\_ThrowCurrent -0.084134390 -0.105403091

Percentage\_Action\_ThrowNew -0.096582949 -0.099873548

specificPercentage...11 -0.068675853 -0.072722799

doNothingPercentage -0.052456069 -0.029367643

catchGenericPercentage 0.029576055 -0.005670125

AvgEssential AvgLine AvgLineBlank

specificPercentage...2 0.0357736686 -0.152930147 -0.026543118

numofRevoverableException 0.0244205253 0.052604246 0.006915967

Percentage\_Action\_Continue -0.0120000839 0.011904622 -0.017889678

Percentage\_Action\_Empty -0.0402218424 0.002166390 -0.020271435

Percentage\_Action\_Log 0.0096216920 -0.024775726 0.028744313

Percentage\_Action\_Method -0.0775886513 -0.101891865 -0.045570360

Percentage\_Action\_Return 0.0904064190 -0.112302600 -0.064801883

Percentage\_Action\_ThrowCurrent -0.0106818159 -0.065422024 -0.049025757

Percentage\_Action\_ThrowNew -0.0134665987 -0.179582805 -0.048538805

specificPercentage...11 0.0357736686 -0.152930147 -0.026543118

doNothingPercentage 0.0151489173 -0.013568869 -0.018612795

catchGenericPercentage -0.0417725994 0.033759650 -0.070091781

AvgLineCode AvgLineComment CountDeclClass

specificPercentage...2 -0.144040515 -0.13624435 -0.097280261

numofRevoverableException 0.068146346 -0.02074163 0.184983517

Percentage\_Action\_Continue 0.031617710 -0.04025935 0.022913991

Percentage\_Action\_Empty -0.018158691 0.05457057 -0.058826754

Percentage\_Action\_Log 0.030142265 -0.12895385 0.011536667

Percentage\_Action\_Method -0.055018601 -0.21683471 -0.096407774

Percentage\_Action\_Return -0.110467561 -0.05823276 -0.004360140

Percentage\_Action\_ThrowCurrent -0.063021965 -0.08490132 -0.098212057

Percentage\_Action\_ThrowNew -0.196484555 -0.03104688 -0.220864918

specificPercentage...11 -0.144040515 -0.13624435 -0.097280261

doNothingPercentage -0.044332333 0.04054548 -0.024320871

catchGenericPercentage 0.062780926 -0.06934458 -0.034804290

CountDeclClassMethod CountDeclClassVariable

specificPercentage...2 -0.103295161 -0.086130994

numofRevoverableException 0.036409289 0.118857334

Percentage\_Action\_Continue 0.019865671 0.008225562

Percentage\_Action\_Empty -0.016741857 -0.042928784

Percentage\_Action\_Log -0.097637214 0.016057985

Percentage\_Action\_Method -0.151173540 -0.079319285

Percentage\_Action\_Return 0.037598727 0.071782285

Percentage\_Action\_ThrowCurrent -0.143260892 -0.124131105

Percentage\_Action\_ThrowNew -0.106019954 -0.103813226

specificPercentage...11 -0.103295161 -0.086130994

doNothingPercentage 0.057024202 0.001277797

catchGenericPercentage -0.102777439 -0.079618686

CountDeclExecutableUnit CountDeclFunction

specificPercentage...2 -0.278318802 -0.277176253

numofRevoverableException 0.068718408 0.071341238

Percentage\_Action\_Continue -0.045530019 -0.046190570

Percentage\_Action\_Empty -0.036342269 -0.033829482

Percentage\_Action\_Log -0.137442682 -0.128377055

Percentage\_Action\_Method -0.100344284 -0.097351489

Percentage\_Action\_Return 0.020127981 0.013754328

Percentage\_Action\_ThrowCurrent -0.105045362 -0.099568919

Percentage\_Action\_ThrowNew -0.182878770 -0.192814908

specificPercentage...11 -0.278318802 -0.277176253

doNothingPercentage -0.006407588 -0.005395945

catchGenericPercentage -0.123010267 -0.111648127

CountDeclInstanceMethod CountDeclInstanceVariable

specificPercentage...2 -0.260887453 -0.210918892

numofRevoverableException 0.080036458 0.100447312

Percentage\_Action\_Continue -0.052295150 -0.009264159

Percentage\_Action\_Empty -0.064995856 -0.062607243

Percentage\_Action\_Log -0.119451826 -0.025869982

Percentage\_Action\_Method -0.061128644 -0.050314352

Percentage\_Action\_Return 0.034063789 -0.028388438

Percentage\_Action\_ThrowCurrent -0.063885599 -0.083833461

Percentage\_Action\_ThrowNew -0.130013925 -0.180772280

specificPercentage...11 -0.260887453 -0.210918892

doNothingPercentage -0.052514937 -0.077205631

catchGenericPercentage -0.106403518 -0.095894316

CountDeclMethod CountDeclMethodDefault

specificPercentage...2 -0.260731613 -0.092257635

numofRevoverableException 0.079393781 0.097177115

Percentage\_Action\_Continue -0.052953747 0.030751867

Percentage\_Action\_Empty -0.031366152 -0.015740107

Percentage\_Action\_Log -0.138240243 -0.029200431

Percentage\_Action\_Method -0.113837483 -0.075852666

Percentage\_Action\_Return 0.021263549 -0.022241711

Percentage\_Action\_ThrowCurrent -0.097909261 -0.100113647

Percentage\_Action\_ThrowNew -0.173158044 -0.194402637

specificPercentage...11 -0.260731613 -0.092257635

doNothingPercentage -0.002408884 -0.010343310

catchGenericPercentage -0.129199882 -0.058965398

CountDeclMethodPrivate CountDeclMethodProtected

specificPercentage...2 -0.175168404 -0.231237254

numofRevoverableException 0.112187218 -0.050924239

Percentage\_Action\_Continue -0.049056769 0.017991303

Percentage\_Action\_Empty -0.021115398 -0.083766614

Percentage\_Action\_Log -0.071333708 0.021567305

Percentage\_Action\_Method -0.112689634 0.104658651

Percentage\_Action\_Return -0.106549072 -0.066081148

Percentage\_Action\_ThrowCurrent -0.135859059 0.016618821

Percentage\_Action\_ThrowNew -0.280304744 -0.129539706

specificPercentage...11 -0.175168404 -0.231237254

doNothingPercentage -0.005610546 -0.036254833

catchGenericPercentage -0.083469786 0.109312149

CountDeclMethodPublic CountLine CountLineBlank

specificPercentage...2 -0.1563424769 -0.306524077 -0.26467582

numofRevoverableException 0.1228253015 0.087858400 0.09029771

Percentage\_Action\_Continue -0.0582687273 -0.033469736 -0.04469060

Percentage\_Action\_Empty -0.0275629932 -0.032906565 -0.02160729

Percentage\_Action\_Log -0.1637638547 -0.118143066 -0.09261352

Percentage\_Action\_Method -0.1316656579 -0.124651555 -0.13396772

Percentage\_Action\_Return 0.0654052919 -0.033967133 -0.01805768

Percentage\_Action\_ThrowCurrent -0.0776271052 -0.113857119 -0.12880535

Percentage\_Action\_ThrowNew -0.0831921171 -0.225953515 -0.20137887

specificPercentage...11 -0.1563424769 -0.306524077 -0.26467582

doNothingPercentage -0.0006266981 -0.009919224 0.01902384

catchGenericPercentage -0.1593177805 -0.113559632 -0.13923693

CountLineCode CountLineCodeDecl CountLineCodeExe

specificPercentage...2 -0.304439645 -0.297006913 -0.30337543

numofRevoverableException 0.100941823 0.099069407 0.09639202

Percentage\_Action\_Continue -0.024071972 -0.034295534 -0.01549862

Percentage\_Action\_Empty -0.041296726 -0.046272062 -0.03582117

Percentage\_Action\_Log -0.106317676 -0.096110845 -0.10418819

Percentage\_Action\_Method -0.106604988 -0.080093445 -0.10757373

Percentage\_Action\_Return -0.028473756 -0.044388654 -0.02813888

Percentage\_Action\_ThrowCurrent -0.115747066 -0.088991910 -0.12781719

Percentage\_Action\_ThrowNew -0.235964063 -0.212752182 -0.24734184

specificPercentage...11 -0.304439645 -0.297006913 -0.30337543

doNothingPercentage -0.026483520 -0.017672358 -0.02335400

catchGenericPercentage -0.096212538 -0.076592379 -0.09932452

CountLineComment CountSemicolon CountStmt

specificPercentage...2 -0.251843645 -0.31430127 -0.305110901

numofRevoverableException 0.028646441 0.08812136 0.098796686

Percentage\_Action\_Continue -0.061683586 -0.02242356 -0.025885717

Percentage\_Action\_Empty 0.011810026 -0.03752936 -0.033057608

Percentage\_Action\_Log -0.175386702 -0.09786531 -0.099222421

Percentage\_Action\_Method -0.181114992 -0.08604080 -0.102426598

Percentage\_Action\_Return -0.073967779 -0.02834524 -0.029221824

Percentage\_Action\_ThrowCurrent -0.123112285 -0.11038941 -0.117906708

Percentage\_Action\_ThrowNew -0.128926248 -0.24227235 -0.241619585

specificPercentage...11 -0.251843645 -0.31430127 -0.305110901

doNothingPercentage 0.039834350 -0.01940550 -0.017286585

catchGenericPercentage -0.138791030 -0.09418773 -0.097883717

CountStmtDecl CountStmtExe MaxCyclomatic

specificPercentage...2 -0.298314715 -0.30114046 -0.150686090

numofRevoverableException 0.103867410 0.09575020 0.130523778

Percentage\_Action\_Continue -0.024072953 -0.02374315 -0.001984518

Percentage\_Action\_Empty -0.035972823 -0.03034574 -0.002318017

Percentage\_Action\_Log -0.081778955 -0.11407348 -0.054564946

Percentage\_Action\_Method -0.088013832 -0.11261299 -0.085366881

Percentage\_Action\_Return -0.047870873 -0.01062649 -0.073857855

Percentage\_Action\_ThrowCurrent -0.106960507 -0.12408015 -0.066131795

Percentage\_Action\_ThrowNew -0.229733912 -0.24928150 -0.161708763

specificPercentage...11 -0.298314715 -0.30114046 -0.150686090

doNothingPercentage -0.011075378 -0.01988749 -0.030379356

catchGenericPercentage -0.069536077 -0.12113690 -0.085165516

MaxCyclomaticModified MaxCyclomaticStrict

specificPercentage...2 -0.169417366 -0.1721383152

numofRevoverableException 0.123790356 0.1139832506

Percentage\_Action\_Continue 0.001323428 -0.0008262115

Percentage\_Action\_Empty 0.002419561 -0.0073008634

Percentage\_Action\_Log -0.047650682 -0.0783426709

Percentage\_Action\_Method -0.085924710 -0.0967462328

Percentage\_Action\_Return -0.103071248 -0.0665603092

Percentage\_Action\_ThrowCurrent -0.063405919 -0.0819214406

Percentage\_Action\_ThrowNew -0.161384680 -0.1499013847

specificPercentage...11 -0.169417366 -0.1721383152

doNothingPercentage -0.024591349 -0.0330571954

catchGenericPercentage -0.088687753 -0.1224519175

MaxEssential MaxNesting RatioCommentToCode

specificPercentage...2 -0.10344566 -0.187881426 0.1354246032

numofRevoverableException 0.11313217 0.132797099 -0.1139052574

Percentage\_Action\_Continue -0.04697898 -0.059868367 -0.0257263143

Percentage\_Action\_Empty -0.12736059 -0.060978870 0.0811541051

Percentage\_Action\_Log -0.12699999 -0.036569028 -0.0464713679

Percentage\_Action\_Method -0.19207529 -0.054218196 -0.0442793192

Percentage\_Action\_Return 0.06289767 -0.070764683 -0.0173872037

Percentage\_Action\_ThrowCurrent -0.10941685 -0.038776162 0.0177784704

Percentage\_Action\_ThrowNew -0.14629895 -0.180018791 0.1662930621

specificPercentage...11 -0.10344566 -0.187881426 0.1354246032

doNothingPercentage -0.08791972 -0.066205111 0.0916528489

catchGenericPercentage -0.15180532 -0.048079038 -0.0240183494

SumCyclomatic SumCyclomaticModified

specificPercentage...2 -0.28383541 -0.29082392

numofRevoverableException 0.10727799 0.10213005

Percentage\_Action\_Continue -0.04435772 -0.04435802

Percentage\_Action\_Empty -0.03271018 -0.03286114

Percentage\_Action\_Log -0.12134485 -0.11984671

Percentage\_Action\_Method -0.11875582 -0.11912164

Percentage\_Action\_Return -0.02509844 -0.03123783

Percentage\_Action\_ThrowCurrent -0.11873182 -0.12150909

Percentage\_Action\_ThrowNew -0.21400817 -0.21373336

specificPercentage...11 -0.28383541 -0.29082392

doNothingPercentage -0.02696865 -0.02778753

catchGenericPercentage -0.11521096 -0.11757606

SumCyclomaticStrict SumEssential

specificPercentage...2 -0.28199603 -0.27641377

numofRevoverableException 0.10648054 0.08166304

Percentage\_Action\_Continue -0.04270805 -0.05129395

Percentage\_Action\_Empty -0.03602584 -0.06025734

Percentage\_Action\_Log -0.12501997 -0.14905910

Percentage\_Action\_Method -0.12152796 -0.13385808

Percentage\_Action\_Return -0.02290550 0.03299842

Percentage\_Action\_ThrowCurrent -0.12435986 -0.11509198

Percentage\_Action\_ThrowNew -0.20968209 -0.19545710

specificPercentage...11 -0.28199603 -0.27641377

doNothingPercentage -0.02932794 -0.02090498

catchGenericPercentage -0.12356405 -0.14457212

[ reached getOption("max.print") -- omitted 65 rows ]

> highCorr <- findCorrelation(correlationMatrix, cutoff = 0.75)

> highCorr # these are column no.s

[1] 62 67 65 60 64 58 76 74 75 66 61 59 77 50 49 53 70 68 69 51 20 42 44 1 40 39

[27] 32 22 18 14

> low\_cor\_names=names(independant[, -highCorr])

> low\_corr\_data=independant[(names(independant) %in% low\_cor\_names)]

> names(low\_corr\_data)

[1] "numofRevoverableException" "Percentage\_Action\_Continue"

[3] "Percentage\_Action\_Empty" "Percentage\_Action\_Log"

[5] "Percentage\_Action\_Method" "Percentage\_Action\_Return"

[7] "Percentage\_Action\_ThrowCurrent" "Percentage\_Action\_ThrowNew"

[9] "specificPercentage...11" "doNothingPercentage"

[11] "catchGenericPercentage" "destructiveWrappingPercentage"

[13] "logThrowPercentage" "number\_of\_Catch\_Blocks"

[15] "Number\_of\_Catch\_Block\_LOC" "Number\_of\_Invoked\_methods"

[17] "Number\_of\_Try\_Block\_LOC" "Number\_of\_Throws\_Generic\_AP"

[19] "Number\_of\_Throws\_Kitchen\_Sink\_AP" "Number\_of\_Try\_in\_Declaration"

[21] "Number\_of\_Try\_in\_Condition" "Number\_of\_Try\_in\_EH"

[23] "Number\_of\_Try\_in\_Other" "Action\_Empty"

[25] "Action\_Log" "Action\_Method"

[27] "Action\_Return" "Code\_Ownership\_count"

[29] "lines\_added" "lines\_deleted"

[31] "Pre\_release\_bugs" "AvgCyclomatic"

[33] "AvgEssential" "AvgLineBlank"

[35] "AvgLineComment" "CountDeclClass"

[37] "CountDeclClassMethod" "CountDeclClassVariable"

[39] "CountDeclInstanceVariable" "CountDeclMethodAll"

[41] "CountDeclMethodDefault" "CountDeclMethodPrivate"

[43] "CountDeclMethodProtected" "CountLineCodeExe"

[45] "MaxCyclomaticStrict" "MaxEssential"

[47] "MaxEssentialKnots" "PercentLackOfCohesionModified"

[49] "RatioCommentToCode" "SumCyclomatic"

[51] "SumCyclomaticModified" "SumCyclomaticStrict"

[53] "SumEssential"

> #metrics that have high correlation so these have to be removed

> dataforredun=low\_corr\_data

> redun\_obj = redun (~. ,data = dataforredun ,nk =0)

Warning messages:

1: In redun(~., data = dataforredun, nk = 0) :

CountDeclMethodAll is constant

2: In redun(~., data = dataforredun, nk = 0) :

MaxEssentialKnots is constant

3: In redun(~., data = dataforredun, nk = 0) :

PercentLackOfCohesionModified is constant

> redun\_obj

Redundancy Analysis

redun(formula = ~., data = dataforredun, nk = 0)

n: 480 p: 50 nk: 0

Number of NAs: 0

Transformation of target variables forced to be linear

Binary or categorical variables removed because of inadequate frequencies:

CountDeclMethodAll MaxEssentialKnots PercentLackOfCohesionModified

R-squared cutoff: 0.9 Type: ordinary

R^2 with which each variable can be predicted from all other variables:

numofRevoverableException Percentage\_Action\_Continue

0.577 0.033

Percentage\_Action\_Empty Percentage\_Action\_Log

0.542 0.402

Percentage\_Action\_Method Percentage\_Action\_Return

0.473 0.446

Percentage\_Action\_ThrowCurrent Percentage\_Action\_ThrowNew

0.261 0.468

specificPercentage...11 doNothingPercentage

0.656 0.566

catchGenericPercentage destructiveWrappingPercentage

0.232 0.078

logThrowPercentage number\_of\_Catch\_Blocks

0.265 0.939

Number\_of\_Catch\_Block\_LOC Number\_of\_Invoked\_methods

0.449 0.863

Number\_of\_Try\_Block\_LOC Number\_of\_Throws\_Generic\_AP

0.208 0.252

Number\_of\_Throws\_Kitchen\_Sink\_AP Number\_of\_Try\_in\_Declaration

0.058 0.860

Number\_of\_Try\_in\_Condition Number\_of\_Try\_in\_EH

0.664 0.304

Number\_of\_Try\_in\_Other Action\_Empty

0.739 0.556

Action\_Log Action\_Method

0.768 0.816

Action\_Return Code\_Ownership\_count

0.519 0.255

lines\_added lines\_deleted

0.587 0.510

Pre\_release\_bugs AvgCyclomatic

0.173 0.652

AvgEssential AvgLineBlank

0.617 0.678

AvgLineComment CountDeclClass

0.505 0.583

CountDeclClassMethod CountDeclClassVariable

0.631 0.523

CountDeclInstanceVariable CountDeclMethodDefault

0.773 0.466

CountDeclMethodPrivate CountDeclMethodProtected

0.769 0.377

CountLineCodeExe MaxCyclomaticStrict

0.978 0.837

MaxEssential RatioCommentToCode

0.747 0.396

SumCyclomatic SumCyclomaticModified

0.999 0.999

SumCyclomaticStrict SumEssential

0.997 0.973

Rendundant variables:

SumCyclomatic SumCyclomaticStrict SumCyclomaticModified CountLineCodeExe number\_of\_Catch\_Blocks

Predicted from variables:

numofRevoverableException Percentage\_Action\_Continue Percentage\_Action\_Empty Percentage\_Action\_Log Percentage\_Action\_Method Percentage\_Action\_Return Percentage\_Action\_ThrowCurrent Percentage\_Action\_ThrowNew specificPercentage...11 doNothingPercentage catchGenericPercentage destructiveWrappingPercentage logThrowPercentage Number\_of\_Catch\_Block\_LOC Number\_of\_Invoked\_methods Number\_of\_Try\_Block\_LOC Number\_of\_Throws\_Generic\_AP Number\_of\_Throws\_Kitchen\_Sink\_AP Number\_of\_Try\_in\_Declaration Number\_of\_Try\_in\_Condition Number\_of\_Try\_in\_EH Number\_of\_Try\_in\_Other Action\_Empty Action\_Log Action\_Method Action\_Return Code\_Ownership\_count lines\_added lines\_deleted Pre\_release\_bugs AvgCyclomatic AvgEssential AvgLineBlank AvgLineComment CountDeclClass CountDeclClassMethod CountDeclClassVariable CountDeclInstanceVariable CountDeclMethodDefault CountDeclMethodPrivate CountDeclMethodProtected MaxCyclomaticStrict MaxEssential RatioCommentToCode SumEssential

Variable Deleted R^2 R^2 after later deletions

1 SumCyclomatic 0.999 0.999 0.989 0.975 0.975

2 SumCyclomaticStrict 0.997 0.989 0.974 0.974

3 SumCyclomaticModified 0.988 0.973 0.973

4 CountLineCodeExe 0.947 0.947

5 number\_of\_Catch\_Blocks 0.939

> #we have to delete the redundant objects

> after\_redun= dataforredun[,!(names(dataforredun) %in% redun\_obj $Out)]

>

> names(after\_redun)

[1] "numofRevoverableException" "Percentage\_Action\_Continue"

[3] "Percentage\_Action\_Empty" "Percentage\_Action\_Log"

[5] "Percentage\_Action\_Method" "Percentage\_Action\_Return"

[7] "Percentage\_Action\_ThrowCurrent" "Percentage\_Action\_ThrowNew"

[9] "specificPercentage...11" "doNothingPercentage"

[11] "catchGenericPercentage" "destructiveWrappingPercentage"

[13] "logThrowPercentage" "Number\_of\_Catch\_Block\_LOC"

[15] "Number\_of\_Invoked\_methods" "Number\_of\_Try\_Block\_LOC"

[17] "Number\_of\_Throws\_Generic\_AP" "Number\_of\_Throws\_Kitchen\_Sink\_AP"

[19] "Number\_of\_Try\_in\_Declaration" "Number\_of\_Try\_in\_Condition"

[21] "Number\_of\_Try\_in\_EH" "Number\_of\_Try\_in\_Other"

[23] "Action\_Empty" "Action\_Log"

[25] "Action\_Method" "Action\_Return"

[27] "Code\_Ownership\_count" "lines\_added"

[29] "lines\_deleted" "Pre\_release\_bugs"

[31] "AvgCyclomatic" "AvgEssential"

[33] "AvgLineBlank" "AvgLineComment"

[35] "CountDeclClass" "CountDeclClassMethod"

[37] "CountDeclClassVariable" "CountDeclInstanceVariable"

[39] "CountDeclMethodAll" "CountDeclMethodDefault"

[41] "CountDeclMethodPrivate" "CountDeclMethodProtected"

[43] "MaxCyclomaticStrict" "MaxEssential"

[45] "MaxEssentialKnots" "PercentLackOfCohesionModified"

[47] "RatioCommentToCode" "SumEssential"

> ############model

> data<-na.omit(data)

> summary(data$Post\_release\_bugs)

Min. 1st Qu. Median Mean 3rd Qu. Max.

0.000 0.000 0.000 1.204 2.000 23.000

> #to change them into boolean

> #string concatenation of all rows

> paste(names(after\_redun),collapse="+")

[1] "numofRevoverableException+Percentage\_Action\_Continue+Percentage\_Action\_Empty+Percentage\_Action\_Log+Percentage\_Action\_Method+Percentage\_Action\_Return+Percentage\_Action\_ThrowCurrent+Percentage\_Action\_ThrowNew+specificPercentage...11+doNothingPercentage+catchGenericPercentage+destructiveWrappingPercentage+logThrowPercentage+Number\_of\_Catch\_Block\_LOC+Number\_of\_Invoked\_methods+Number\_of\_Try\_Block\_LOC+Number\_of\_Throws\_Generic\_AP+Number\_of\_Throws\_Kitchen\_Sink\_AP+Number\_of\_Try\_in\_Declaration+Number\_of\_Try\_in\_Condition+Number\_of\_Try\_in\_EH+Number\_of\_Try\_in\_Other+Action\_Empty+Action\_Log+Action\_Method+Action\_Return+Code\_Ownership\_count+lines\_added+lines\_deleted+Pre\_release\_bugs+AvgCyclomatic+AvgEssential+AvgLineBlank+AvgLineComment+CountDeclClass+CountDeclClassMethod+CountDeclClassVariable+CountDeclInstanceVariable+CountDeclMethodAll+CountDeclMethodDefault+CountDeclMethodPrivate+CountDeclMethodProtected+MaxCyclomaticStrict+MaxEssential+MaxEssentialKnots+PercentLackOfCohesionModified+RatioCommentToCode+SumEssential"

> #to make into formula

> paste("post-release-bugs>0~",paste(names(after\_redun),collapse="+"))

[1] "post-release-bugs>0~ numofRevoverableException+Percentage\_Action\_Continue+Percentage\_Action\_Empty+Percentage\_Action\_Log+Percentage\_Action\_Method+Percentage\_Action\_Return+Percentage\_Action\_ThrowCurrent+Percentage\_Action\_ThrowNew+specificPercentage...11+doNothingPercentage+catchGenericPercentage+destructiveWrappingPercentage+logThrowPercentage+Number\_of\_Catch\_Block\_LOC+Number\_of\_Invoked\_methods+Number\_of\_Try\_Block\_LOC+Number\_of\_Throws\_Generic\_AP+Number\_of\_Throws\_Kitchen\_Sink\_AP+Number\_of\_Try\_in\_Declaration+Number\_of\_Try\_in\_Condition+Number\_of\_Try\_in\_EH+Number\_of\_Try\_in\_Other+Action\_Empty+Action\_Log+Action\_Method+Action\_Return+Code\_Ownership\_count+lines\_added+lines\_deleted+Pre\_release\_bugs+AvgCyclomatic+AvgEssential+AvgLineBlank+AvgLineComment+CountDeclClass+CountDeclClassMethod+CountDeclClassVariable+CountDeclInstanceVariable+CountDeclMethodAll+CountDeclMethodDefault+CountDeclMethodPrivate+CountDeclMethodProtected+MaxCyclomaticStrict+MaxEssential+MaxEssentialKnots+PercentLackOfCohesionModified+RatioCommentToCode+SumEssential"

> #formula to make model

> #form=as.formula(paste("'post-release-bugs'>0~",paste("pre-release-bugs","numberOfMajorBugsFoundUntil:","numberOfCriticalBugsFoundUntil:","numberOfHighPriorityBugsFoundUntil:","numberOfFixesUntil:","numberOfRefactoringsUntil:","avgLinesAddedUntil:","avgLinesRemovedUntil:","ageWithRespectTo:","weightedAgeWithRespectTo:",fanIn,fanOut,noc,numberOfAttributesInherited,numberOfMethodsInherited,numberOfPrivateAttributes,numberOfPrivateMethods,numberOfPublicAttributes,numberOfPublicMethods,CvsExpEntropy,collapse="+")))

> form=as.formula(paste("Post\_release\_bugs>0~",paste(names(after\_redun),collapse="+")))

> form

Post\_release\_bugs > 0 ~ numofRevoverableException + Percentage\_Action\_Continue +

Percentage\_Action\_Empty + Percentage\_Action\_Log + Percentage\_Action\_Method +

Percentage\_Action\_Return + Percentage\_Action\_ThrowCurrent +

Percentage\_Action\_ThrowNew + specificPercentage...11 + doNothingPercentage +

catchGenericPercentage + destructiveWrappingPercentage +

logThrowPercentage + Number\_of\_Catch\_Block\_LOC + Number\_of\_Invoked\_methods +

Number\_of\_Try\_Block\_LOC + Number\_of\_Throws\_Generic\_AP + Number\_of\_Throws\_Kitchen\_Sink\_AP +

Number\_of\_Try\_in\_Declaration + Number\_of\_Try\_in\_Condition +

Number\_of\_Try\_in\_EH + Number\_of\_Try\_in\_Other + Action\_Empty +

Action\_Log + Action\_Method + Action\_Return + Code\_Ownership\_count +

lines\_added + lines\_deleted + Pre\_release\_bugs + AvgCyclomatic +

AvgEssential + AvgLineBlank + AvgLineComment + CountDeclClass +

CountDeclClassMethod + CountDeclClassVariable + CountDeclInstanceVariable +

CountDeclMethodAll + CountDeclMethodDefault + CountDeclMethodPrivate +

CountDeclMethodProtected + MaxCyclomaticStrict + MaxEssential +

MaxEssentialKnots + PercentLackOfCohesionModified + RatioCommentToCode +

SumEssential

del=c("file\_name")

> data = data[,!(names(data) %in% del)]

> #removing comp as it has charecters

> model=glm(formula=form, data=log10(data+1), family = binomial(link = "logit"))

Warning message:

glm.fit: fitted probabilities numerically 0 or 1 occurred

> #model1=glmnet(formula=form, data=log10(data+1), family = binomial(link = "logit"))

>

> model

Call: glm(formula = form, family = binomial(link = "logit"), data = log10(data +

1))

Coefficients:

(Intercept) numofRevoverableException

2.21501 1.22020

Percentage\_Action\_Continue Percentage\_Action\_Empty

-0.54785 -0.17720

Percentage\_Action\_Log Percentage\_Action\_Method

-1.31218 0.84828

Percentage\_Action\_Return Percentage\_Action\_ThrowCurrent

0.20357 0.21742

Percentage\_Action\_ThrowNew specificPercentage...11

-0.35529 -0.03642

doNothingPercentage catchGenericPercentage

-0.06934 -0.27628

destructiveWrappingPercentage logThrowPercentage

-5.72228 -3.53414

Number\_of\_Catch\_Block\_LOC Number\_of\_Invoked\_methods

-1.54265 1.05711

Number\_of\_Try\_Block\_LOC Number\_of\_Throws\_Generic\_AP

-2.45043 5.16252

Number\_of\_Throws\_Kitchen\_Sink\_AP Number\_of\_Try\_in\_Declaration

5.28232 2.97607

Number\_of\_Try\_in\_Condition Number\_of\_Try\_in\_EH

-2.66738 -2.34391

Number\_of\_Try\_in\_Other Action\_Empty

-2.36146 -8.38194

Action\_Log Action\_Method

5.77321 -3.17064

Action\_Return Code\_Ownership\_count

-0.96541 -1.84130

lines\_added lines\_deleted

22.21638 34.54194

Pre\_release\_bugs AvgCyclomatic

-32.10446 -12.02115

AvgEssential AvgLineBlank

3.65316 -0.47233

AvgLineComment CountDeclClass

3.77881 -2.97133

CountDeclClassMethod CountDeclClassVariable

-1.85246 2.03021

CountDeclInstanceVariable CountDeclMethodAll

-0.19399 NA

CountDeclMethodDefault CountDeclMethodPrivate

-2.02767 -1.16616

CountDeclMethodProtected MaxCyclomaticStrict

-0.15802 5.22088

MaxEssential MaxEssentialKnots

0.48452 NA

PercentLackOfCohesionModified RatioCommentToCode

NA -17.28934

SumEssential

-2.94757

Degrees of Freedom: 479 Total (i.e. Null); 434 Residual

Null Deviance: 661

Residual Deviance: 73.05 AIC: 165.1

> #null deviance show how good is the model, 1-residualdeviance/null deviance will show how good is the model.

> #The higher the value the better you are

>

> #to get p values of project

> summary(model)

Call:

glm(formula = form, family = binomial(link = "logit"), data = log10(data +

1))

Deviance Residuals:

Min 1Q Median 3Q Max

-4.8307 -0.1195 -0.0098 0.0000 2.6125

Coefficients: (3 not defined because of singularities)

Estimate Std. Error z value Pr(>|z|)

(Intercept) 2.21501 5.70672 0.388 0.69791

numofRevoverableException 1.22020 1.45922 0.836 0.40304

Percentage\_Action\_Continue -0.54785 1973.82648 0.000 0.99978

Percentage\_Action\_Empty -0.17720 4.08846 -0.043 0.96543

Percentage\_Action\_Log -1.31218 0.88493 -1.483 0.13813

Percentage\_Action\_Method 0.84828 0.75976 1.117 0.26420

Percentage\_Action\_Return 0.20357 0.92483 0.220 0.82578

Percentage\_Action\_ThrowCurrent 0.21742 0.89834 0.242 0.80876

Percentage\_Action\_ThrowNew -0.35529 0.64023 -0.555 0.57894

specificPercentage...11 -0.03642 0.65248 -0.056 0.95549

doNothingPercentage -0.06934 3.64876 -0.019 0.98484

catchGenericPercentage -0.27628 0.61138 -0.452 0.65134

destructiveWrappingPercentage -5.72228 1073.37979 -0.005 0.99575

logThrowPercentage -3.53414 58.78677 -0.060 0.95206

Number\_of\_Catch\_Block\_LOC -1.54265 7.36993 -0.209 0.83420

Number\_of\_Invoked\_methods 1.05711 1.85976 0.568 0.56975

Number\_of\_Try\_Block\_LOC -2.45043 2.30357 -1.064 0.28744

Number\_of\_Throws\_Generic\_AP 5.16252 2.77787 1.858 0.06311 .

Number\_of\_Throws\_Kitchen\_Sink\_AP 5.28232 4.37403 1.208 0.22718

Number\_of\_Try\_in\_Declaration 2.97607 2.79306 1.066 0.28664

Number\_of\_Try\_in\_Condition -2.66738 2.67447 -0.997 0.31859

Number\_of\_Try\_in\_EH -2.34391 7.67046 -0.306 0.75993

Number\_of\_Try\_in\_Other -2.36146 3.24010 -0.729 0.46611

Action\_Empty -8.38194 6.13113 -1.367 0.17159

Action\_Log 5.77321 2.77292 2.082 0.03734 \*

Action\_Method -3.17064 2.93295 -1.081 0.27968

Action\_Return -0.96541 3.47957 -0.277 0.78143

Code\_Ownership\_count -1.84130 2.08598 -0.883 0.37740

lines\_added 22.21638 4.07271 5.455 4.90e-08 \*\*\*

lines\_deleted 34.54194 8.48567 4.071 4.69e-05 \*\*\*

Pre\_release\_bugs -32.10446 9.84811 -3.260 0.00111 \*\*

AvgCyclomatic -12.02115 5.26106 -2.285 0.02232 \*

AvgEssential 3.65316 9.96830 0.366 0.71401

AvgLineBlank -0.47233 4.86163 -0.097 0.92260

AvgLineComment 3.77881 2.49135 1.517 0.12932

CountDeclClass -2.97133 2.66696 -1.114 0.26522

CountDeclClassMethod -1.85246 1.66942 -1.110 0.26715

CountDeclClassVariable 2.03021 1.41642 1.433 0.15176

CountDeclInstanceVariable -0.19399 1.50621 -0.129 0.89752

CountDeclMethodAll NA NA NA NA

CountDeclMethodDefault -2.02767 1.63545 -1.240 0.21504

CountDeclMethodPrivate -1.16616 1.68742 -0.691 0.48951

CountDeclMethodProtected -0.15802 1.40232 -0.113 0.91028

MaxCyclomaticStrict 5.22088 3.07499 1.698 0.08954 .

MaxEssential 0.48452 2.27034 0.213 0.83101

MaxEssentialKnots NA NA NA NA

PercentLackOfCohesionModified NA NA NA NA

RatioCommentToCode -17.28934 9.86828 -1.752 0.07977 .

SumEssential -2.94757 2.52116 -1.169 0.24235

---

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

(Dispersion parameter for binomial family taken to be 1)

Null deviance: 661.006 on 479 degrees of freedom

Residual deviance: 73.052 on 434 degrees of freedom

AIC: 165.05

Number of Fisher Scoring iterations: 16

> newform=Post\_release\_bugs>0~lines\_added+lines\_deleted+Pre\_release\_bugs+Action\_Log+AvgCyclomatic

>

> #newmodel after removing all the insignificant values and with new formula

> newmodel=glm(formula=newform, data=log10(data+1), family = binomial(link = "logit"))

Warning message:

glm.fit: fitted probabilities numerically 0 or 1 occurred

>

> summary(newmodel

+ )

Call:

glm(formula = newform, family = binomial(link = "logit"), data = log10(data +

1))

Deviance Residuals:

Min 1Q Median 3Q Max

-5.2305 -0.2558 -0.2157 0.0007 2.6954

Coefficients:

Estimate Std. Error z value Pr(>|z|)

(Intercept) -3.0580 0.8888 -3.440 0.000581 \*\*\*

lines\_added 16.6923 2.1600 7.728 1.09e-14 \*\*\*

lines\_deleted 21.6605 4.8723 4.446 8.77e-06 \*\*\*

Pre\_release\_bugs -18.8798 4.8645 -3.881 0.000104 \*\*\*

Action\_Log 1.5425 1.2047 1.280 0.200418

AvgCyclomatic -1.1481 2.0891 -0.550 0.582634

---

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

(Dispersion parameter for binomial family taken to be 1)

Null deviance: 661.01 on 479 degrees of freedom

Residual deviance: 101.20 on 474 degrees of freedom

AIC: 113.2

Number of Fisher Scoring iterations: 10

> names(newmodel)

[1] "coefficients" "residuals" "fitted.values"

[4] "effects" "R" "rank"

[7] "qr" "family" "linear.predictors"

[10] "deviance" "aic" "null.deviance"

[13] "iter" "weights" "prior.weights"

[16] "df.residual" "df.null" "y"

[19] "converged" "boundary" "model"

[22] "call" "formula" "terms"

[25] "data" "offset" "control"

[28] "method" "contrasts" "xlevels"

> #this gives r square and we can know how good is our model

> 1-newmodel$deviance/newmodel$null.deviance

[1] 0.8468957