Multicollinearity Detection using VIF

1. What is VIF?
Variance Inflation Factor (VIF) measures the inflation of variance of regression coefficients due to
multicollinearity.

Formula:
VIF = 1 / (1 - R^2)
Where R^2 is obtained by regressing one feature against all the other features.

2. Interpretation of VIF
- VIF = 1: No multicollinearity
- VIF between 1 and 5: Moderate multicollinearity (acceptable)
- VIF > 5 (or sometimes > 10): High multicollinearity; requires attention

3. VIF Calculation in Python
Example code:

```
from statsmodels.stats.outliers_influence import variance_inflation_factor
import pandas as pd

# Assuming X is your DataFrame of features
vif = [variance_inflation_factor(X.values, i) for i in range(X.shape[1])
```