**Type 1 error and Type 2 error Examples**

1)Ho: My spouse is not having an affair.

H1: My spouse is having an affair

Type 1: Believing your spouse is having an affair when they aren’t

Type 2: Believing your spouse is not having an affair when they are

Result- Type 1 is more complicated.

2)Ho:  political views don't matter

H1: political views do matter

Type 1 - political views do matter, but our test missed it. Omitted it from our matching model.  
Type 2 - political views don't matter, but we're including it in our model because it tested statistically significant.  
Result - both will lower the accuracy of our dating website product.

3)Ho: Frank's rock climbing equipment is safe

H1: Frank's rock climbing equipment is not safe

Type I error: Frank thinks that his rock climbing equipment may not be safe when, in fact, it really is safe Type II error: Frank thinks that his rock climbing equipment may be safe when, in fact, it is not safe

Result: the error with the greater consequence is the Type II error. (If Frank thinks his rock climbing equipment is safe, he will go ahead and use it.)

4) Ho: The victim of an automobile accident is alive when he arrives at the emergency room of a hospital.

H1: The victim of an automobile accident is not alive

Type I error: The emergency crew thinks that the victim is dead when, in fact, the victim is alive.

Type II error: The emergency crew does not know if the victim is alive when, in fact, the victim is dead.

Result: The error with the greater consequence is the Type I error. (If the emergency crew thinks the victim is dead, they will not treat him.)

5) A manufacturing plant tests the quality of its products

Ho: The product is within acceptable quality limits

H1: The product is not within acceptable quality limits

Type 1 Error: Rejecting H0 when it's actually true. This means declaring a product as low-quality when it's actually fine, leading to unnecessary product recalls and costs

Type 2 Error: not identifying a product as low-quality when it's actually not meeting acceptable standards, potentially allowing defective products to enter the market

Result: Type 2 error (failing to identify a low-quality product) can have a more significant impact. This is because it can lead to the distribution of subpar products to consumers, potentially causing safety concerns, damaging the company's reputation, and resulting in costly recalls or legal issues