SADET Module B.2

Mark whether the following statements are True or False

[F] 1. The probability of the union of two events A and B, is equal to the sum of the probabilities of the two events.

[F] 2. The Bayesian approach introduces a subjective bias.

[F] 3. Consider the random variable X that follows a normal distribution with 0 mean and standard deviation equal to 1, i.e., $f\left(x\right)= \frac{1}{\sqrt{2π}}e^{-\frac{x^{2}}{2}}$. The probability that x = μ is $\frac{1}{\sqrt{2π}}$.

[F] 4. The normal distribution can be used to model the total number of customers in a coffee shop during a day.

[F] 5. You are rolling a dice. Consider the following two events; A: the dice rolls a 2, B: the dice rolls an even number. The two events are independent.

[F] 6. The probability density function of a random variable is always between 0 and 1

[T] 7. The z-score for an American Football Quarterback (QB) with pass completion percentage 68% is 2.8, while the z-score for a soccer defender with pass completion percentage 81% is 1.1. The QB performance is more extraordinary compared to that of the soccer defender.

[T] 8. A Bayesian average can be useful when a sample average is obtained through a small sample.

[T] 9. Type I and Type II errors in a hypothesis test cannot be minimized simultaneously.

[T] 10. The Cumulative Distribution Function of a random variable is a monotonically increasing function.