

HW5__Liang__Dan

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Problem 3

First, for a good figure, it should be concise and effectively convey the message you want to let the audience receive. A good figure is be able to demonstrate the trend or comparison of the data, also the details the audience interested in can be easily find.

Problem 4

Part a

```
Success <- function(vec){  
  count <- sum(vec)  
  return(count)  
}
```

Part b

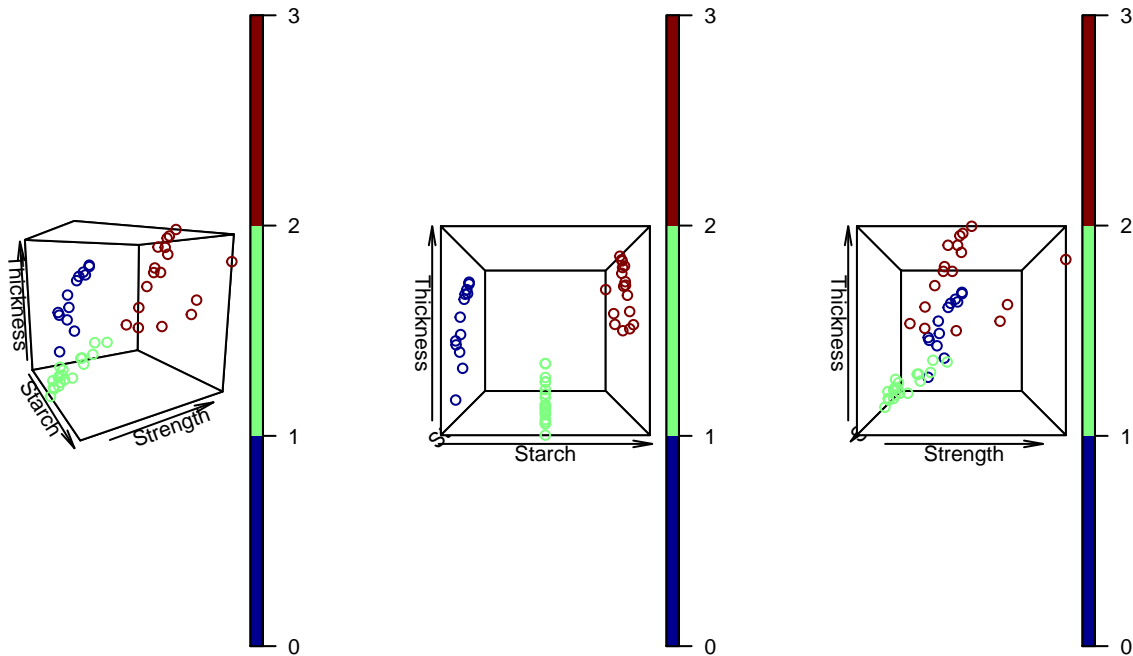
```
set.seed(12345)  
P4b_data <- matrix(rbinom(10, 1, prob = (30:40)/100), nrow = 10,  
ncol = 10)
```

Part c

```
apply(P4b_data,MARGIN = 1, Success)  
  
## [1] 10 10 10 10 10 0 0 0 0 10 10  
  
apply(P4b_data,MARGIN = 2, Success)  
  
## [1] 6 6 6 6 6 6 6 6 6 6 6
```

Part d

Problem 5



Problem 6

Part a

Import a database of US cities and states

```
##
## Attaching package: 'dplyr'

## The following objects are masked from 'package:stats':
##
##   filter, lag

## The following objects are masked from 'package:base':
##
##   intersect, setdiff, setequal, union

##
## Attaching package: 'data.table'

## The following objects are masked from 'package:dplyr':
##
##   between, first, last

##
##   AK    AL    AR    AZ    CA    CO    CT    DE    FL    GA    HI    IA    ID    IL    IN
## 229  579  605  264 1239  400  269   57  524  629  92  937  266 1287  738
##  KS    KY    LA    MA    MD    ME    MI    MN    MO    MS    MT    NC    ND    NE    NH
```

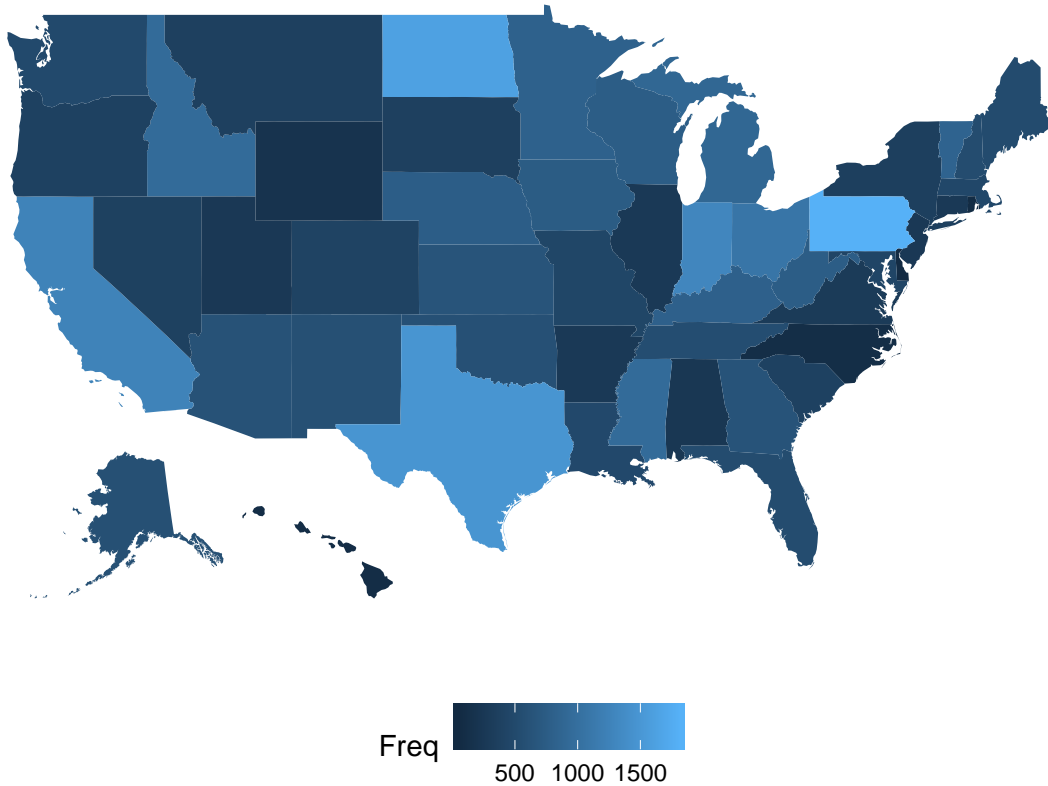
```
## 634 803 479 511 430 461 885 810 942 440 360 762 373 528 255
## NJ NM NV NY OH OK OR PA RI SC SD TN TX UT VA
## 579 346 99 1612 1069 585 379 1802 70 377 364 548 1466 250 839
## VT WA WI WV WY
## 288 493 753 753 176
```

Part c

```
##      a b c d e f g h i j k l m n o p q r s t u v w x y z
## [1,] 3 0 0 0 0 0 0 0 0 0 0 1 1 0 0 0 0 0 0 1 0 0 0 0 0 0 0
## [2,] 4 1 0 0 0 0 0 0 0 0 0 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0
## [3,] 3 0 0 0 0 0 0 0 0 0 0 1 0 0 1 0 0 0 0 1 2 0 0 0 0 0 0 0
## [4,] 2 0 0 0 0 0 0 0 0 1 0 0 0 0 0 1 1 0 0 1 0 0 0 0 0 0 0 1
## [5,] 2 0 1 0 0 1 0 0 2 0 0 1 0 1 1 0 0 1 0 0 0 0 0 0 0 0 0 0
## [6,] 1 0 1 1 0 0 0 0 0 0 0 0 1 0 0 3 0 0 1 0 0 0 0 0 0 0 0 0
```

Part d

```
## Saving 6.5 x 4.5 in image
```



The plot has been saved in the file.