The Use of P –Values in Decision Definition Making::

Note: Using P- Value as a decision tool:

P-value is the smallest value of α for which we can reject the null hypothesis H_o.

Calculating P-value:

* Calculating P-value depends on the alternative hypothesis H_A.
* Suppose that $z_{T.S.}$ is the computed value of the test Statistic.
* The following table illustrates how to compute P-value, and how to use P-value for testing the null hypothesis:

Alternative Hypothesis:	$H_A: \mu \neq \mu_o$	$H_A: \mu > \mu_o$	$H_A: \mu < \mu_o$
P-Value =	$2 \times P(Z > \lvert z_{T.S} \rvert)$	$P(Z > z_{T.S})$	$P(Z < z_{T.S})$
Significance Level =	α		
Decision:	Reject H_o if P-value $< \alpha$.		

* تطبق على التوزيع الطبيعي
* هذه طريقة اخرى لاتخاذ القرار من حيث قبول الفرض العدمي او رفضه
* يمكن تطبيقه ايضا على الاختبارات التي تختبر اكثر من معلمة

- **Decision :**
- If we reject H_0, we can conclude that H_A is true.
- If ,however ,we do not reject H_0, we may conclude that H_0 is true.

An Alternative Decision Rule using the p - value Definition

- The p-value is defined as the smallest value of α for which the null hypothesis can be rejected.

- If the p-value is less than or equal to α ,we reject the null hypothesis ($p \leq \alpha$)
- If the p-value is greater than α ,we do not reject the null hypothesis ($p > \alpha$)