Joseph-J-hwk2-2

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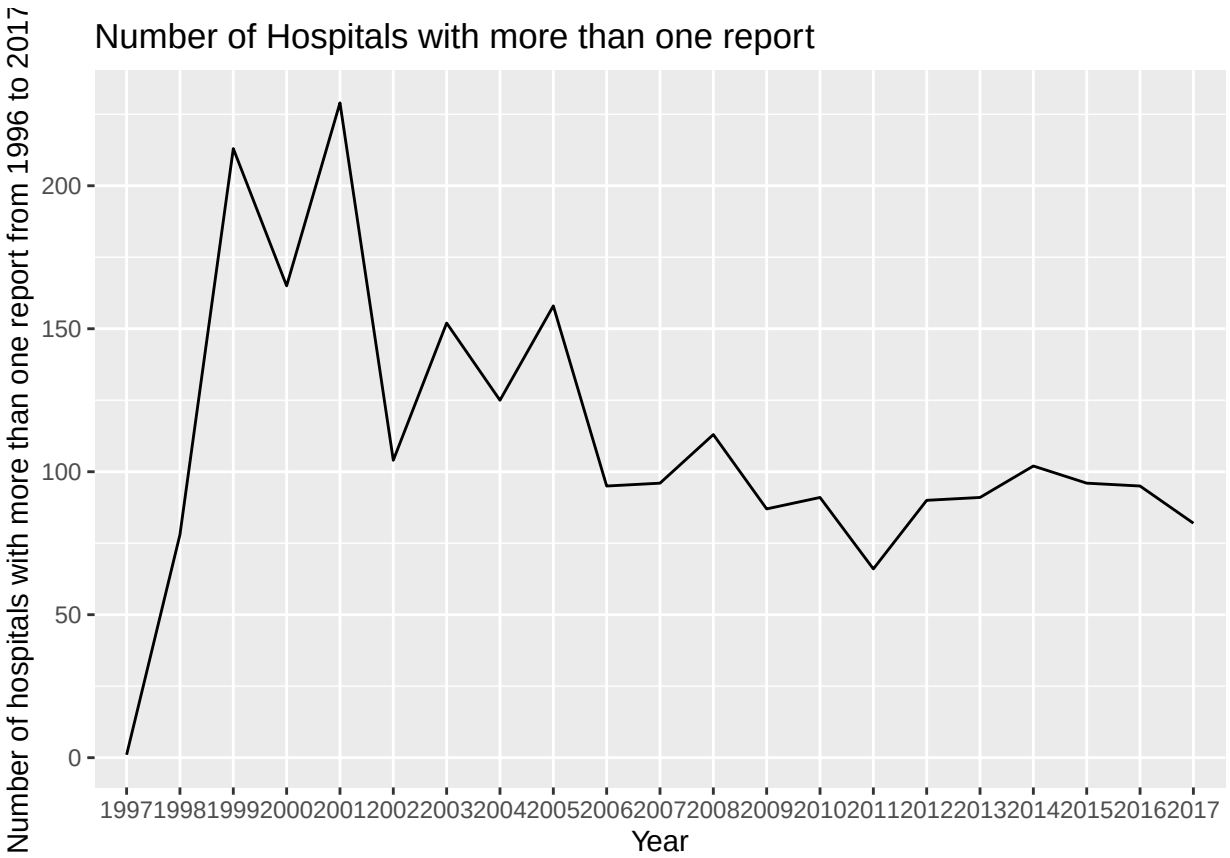
#Answers

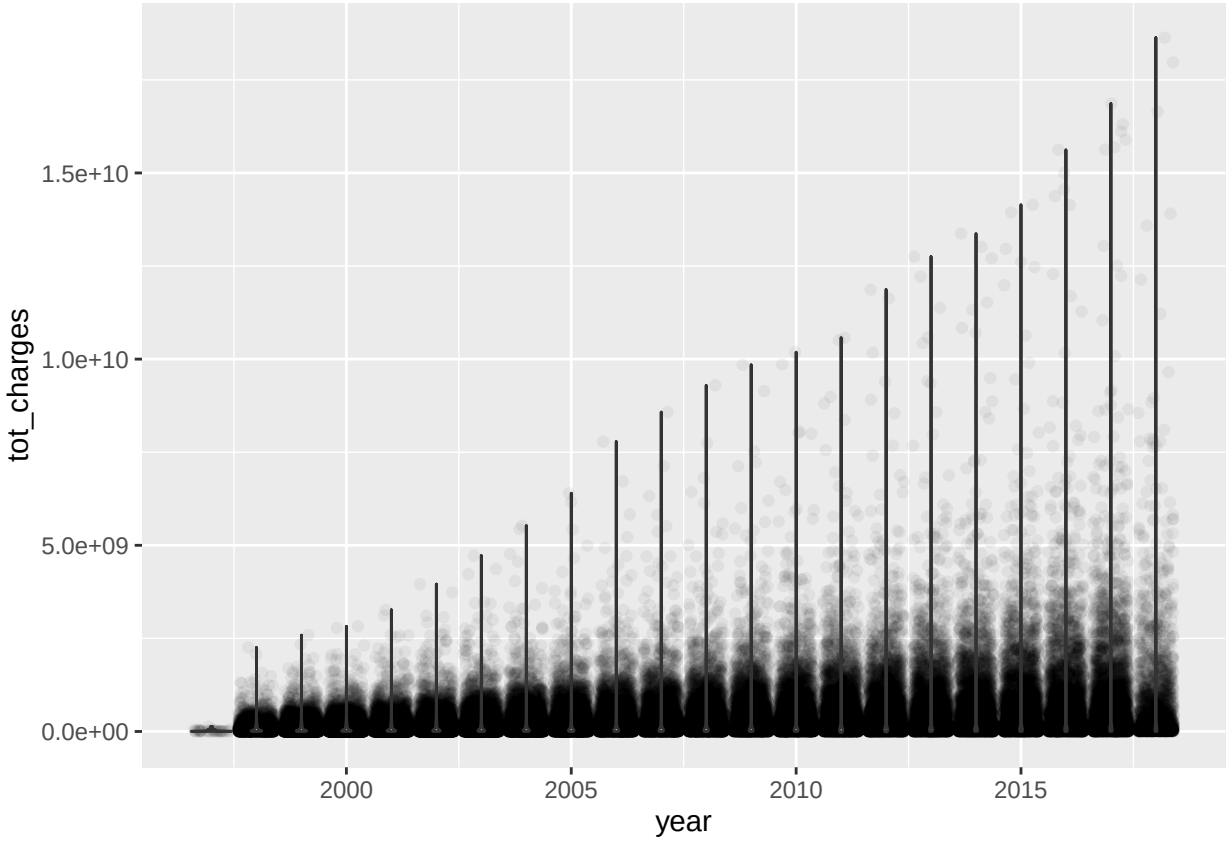
1



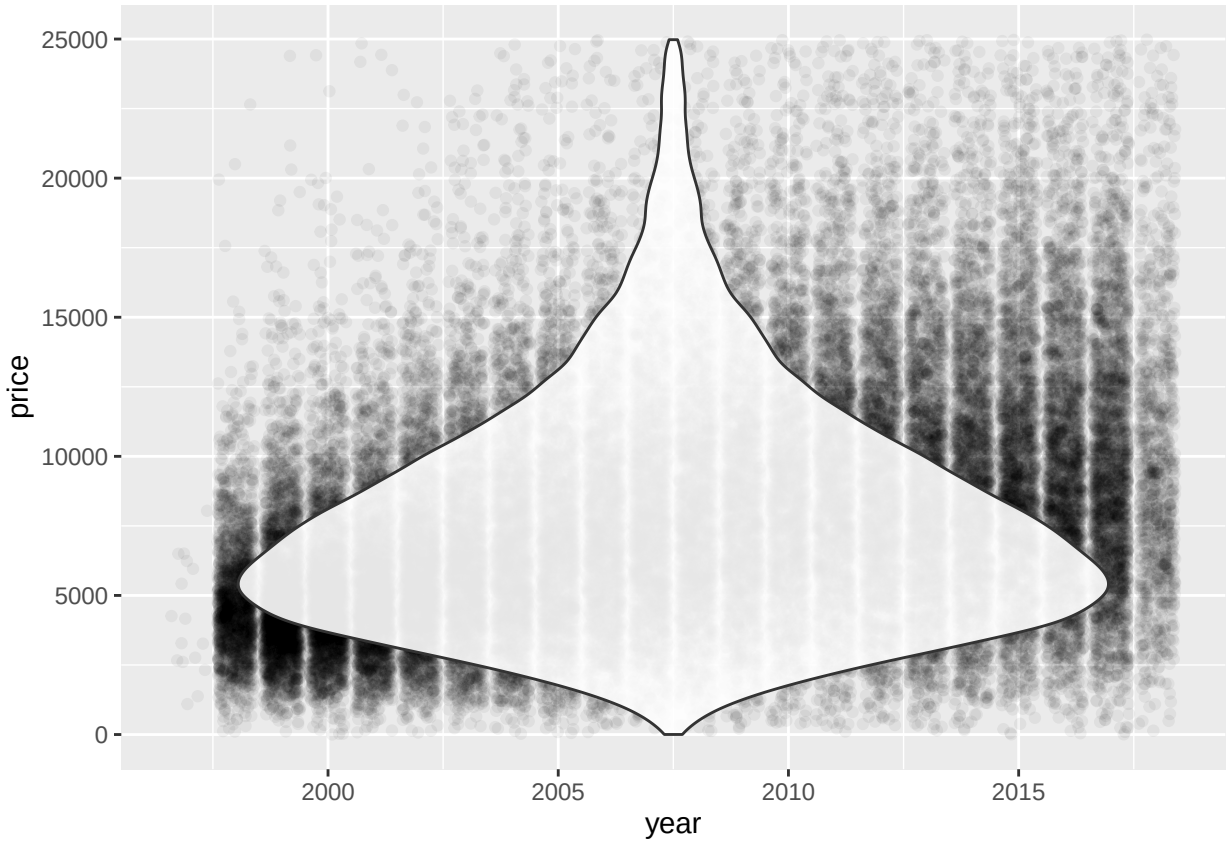
2

```
## Number of unique hospital IDs 9323
```

3


1.5e+10
1.0e+10
5.0e+09
0.0e+00
tot_charges
2000
2005
2010
2015
year

4



5

```
## # A tibble: 1 x 1
##   penalty_price
##           <dbl>
## 1         9896.
```

```
## # A tibble: 1 x 1
##   no_penalty_price
##              <dbl>
## 1            9560.
```

6

```
## # A tibble: 8 x 6
## # Groups:   group, Q1, Q2, Q3 [8]
##   group        Q1    Q2    Q3    Q4 mean_price
##   <chr>     <dbl> <dbl> <dbl> <dbl>      <dbl>
## 1 Control       0     0     0     1     12367.
## 2 Control       0     0     1     0      9848.
## 3 Control       0     1     0     0      8526.
## 4 Control       1     0     0     0      7696.
```

```
## 5 Treatment     0     0     0     1     12068.
## 6 Treatment     0     0     1     0     10132.
## 7 Treatment     0     1     0     0      8721.
## 8 Treatment     1     0     0     0      8286.
```

7

```
## Increasing memory because of ties: allocating a matrix of size 3 times 546600 doubles.
## I would be faster with the ties=FALSE option.
## Increasing memory because of ties: allocating a matrix of size 3 times 819900 doubles.
## I would be faster with the ties=FALSE option.

##
## Estimate...  193.83
## AI SE......  236.08
## T-stat.....  0.82103
## p.val......  0.41163
##
## Original number of observations..............  2733
## Original number of treated obs...............  704
## Matched number of observations...............  2733
## Matched number of observations  (unweighted).  710030

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## Estimate...  193.83
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## Matched number of observations...............  2733
## Matched number of observations  (unweighted).  710030

## [1] 193.8313

## [1] 0
```

Table 1: ATE

	Nearest.neighbor.matching.with....	Nearest.neighbor.matching.with....	Inverse.propensity.weighting	SimpleRegression
penaltyTRUE	193.8313	193.8313	193.8313	0

8

Yes all of my estimators are very similar however my regression seems to have an estimate of zero this may because these are two different samples I am trying to draw a line from. In addition, the reason we may have similar estimates is that all these estimators are doing the same thing in terms of matching between control and treatment observations and thus yielding similar results. .

9

In my opinion yes i did estimate a causal inference. Given then i can't observe a counter factual world i did my best to match the control group to the treatment group by setting their bed size into quartiles that help match similar hospitals and then see the effect on price of whether or not they underwent a penalty.

10

honestly this homework was incredibly hard and frustrating. I think i spent at least 20 hours of straight coding or problem solving Also i feel very lost in terms of the new material we are covering in class which does not help when i need to apply this knowledge with real data in the homework one thing i did learn was i am getting better at cleaninig up the data and I believe I did good work until question 5 ish however one thing that still frustrates me is my inability to understanding the matching function and concepts we have learned in this module.