Assumptions:

① Linear Relationship

EDA. also check outliers.
(sensitive)

② No multicollinearity.

test ① Correlation matrix.

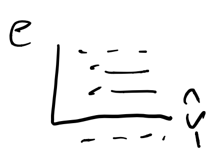
② Variance Inflation Factor (VIF).

Fix by: centering data or. remove var. with high VIF.

$\boxed{3.4.5}$: $\begin{cases} E[\varepsilon_i] = 0 \\ Var(\varepsilon_i) = \sigma^2 \\ Corr(\varepsilon_i) = 0. \end{cases}$

③ error terms should be normal

check by [$\underbrace{\text{fitted residual plots, QQplot}}_{\text{visual}}$, JS test) — JB, Hypothesis test

①  skew ⇒ log-transform Y.

② outliers : ⇒ remove

③  fat-tails :⇒ huber-white

heteroscedaticity

⑤ homoscedasticity. $Var(\varepsilon_i) = \sigma^2$.

check: B-P test

solve: huber-white the error terms.

④ No autocorrelation in Data. $corr(\varepsilon_i, \varepsilon_j) = 0$

check serial correlation. B-G test