

3-Crie um classificador que tenha como output se os dados com status igual a revision estão corretos ou não (Sugestão : Técnica de cross-validation K-fold);

```
In [129...  
from sklearn.model_selection import cross_val_score  
import numpy as np  
import pandas as pd  
from sklearn import svm  
from sklearn import datasets  
from sklearn.svm import SVC
```

```
In [5]: df = pd.read_excel('teste_smarkio_Lbs.xls','Análise_ML')
```

```
In [6]: df
```

Out[6]:

	Pred_class	probabilidade	status	True_class
0	2	0.079892	approved	0.0
1	2	0.379377	approved	74.0
2	2	0.379377	approved	74.0
3	2	0.420930	approved	74.0
4	2	0.607437	approved	NaN
...	...	...	...	...
638	60	0.543772	revision	NaN
639	60	0.553846	revision	NaN
640	77	0.606065	revision	NaN
641	84	0.561842	revision	NaN
642	96	0.340740	revision	NaN

643 rows × 4 columns

```
In [7]: df.isnull().sum()
```

```
Out[7]: Pred_class      0  
probabilidade      0  
status            0  
True_class       462  
dtype: int64
```

```
In [9]: values = {'True_class': df['Pred_class']}
```

```
In [10]: df.fillna(value=values,inplace = True)
```

```
In [62]: df.isnull().sum()
```

```
Out[62]: Pred_class      0  
probabilidade      0  
status            0  
True_class        0  
dtype: int64
```

```
In [154... drop_status = df.drop(columns=['status'])  
status = df['status']
```

```
In [52]: from sklearn.model_selection import train_test_split
```

```
In [107... x_train, x_test, y_train, y_test = train_test_split(drop_status,status,test_size=0.3)
```

```
In [136... svm = SVC(gamma='auto')  
svm.fit(x_train,y_train)
```

```
Out[136... SVC(gamma='auto')
```

```
In [142... y_svm_p = svm.predict(x_test)
```

```
In [139... scores_svm = []  
scores_svm = cross_val_score(svm, x_test, y_test, cv=2)
```

```
In [150... print('Acurácia do Classificador: {:.4f}'.format(scores_svm.mean()))
```

Acurácia do Classificador: 0.9534

```
In [144... from sklearn.metrics import classification_report
```

```
In [151... print("Métricas de Avaliação do Classifcador:\n")  
print(classification_report(y_test,y_svm_p))
```

Métricas de Avaliação do Classifcador:

	precision	recall	f1-score	support
approved	0.96	0.99	0.98	184
revision	0.50	0.11	0.18	9
accuracy			0.95	193
macro avg	0.73	0.55	0.58	193
weighted avg	0.94	0.95	0.94	193

```
In [ ]:
```