Tutorial 2

Solutions to manually graded questions

Question 1.2

{points: 1}

Would you recommend using a Bonferroni correction for **full sequential designs** so that the experiment can be stopped as soon as possible??

Briefly, explain why/why not this is a problem.

Recall: in a **full sequential designs**, the analyst performs an analysis after every new observation, sequentially.

Points: 1 ID: cell-d52f0c41674cca3b Manually graded answer

BEGIN SOLUTION

It is true that the Bonferroni correction controls the probability of Type I Error. However, it does that at the expense of the power of the test. By conducting too many hypothesis tests, the tests would lose too much power.

Question 2.2

{points: 1}

The Pocock's critical values obtained in **Question 2.0** and **Question 2.1** shows that as the number of peeks (interim tests) increases, the critical values also increase.

Briefly, explain why.

Points: 1   ID: cell-43cb68384dc3a6a4   Manually graded answer

BEGIN SOLUTION

The type I error rates inflates as more tests are performed. We have more chances of making a mistake. Thus, we need to use a more conservative test (larger critical values) if we plan to make more peeks at the data.

Question 3.5

{points: 1}

Explain briefly the results obtained in **Question 3.4**

BEGIN SOLUTION

Using the OF's method, the data can be sequentially analyzed and the experiment can be stopped earlier while controlling the type I error rate.

For the simulated experiments in the example above, the type I error rate was 9%, which close to the planned 5% value. (As expected, this method is less conservative than the Bonferroni's correction.)