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Assignment 7

In R when I set the test turns negative the odds of the disease go up and vice versa. If I test various aspects for odds of the disease we can see that the values are fairly inconsistent with how they affect the test

Here I have the code to affect sensitivity and specificity

```
data main1 (drop=id result_c12);
  set data2;
  by test1;
  retain tp tn fp fn;
  if (first.test1) then do;
    tp=0; tn=0; fp=0; fn=0;
  end;
  if (result_c12 in ("TP")) then tp=tp+1;
  if (result_c12 in ("TN")) then tn=tn+1;
  if (result_c12 in ("FN")) then fn=fn+1;

  if (result_c12 in ("FP")) then fp=fp+1;
  else ;
  if (last.test1) then output;
run;
```

And next, here is my code affect accuracy, which is the main statistic that we are after to find the odds of the disease.

```
data main2;
  set main1;
  tntp=tn+tp;
  fnfp=fn+fp;
run;

proc sql;
  create table main3 as
  select sum(tp) as tp, sum(tn) as tn, sum(fp) as fp, sum(fn) as fn, sum(tntp) as
tntp, sum(fnfp) as fnfp
  from main2
  ;
quit;
```

We can see in the table below where I entered my numbers how even a small change in sensitivity affects the accuracy of the test in a counterintuitive manner

Sensitivity	specificity	Accuracy
0.7	0.85	0.775
0.8	0.1	0.325