8.5/10

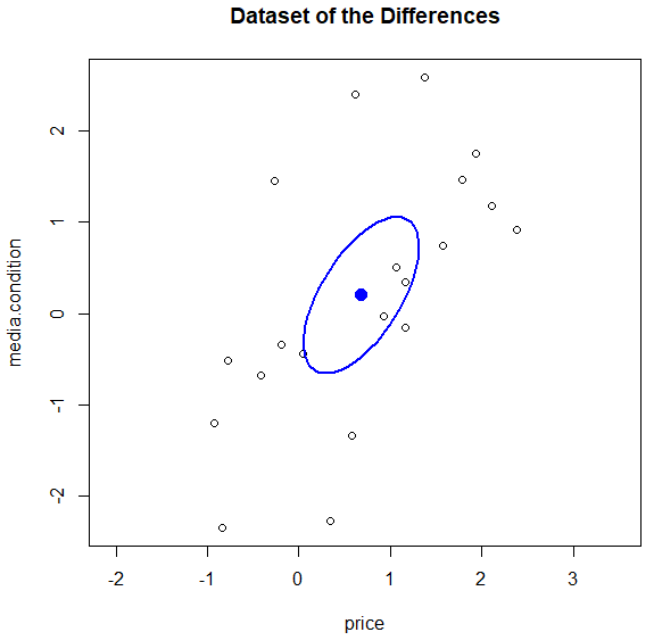
Exercise 1

a) We identify a repeated measures setting, we take the difference of the two datasets and perform a test to see if the mean of the difference is 0,0 at level 95%.
By using hotelling's theorem and using the fisher quantile we obtain that we can reject the null hypothesis of the mean being zero, meaning there are differences between the stores.

b) With repeated measures we need the hypothesis of gaussianity and independence between the samples of the two different stores. Using mcsahpiro function we can confirm the gaussian hypothesis, while we can assume that the two stores are independent.
The values are both over 0.05:
0.7576
0.7776

No! -1.5

→ You should verify that the diff. is Gaussian...



c)

By plotting the 95% simultaneous confidence interval we can see how 0 is not included.
We reject the null hypothesis.

d)
The confidence intervals are the following:

```
> conf.int.mean
                                sample.mean
price              0.0480422        0.6830 1.317958
media.condition -0.6597456          0.2005 1.060746
>
Cov:
                      [,1]      [,2]      [,3]
price             0.5322847 1.059612 2.841861
media.condition 0.9770104 1.944921 5.216247
```

As we can see the conf int for the mean of prices does not contain 0, confirming point a