

```
# Use logistic regression to predict probability of return

import pandas as pd
from sklearn.model_selection import train_test_split
from sklearn.linear_model import LogisticRegression
from sklearn.preprocessing import LabelEncoder

df = pd.read_csv("/content/Supplement.csv")
df['Return_Flag'] = (df['Units_Returned'] > 0).astype(int)

df['Category_encoded'] = LabelEncoder().fit_transform(df['Category'])
df['Platform_encoded'] = LabelEncoder().fit_transform(df['Platform'])
df['Location_encoded'] = LabelEncoder().fit_transform(df['Location'])

X = df[['Category_encoded', 'Platform_encoded', 'Location_encoded', 'Price', 'Discount']]
y = df['Return_Flag']

X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.2, random_state=42)

model = LogisticRegression(max_iter=1000)
model.fit(X_train, y_train)

df['Return_Prob'] = model.predict_proba(X)[: , 1]

high_risk = df[df['Return_Prob'] > 0.7]

high_risk.to_csv("high_risk_products.csv", index=False)
```