

Subject: [External] Re: Homework 7, Part 2
Date: Wednesday, March 8, 2023 at 11:53:50 AM Eastern Standard Time
From: somayeh seifi
To: Joseph Picone
CC: Gavin Thomas Koma
Attachments: image.png

" area = (1-c)/2"

just pay attention to the point that I mentioned, we consider this as the area on the left side of the z, and you should make the decision that you want to make decision-based on two tails or just one tail.

On Wed, Mar 8, 2023 at 11:10 AM somayeh seifi <somayeh.seifi1361@gmail.com> wrote:

Hi Givan,

Good morning :

considering the below formula:

to reject H_0 at a given α

$$Z = \frac{(\hat{p}_1 - \hat{p}_2)}{\sqrt{\left(\frac{\hat{p}_1(1-\hat{p}_1)}{N_1} + \frac{\hat{p}_2(1-\hat{p}_2)}{N_2}\right)}} .$$

you can calculate the Z score. Right?

Now you also have a confidence level of 0.8. Plugging into this formula: area = (1-c)/2, you can find the z score corresponding to this area (we have a z score table which gives you the level of confidence based on the z score . just pay attention, Table entries for z represent the area under the bell curve to the left of z. Positive scores in the Z-table correspond to the values which are greater than the mean, and Negative scores in the z-table correspond to the values which are less than the mean.). after that by comparing two z scores you can make the decision for rejecting the null hypothesis. (if the z score calculated by the formula in the picture was greater than the z score, which has been calculated by the area formula, you can say the p2 (new system error rate) is significantly lower than the p1. I hope it could help.

On Wed, Mar 8, 2023 at 9:05 AM Joseph Picone <picone@temple.edu> wrote:

Hi Gavin,

> Im looking at the Excel file that you've given us as well but I'm not
> sure how to infer p1 or p2 from the hypothetical dataset of 1,000 files.
> I'm sure there's a way to determine more details but I feel like Im crazy.
>

Let's start with (a). P1 is 20.0%. P2 is 19.0%. N = 1,000. Use the calculator (or the equations) to determine at what confidence level these two numbers are considered different statistically.

I'll be traveling today. However, Mahdi or Somayeh can help you. They are experts on this. I have CC'ed them on this message.

-Joe