**1. Detect outliers using Standard deviation :**

INPUT :

|  |
| --- |
| import numpy as np import pandas as pd import seaborn as sns  def generate\_scores(mean=60,std\_dev=12,num\_samples=200):  np.random.seed(27)  scores = np.random.normal(loc=mean,scale=std\_dev,size=num\_samples)  scores = np.round(scores, decimals=0)  return scores scores\_data = generate\_scores()  sns.set\_theme() sns.displot(data=scores\_data).set(title="Distribution of Scores", xlabel="Scores")  df\_scores = pd.DataFrame(scores\_data,columns=['score'])  lower\_limit = df\_scores.mean() - 3\*df\_scores.std() upper\_limit = df\_scores.mean() + 3\*df\_scores.std() print(lower\_limit) print(upper\_limit)  df\_scores\_filtered=df\_scores[(df\_scores[['score']]>lower\_limit)&(df\_scores[['score']]<upper\_limit)] print(df\_scores\_filtered) |

OUTPUT :

|  |
| --- |
| #score #0     75.0 #1     56.0 #2     67.0 #3     65.0 #4     63.0 #..     ... #194   42.0 #195   76.0 #196   67.0 #197   74.0 #199   53.0 #[198 rows x 1 columns] |