VARIANCE INFLATION FACTOR (VIF)

- VIF detects Multicollinearity in regression analysis. Multicollinearity is when there's correlation between predictors (i.e, independent variables) in a model, its presence can adversely affect regression results.
- VIF estimates how much the variance of a regression coefficient is inflated due to multicollinearity in the model.

$$VIF = \frac{1}{1-R^2}$$

- Interpreting the Variance Inflation Factor →
  - It ranges from 1 upward.
  - Numerical value for VIF tells you (in decimal form) what percentage the variance (i.e, the standard error squared) is inflated for each coefficient.
    - → VIF = 1 = not correlated.
      VIF = Between 1 and 5 = moderately correlated.
      VIF = Greater than 5 = highly correlated.

- VIF measure how much the behaviour (variance) of an independent variable is influenced, or inflated by its interaction/correlation with other independent variables.

→ For example - Blood pressure VIF matrix

	Blood pressure	Age	Weight	Body surface area	Duration of hypertension	Pulse
Age	2.93					
Weight	20.00	1.69				
Body surface area	7.46	1.61	8.00			
Duration of hypertension	1.41	1.52	1.25	1.15		
Pulse	3.58	2.62	2.93	1.87	1.67	
Stress	1.20	1.58	1.04	1.02	1.45	2.02

A VIF of 1 indicates two variable are not correlated.
VIF between 1 and 5 indicates moderate correlation.
VIF above 5 indicates high correlation.