```python
import pandas as pd
from sklearn.linear_model import LogisticRegression
from sklearn.semi_supervised import SelfTrainingClassifier
from sklearn.preprocessing import LabelEncoder
import numpy as np

df=pd.read_csv('/content/titanic.csv')

df = df[["Survived", "Pclass", "Sex", "Age", "Fare"]].dropna()

le=LabelEncoder()
df["Sex"]=le.fit_transform(df["Sex"])

np.random.seed(42)
mask = np.random.rand(len(df)) < 0.5
df.loc[mask, "Survived"] = -1

X = df.drop("Survived", axis=1)
y = df["Survived"]

base_model=LogisticRegression()

self_training_model=SelfTrainingClassifier(base_model,criterion='k_best')

self_training_model.fit(X, y)
```

```
SelfTrainingClassifier(criterion='k_best',
estimator=LogisticRegression())
```

```python
df["predicted_model"]=self_training_model.predict(X)

print(df.head(20))
```

```
    Survived  Pclass  Sex   Age     Fare  predicted_model
0         -1       3    1  34.5   7.8292                0
1          1       3    0  47.0   7.0000                1
2          0       2    1  62.0   9.6875                0
3          0       3    1  27.0   8.6625                0
4         -1       3    0  22.0  12.2875                1
5         -1       3    1  14.0   9.2250                0
6         -1       3    0  30.0   7.6292                1
7          0       2    1  26.0  29.0000                0
8          1       3    0  18.0   7.2292                1
9          0       3    1  21.0  24.1500                0
11        -1       1    1  46.0  26.0000                0
12         1       1    0  23.0  82.2667                1
13         0       2    1  63.0  26.0000                0
14        -1       1    0  47.0  61.1750                1
15        -1       2    0  24.0  27.7208                1
16        -1       2    1  35.0  12.3500                0
17        -1       3    1  21.0   7.2250                0
```

```
18          1       3    0  27.0   7.9250                1
19         -1       3    0  45.0   7.2250                1
20         -1       1    1  55.0  59.4000                0
```