Paired Samples $t$ Test Assignment

Create a dataset to conduct a paired samples $t$ test with. You may call either of the occasions whatever you would like (e.g., pretest & posttest, occ1 & occ2, etc.). They must have some outcome score on some variable that you create. Also note that this is a paired samples $t$ test and not an independent samples $t$ test. You will need to setup your data accordingly.

Part I:

Now, when you create your data, construct it such that Occasion 1 has a mean of 10, and Occasion 2 has a mean of 20 (there must be at least 10 people in the study). Also create your data such that when you conduct a paired samples $t$-test, the results are statistically significant ($p < .05$). Make sure you show me the mean and SD for both the pretest and posttest. Print out your output in COURIER FONT and bring it to class with you.

Part II:

Now, changing only the data in Occasion 2, create a dataset in which your results are NOT statistically significant. However, when you do this, you must NOT change the mean of Occasion 2 (which is 20). Make sure you show me the mean and SD for both Occasions. Print out your output in COURIER FONT and bring it to class with you.

Part III:

Create the following pieces of data in R.

```r
pre<-c(11:19, 21)
pred<-7:16
post2<-16:7
```

Run a paired samples $t$ test between `pre` and `post` and then between `pre` and `post2`. Notice that the mean of `post` and `post2` are exactly the same. Why is one $t$ test statistically significant while the other is not?