```
 1 "C:\Users\My PC\AppData\Local\Programs\Python\Python36-32\
   python.exe" D:/pfe/Projets/pfe/apprentissage_MIM.py
 2
 3
 4
 5 --------Decision Tree------------
 6
 7
 8
 9 dataset/MIM/taken/MIM_del.csv
10
11
12
13 count      2405
14 unique        2
15 top        True
16 freq       1642
17 Name: is_code_smell, dtype: object
18 [[242    0]
19  [  0 480]]
20 the recall for this model is : 1.0
21 TP 480
22 TN 242
23 FP 0
24 FN 0
25
26 ----------Classification Report
   ------------------------------------
27               precision    recall  f1-score   support
28
29        False       1.00      1.00      1.00       242
30         True       1.00      1.00      1.00       480
31
32    micro avg       1.00      1.00      1.00       722
33    macro avg       1.00      1.00      1.00       722
34 weighted avg       1.00      1.00      1.00       722
35
36 Precision =  1.0
37 Rappel=  1.0
38 F_Mesure= 1.0
39
40
41
42 --------Decision Tree------------
43
```

```
44
45
46 dataset/MIM/taken/MIM_RandomUnderSampler.csv
47
48
49
50 count      1526
51 unique        2
52 top        True
53 freq        763
54 Name: is_code_smell, dtype: object
55 [[228   0]
56  [  0 230]]
57 the recall for this model is : 1.0
58 TP 230
59 TN 228
60 FP 0
61 FN 0
62
63 ----------Classification Report
   -------------------------------------
64              precision    recall  f1-score   support
65
66      False       1.00      1.00      1.00       228
67       True       1.00      1.00      1.00       230
68
69  micro avg       1.00      1.00      1.00       458
70  macro avg       1.00      1.00      1.00       458
71 weighted avg     1.00      1.00      1.00       458
72
73 Precision =  1.0
74 Rappel=  1.0
75 F_Mesure= 1.0
76
77
78
79 --------Random Forest------------
80
81
82
83 dataset/MIM/taken/MIM_del.csv
84
85
86
87 count      2405
```

```
 88 unique        2
 89 top         True
 90 freq        1642
 91 Name: is_code_smell, dtype: object
 92 [[242   0]
 93  [  0 480]]
 94 the recall for this model is : 1.0
 95 TP 480
 96 TN 242
 97 FP 0
 98 FN 0
 99
100 ----------Classification Report
    --------------------------------------
101             precision    recall  f1-score   support
102
103       False       1.00      1.00      1.00       242
104        True       1.00      1.00      1.00       480
105
106   micro avg       1.00      1.00      1.00       722
107   macro avg       1.00      1.00      1.00       722
108 weighted avg       1.00      1.00      1.00       722
109
110 Precision =  1.0
111 Rappel=  1.0
112 F_Mesure= 1.0
113
114
115
116 --------Random Forest------------
117
118
119
120 dataset/MIM/taken/MIM_RandomUnderSampler.csv
121
122
123
124 count       1526
125 unique         2
126 top         True
127 freq         763
128 Name: is_code_smell, dtype: object
129 [[235   0]
130  [  0 223]]
131 the recall for this model is : 1.0
```

```
132 TP 223
133 TN 235
134 FP 0
135 FN 0
136
137 ---------Classification Report
    -------------------------------------
138               precision    recall  f1-score   support
139
140       False         1.00       1.00       1.00        235
141        True         1.00       1.00       1.00        223
142
143   micro avg         1.00       1.00       1.00        458
144   macro avg         1.00       1.00       1.00        458
145 weighted avg        1.00       1.00       1.00        458
146
147 Precision =  1.0
148 Rappel=  1.0
149 F_Mesure= 1.0
150
151
152
153 --------Naive Bayes------------
154
155
156
157 dataset/MIM/taken/MIM_del.csv
158
159
160
161 count      2405
162 unique        2
163 top        True
164 freq       1642
165 Name: is_code_smell, dtype: object
166 [[226   0]
167  [  0 496]]
168 the recall for this model is : 1.0
169 TP 496
170 TN 226
171 FP 0
172 FN 0
173
174 ---------Classification Report
    -------------------------------------
```

```
175                   precision      recall   f1-score     support
176
177          False        1.00        1.00        1.00         226
178           True        1.00        1.00        1.00         496
179
180      micro avg        1.00        1.00        1.00         722
181      macro avg        1.00        1.00        1.00         722
182   weighted avg        1.00        1.00        1.00         722
183
184   Precision =  1.0
185   Rappel=  1.0
186   F_Mesure= 1.0
187
188
189
190   ---------Naive Bayes------------
191
192
193
194   dataset/MIM/taken/MIM_RandomUnderSampler.csv
195
196
197
198   count      1526
199   unique        2
200   top        True
201   freq        763
202   Name: is_code_smell, dtype: object
203   [[243    0]
204    [  0 215]]
205   the recall for this model is : 1.0
206   TP 215
207   TN 243
208   FP 0
209   FN 0
210
211   ----------Classification Report
       ------------------------------------
212                   precision      recall   f1-score     support
213
214          False        1.00        1.00        1.00         243
215           True        1.00        1.00        1.00         215
216
217      micro avg        1.00        1.00        1.00         458
218      macro avg        1.00        1.00        1.00         458
```

```
219 weighted avg            1.00        1.00        1.00        458
220
221 Precision =  1.0
222 Rappel=  1.0
223 F_Mesure= 1.0
224
225
226
227 --------SVM------------
228
229
230
231 dataset/MIM/taken/MIM_del.csv
232
233
234
235 count      2405
236 unique        2
237 top        True
238 freq       1642
239 Name: is_code_smell, dtype: object
240 [[228    0]
241  [  0 494]]
242 the recall for this model is : 1.0
243 TP 494
244 TN 228
245 FP 0
246 FN 0
247
248 ----------Classification Report
    -------------------------------------
249             precision    recall  f1-score    support
250
251        False      1.00        1.00        1.00        228
252         True      1.00        1.00        1.00        494
253
254    micro avg      1.00        1.00        1.00        722
255    macro avg      1.00        1.00        1.00        722
256 weighted avg      1.00        1.00        1.00        722
257
258 Precision =  1.0
259 Rappel=  1.0
260 F_Mesure= 1.0
261
262
```

```
263
264 --------SVM------------
265
266
267
268 dataset/MIM/taken/MIM_RandomUnderSampler.csv
269
270
271
272 count      1526
273 unique       2
274 top        True
275 freq        763
276 Name: is_code_smell, dtype: object
277 [[227    0]
278  [  0 231]]
279 the recall for this model is : 1.0
280 TP 231
281 TN 227
282 FP 0
283 FN 0
284
285 ----------Classification Report
     ------------------------------------
286               precision    recall  f1-score   support
287
288      False       1.00      1.00      1.00       227
289       True       1.00      1.00      1.00       231
290
291   micro avg       1.00      1.00      1.00       458
292   macro avg       1.00      1.00      1.00       458
293 weighted avg       1.00      1.00      1.00       458
294
295 Precision =  1.0
296 Rappel=  1.0
297 F_Mesure= 1.0
298
299 Process finished with exit code 0
300
```