Chase Holland
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## > #Question A

```
> pivottable<- ftable(predict_tdata$Personal.Loan, predict_tdata$Online, pred
ict_tdata$CreditCard, dnn=c('Personal.loan','CreditCard', 'Online') .... [TRU
NCATED]

> pivottable
                         Online    0    1
Personal.loan CreditCard
0             0                   791  310
              1                  1144  467
1             0                    79   33
              1                   125   51
```

## > #Question B

```
> prob.cust<-pivottable[4,2]/(pivottable[2,2]+pivottable[4,2])

> prob.cust
[1] 0.0984556
```

## > #Question C

```
> pivottable1<- ftable(predict_tdata$Personal.Loan,predict_tdata$Online,dnn=c
('Personal.loan','Online'))

> pivottable1
              Online    0    1
Personal.loan
0                     1101 1611
1                      112  176

> pivottable2<- ftable(predict_tdata$Personal.Loan,predict_tdata$CreditCard,
dnn=c('Personal.loan','CreditCard'))

> pivottable2
              CreditCard    0    1
Personal.loan
0                          1935  777
1                           204   84
```

## > #Question D

```
> prob.D1<- pivottable2[2,2]/(pivottable2[2,2]+pivottable2[2,1])

> prob.D1
[1] 0.2916667

> prob.D2 <- pivottable1[2,2]/(pivottable1[2,2]+pivottable1[2,1])

> prob.D2
[1] 0.6111111

> prob.D3 <- ftable(predict_tdata[,10])

> prob.D3
    0    1
```

```
 2712  288

> prob.D3.2 <- prob.D3[1,2]/(prob.D3[1,2]+prob.D3[1,1])

> prob.D3.2
[1] 0.096

> prob.D4 <- pivottable2[1,2]/(pivottable2[1,2]+pivottable2[1,1])

> prob.D4
[1] 0.2865044

> prob.D5 <- pivottable1[1,2]/(pivottable1[1,2]+pivottable1[1,1])

> prob.D5
[1] 0.5940265

> prob.D6 <- ftable(predict_tdata[,10])

> prob.D6
    0    1

 2712  288

> prob.D6.2 <- prob.D6[1,1]/(prob.D6[1,1]+prob.D6[1,2])

> prob.D6.2
[1] 0.904
```

# > #Question E

```
> nb <- (prob.D1*prob.D2*prob.D3.2)/(prob.D1*prob.D2*prob.D3.2+prob.D4*prob.D
5*prob.D6.2)

> nb
[1] 0.1000861
```

# > #Question F

The probability from the pivot table for Question B was .098 and for NaiveBayes was .100. These are extremely similar results, though if you had to choose between the two, I would say that the pivot table is more accurate.

# > #Question G

```
> naivebayes <-naiveBayes(Personal.Loan~Online+CreditCard, data = predict_tda
ta)

> naivebayes

Naive Bayes Classifier for Discrete Predictors

Call:
naiveBayes.default(x = X, y = Y, laplace = laplace)

A-priori probabilities:
Y
    0     1
0.904 0.096

Conditional probabilities:
```

```
   Online
Y           0         1
  0 0.4059735 0.5940265
  1 0.3888889 0.6111111

   CreditCard
Y           0         1
  0 0.7134956 0.2865044
  1 0.7083333 0.2916667
```

Probability would be .096, which is very similar to the probability of .100 found in Question E