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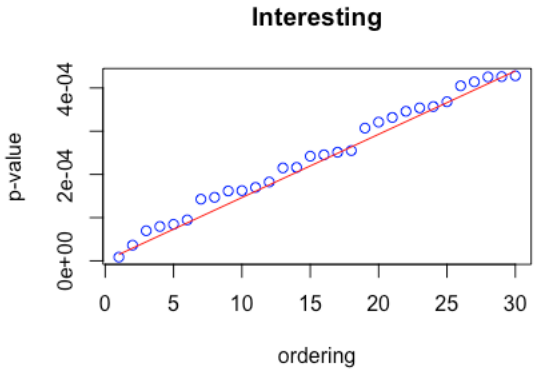
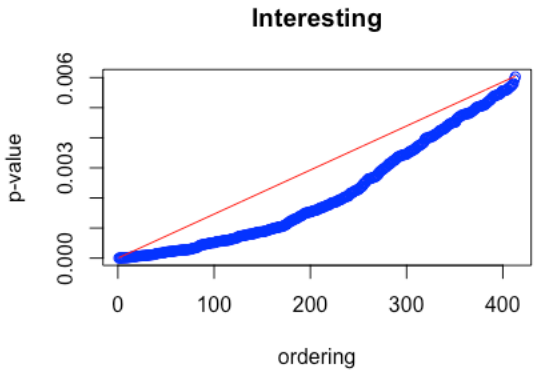
Assignment 9, False Discovery Rates

The purpose of this assignment was to code a function that takes a vector of p-values, the desired FDR (Q value) and whether the data is independent or not. It is to make a graph that displays the Q values alongside the p-values and which p-values are lower than the Q values. These values are 'interesting' because they seem too perfect.

The code is commented in the .R file. The outputs I received from testing both datasets are posted below. The one thing that I'd have to keep an eye on with my code is the dataset I'm inputting. It uses the function 'names()' to return the number connected to the p-value. I'm uncertain whether this will work with a matrix or not. As you can see, I outputted a second plot that zooms in on the "interesting" values. There are many more "interesting" values under the plarge set.






```
> fdr(psmall.renal,0.1,T)
$interesting
 [1] "4062" "4893" "1818" "814"  "2836" "3108" "1088" "4504" "2183" "4195" "2245" "2724" "2250" "2258" "2738" "2723" "2256"
[18] "3175" "2551" "28"   "1964" "2471" "6423" "4059" "2820" "4216" "2828" "2255" "691"  "4505"

$ind
[1] TRUE
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```
> fdr(plarge.renal,0.1,T)
$interesting
  [1] "5942" "5898" "6084" "5902" "5828" "5933" "5941" "5937" "5901" "5899" "6091" "5812" "5939" "5651" "5922" "5980" "5978"
 [18] "6097" "5921" "5938" "5832" "4889" "5934" "5589" "5989" "5977" "5979" "5813" "6188" "5608" "6095" "6085" "6306" "371"
 [35] "5823" "5964" "282"  "3273" "5797" "5590" "5936" "5830" "5988" "6339" "6259" "5958" "5761" "6086" "5632" "6072" "6262"
 [52] "5804" "5636" "5946" "5848" "3944" "5585" "6048" "3945" "5514" "5628" "6099" "6553" "5974" "5981" "6431" "5805" "5833"
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 [86] "5617" "5522" "287"  "5950" "5530" "5966" "5373" "5853" "5549" "5947" "5886" "4352" "5762" "5821" "5670" "5889" "5484"
[103] "5335" "4698" "6245" "5875" "5620" "5850" "5967" "6117" "5795" "5378" "6257" "6006" "5854" "6305" "5351" "5528" "5849"
[120] "6383" "2944" "5865" "5763" "5635" "5807" "6087" "6246" "4985" "3921" "5923" "5343" "5971" "98"   "5944" "6081" "5332"
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[205] "5806" "4721" "5786" "6031" "6552" "5548" "5859" "5986" "4256" "6115" "6080" "5852" "6150" "6753" "6092" "5834" "5588"
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[290] "6308" "5995" "3947" "5815" "6384" "5592" "128"  "5633" "5955" "6089" "6047" "504"  "5547" "5839" "5626" "6207" "5916"
[307] "5874" "127"  "5910" "5408" "6429" "5951" "6348" "5619" "6487" "61"   "5328" "5610" "6550" "3429" "5810" "5329" "5425"
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[341] "5671" "5330" "5344" "6226" "3841" "6249" "100"  "6148" "5616" "5621" "6278" "6243" "4342" "5896" "5817" "5492" "6303"
[358] "6399" "989"  "5612" "5969" "5379" "5800" "6718" "5119" "6100" "5757" "4098" "6154" "6093" "6161" "3494" "5928" "500"
[375] "5226" "4348" "5375" "6302" "5675" "3380" "201"  "4362" "5678" "6524" "6660" "5904" "6252" "198"  "5927" "5835" "6261"
[392] "5337" "6155" "5760" "6241" "4289" "6157" "5802" "3684" "5919" "6394" "6162" "4259" "4292" "5883" "6304" "6327" "3682"
[409] "5541" "252"  "5607" "5613" "5599"

$ind
[1] TRUE
```