ForCredit.R

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```r
#Go to Working Directry where complaints.csv is present
setwd("C:/Users/vk0589/OneDrive - UNT System/Documents/UNT/Courses/ADTA_5240/FinalProject/RStuff")
CData <- read.csv("C:/Users/vk0589/OneDrive - UNT System/Documents/UNT/Courses/ADTA_5240/FinalProject/P:
library(dplyr)
```

```
##
## 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
```

```r
summary(CData)
```

```
##  Date.received        Product          Sub.product           Issue
##  Length:4998604     Length:4998604     Length:4998604     Length:4998604
##  Class :character   Class :character   Class :character   Class :character
##  Mode  :character   Mode  :character   Mode  :character   Mode  :character
##
##
##
##   Sub.issue         Consumer.complaint.narrative Company.public.response
##  Length:4998604     Length:4998604               Length:4998604
##  Class :character   Class :character             Class :character
##  Mode  :character   Mode  :character             Mode  :character
##
##
##
##    Company            State              ZIP.code            Tags
##  Length:4998604     Length:4998604     Length:4998604     Length:4998604
##  Class :character   Class :character   Class :character   Class :character
##  Mode  :character   Mode  :character   Mode  :character   Mode  :character
##
##
##
##  Consumer.consent.provided. Submitted.via      Date.sent.to.company
```

```
##   Length:4998604          Length:4998604     Length:4998604
##   Class :character         Class :character   Class :character
##   Mode  :character         Mode  :character   Mode  :character
##
##
##
##   Company.response.to.consumer Timely.response.  Consumer.disputed.
##   Length:4998604               Length:4998604   Length:4998604
##   Class :character             Class :character Class :character
##   Mode  :character             Mode  :character Mode  :character
##
##
##
##    Complaint.ID
##   Min.   :      1
##   1st Qu.:3186563
##   Median :5233900
##   Mean   :5029578
##   3rd Qu.:7107872
##   Max.   :8727258
```

```r
names(CData)
```

```
##  [1] "Date.received"                "Product"
##  [3] "Sub.product"                  "Issue"
##  [5] "Sub.issue"                    "Consumer.complaint.narrative"
##  [7] "Company.public.response"      "Company"
##  [9] "State"                        "ZIP.code"
## [11] "Tags"                         "Consumer.consent.provided."
## [13] "Submitted.via"                "Date.sent.to.company"
## [15] "Company.response.to.consumer" "Timely.response."
## [17] "Consumer.disputed."           "Complaint.ID"
```

```r
#Renaming Column Names ----
CData2 <- CData
names(CData2) <- c("DateReceived",
                   "Product",
                   "SubProduct",
                   "Issue",
                   "SubIssue",
                   "ComplaintNarrative",
                   "CompanyPulicResponse",
                   "Company",
                   "State",
                   "ZIPCode",
                   "Tags",
                   "ConsumerConsent",
                   "SubmittedVia",
                   "DateSentToCompany",
                   "CompanyResponseToConsumer",
                   "TimelyResponse",
                   "ConsumerDisputed",
                   "ComplaintID")
head(CData2)
```

```
##   DateReceived                                             Product
## 1   2024-02-08                                     Debt collection
## 2   2024-02-08  Money transfer, virtual currency, or money service
## 3   2023-09-15 Credit reporting or other personal consumer reports
## 4   2023-09-15 Credit reporting or other personal consumer reports
## 5   2024-03-27                                        Student loan
## 6   2024-03-25 Credit reporting or other personal consumer reports
##                     SubProduct
## 1                 I do not know
## 2   Domestic (US) money transfer
## 3               Credit reporting
## 4               Credit reporting
## 5 Federal student loan servicing
## 6               Credit reporting
##                                                          Issue
## 1                             Attempts to collect debt not owed
## 2                                                  Fraud or scam
## 3 Problem with a company's investigation into an existing problem
## 4                            Incorrect information on your report
## 5                             Dealing with your lender or servicer
## 6                            Incorrect information on your report
##                                               SubIssue
## 1                                   Debt is not yours
## 2
## 3 Their investigation did not fix an error on your report
## 4                        Information belongs to someone else
## 5            Trouble with how payments are being handled
## 6                        Information belongs to someone else
##
## 1 Personally, as a federally protected consumer Im seeking proof of the alleged debt, under the doct
## 2
## 3
## 4
## 5
## 6
##                                                          CompanyPulicResponse
## 1                 Company believes it acted appropriately as authorized by contract or law
## 2
## 3
## 4 Company has responded to the consumer and the CFPB and chooses not to provide a public response
## 5
## 6
##                                 Company State ZIPCode Tags      ConsumerConsent
## 1   Credit Service International Corp    OK   73110        Consent provided
## 2               JPMORGAN CHASE & CO.    AZ   85013        Consent provided
## 3                      EQUIFAX, INC.    TX   75024        Consent provided
## 4 Experian Information Solutions Inc.    FL   32825     Consent not provided
## 5                             MOHELA    OR   97007
## 6 Experian Information Solutions Inc.    TX   77515
##   SubmittedVia DateSentToCompany      CompanyResponseToConsumer TimelyResponse
## 1          Web        2024-02-08         Closed with explanation            Yes
## 2          Web        2024-02-08         Closed with explanation            Yes
## 3          Web        2023-09-15         Closed with explanation            Yes
## 4          Web        2023-09-15 Closed with non-monetary relief            Yes
```

```
## 5          Web       2024-03-27                 In progress          Yes
## 6          Web       2024-03-25                 In progress          Yes
##   ConsumerDisputed ComplaintID
## 1             N/A      8309774
## 2             N/A      8309639
## 3             N/A      7549128
## 4             N/A      7549460
## 5             N/A      8643821
## 6             N/A      8616224
```

```r
#Type Conversion ----
CData2$DateReceived <- as.Date(CData2$DateReceived)
CData2$Product <- as.factor(CData2$Product)
CData2$SubProduct <- as.factor(CData2$SubProduct)
CData2$Issue <- as.factor(CData2$SubIssue)
CData2$Company <- as.factor(CData2$Company)
CData2$State <- as.factor(CData2$State)
CData2$ZIPCode <- as.factor(CData2$ZIPCode)
CData2$Tags <- as.factor(CData2$Tags)
CData2$ConsumerConsent <- as.factor(CData2$ConsumerConsent)
CData2$SubmittedVia <- as.factor(CData2$SubmittedVia)
CData2$DateSentToCompany <- as.Date(CData2$DateSentToCompany)
CData2$CompanyResponseToConsumer <- as.factor(CData2$CompanyResponseToConsumer)
CData2$TimelyResponse <- as.factor(CData2$TimelyResponse)
CData2$ConsumerDisputed <- as.factor(CData2$ConsumerDisputed)

summary(CData2$Product)
```

```
##                                                        Bank account or service
##                                                                          86205
##                                                      Checking or savings account
##                                                                         208631
##                                                                    Consumer Loan
##                                                                          31574
##                                                                      Credit card
##                                                                         127024
##                                                        Credit card or prepaid card
##                                                                         206374
##                                                                  Credit reporting
##                                                                         140429
##                         Credit reporting or other personal consumer reports
##                                                                         817854
## Credit reporting, credit repair services, or other personal consumer reports
##                                                                        2163880
##                                                                  Debt collection
##                                                                         555576
##                                                      Debt or credit management
##                                                                            924
##                          Money transfer, virtual currency, or money service
##                                                                          67165
##                                                                  Money transfers
##                                                                           5354
##                                                                         Mortgage
##                                                                         396141
```

```
##                                                 Other financial service
##                                                                     1058
##                                                              Payday loan
##                                                                     5541
##                                Payday loan, title loan, or personal loan
##                                                                    30640
##                       Payday loan, title loan, personal loan, or advance loan
##                                                                     4774
##                                                              Prepaid card
##                                                                     7825
##                                                              Student loan
##                                                                    87031
##                                                      Vehicle loan or lease
##                                                                    54586
##                                                          Virtual currency
##                                                                       18
```

```r
CDataReq <- CData2 %>%
  select(c(1:5, 8:18)) #Removing ComplaintNarriative and CompanyPublicResponse Cols.

#Getting Credit Data ----
##Only Credit Card ----
CreditOnly <- CData2 %>%
  filter(Product == "Credit card") #Information of only Product = 'Credit card'
##Credit Card + 3 Columns ----
CreditPartial <- CData2 %>%
  filter(Product == "Credit card"|
         Product == "Credit card or prepaid card"|
         Product == "Credit reporting"|
         Product == "Credit reporting or other personal consumer reports")

##All 5 Columns containing word 'Credit' ----
CreditFull <- CData2 %>%
  filter(Product == "Credit card"|
         Product == "Credit card or prepaid card"|
         Product == "Credit reporting"|
         Product == "Credit reporting or other personal consumer reports"|
         Product == "Credit reporting, credit repair services, or other personal consumer reports")

#Above 3 datasets without ComplaintNarrative and CompanyPublicResponse

##Only Credit Card ----
CreditOnly16 <- CDataReq %>%
  filter(Product == "Credit card") #Information of only Product = 'Credit card'
##Credit Card + 3 Columns ----
CreditPartial16 <- CDataReq %>%
  filter(Product == "Credit card"|
           Product == "Credit card or prepaid card"|
           Product == "Credit reporting"|
           Product == "Credit reporting or other personal consumer reports")

##All 5 Columns containing word 'Credit' ----
CreditFull16 <- CDataReq %>%
  filter(Product == "Credit card"|
```

```
              Product == "Credit card or prepaid card"|
              Product == "Credit reporting"|
              Product == "Credit reporting or other personal consumer reports"|
              Product == "Credit reporting, credit repair services, or other personal consumer reports")


head(CreditOnly16) #Product - CreditCard
```

```
##   DateReceived      Product                          SubProduct
## 1   2024-03-25 Credit card General-purpose credit card or charge card
## 2   2024-03-25 Credit card General-purpose credit card or charge card
## 3   2024-03-18 Credit card General-purpose credit card or charge card
## 4   2024-03-25 Credit card General-purpose credit card or charge card
## 5   2024-03-21 Credit card General-purpose credit card or charge card
## 6   2024-03-25 Credit card General-purpose credit card or charge card
##                                                                    Issue
## 1                                            Sent card you never applied for
## 2                                     Reporting company used your report improperly
## 3                                     Didn't receive advertised or promotional terms
## 4 Credit card company isn't resolving a dispute about a purchase on your statement
## 5                                              Information belongs to someone else
## 6                                     Card opened without my consent or knowledge
##                                                                    SubIssue
## 1                                            Sent card you never applied for
## 2                                     Reporting company used your report improperly
## 3                                     Didn't receive advertised or promotional terms
## 4 Credit card company isn't resolving a dispute about a purchase on your statement
## 5                                              Information belongs to someone else
## 6                                     Card opened without my consent or knowledge
##                           Company State ZIPCode            Tags
## 1 CAPITAL ONE FINANCIAL CORPORATION    GA   30093  Servicemember
## 2 CAPITAL ONE FINANCIAL CORPORATION    NY   11219
## 3          AMERICAN EXPRESS COMPANY    FL   32308 Older American
## 4 CAPITAL ONE FINANCIAL CORPORATION    NY   11754
## 5 CAPITAL ONE FINANCIAL CORPORATION    FL   32256
## 6 CAPITAL ONE FINANCIAL CORPORATION    LA   708XX
##   ConsumerConsent SubmittedVia DateSentToCompany CompanyResponseToConsumer
## 1                         Web       2024-03-25              In progress
## 2                         Web       2024-03-25              In progress
## 3             N/A     Referral       2024-03-26   Closed with explanation
## 4             N/A        Phone       2024-03-25              In progress
## 5                         Web       2024-03-25              In progress
## 6                         Web       2024-03-25              In progress
##   TimelyResponse ConsumerDisputed ComplaintID
## 1            Yes              N/A     8623665
## 2            Yes              N/A     8624546
## 3            Yes              N/A     8637068
## 4            Yes              N/A     8624564
## 5            Yes              N/A     8601263
## 6            Yes              N/A     8618706
```

```
head(CreditFull16) # All 5 Products
```

```
##   DateReceived                                          Product
## 1  2023-09-15 Credit reporting or other personal consumer reports
## 2  2023-09-15 Credit reporting or other personal consumer reports
## 3  2024-03-25 Credit reporting or other personal consumer reports
## 4  2024-03-25                                       Credit card
## 5  2024-02-09 Credit reporting or other personal consumer reports
## 6  2024-03-25                                       Credit card
##                                  SubProduct
## 1                          Credit reporting
## 2                          Credit reporting
## 3                          Credit reporting
## 4 General-purpose credit card or charge card
## 5                          Credit reporting
## 6 General-purpose credit card or charge card
##                                                     Issue
## 1 Their investigation did not fix an error on your report
## 2                      Information belongs to someone else
## 3                      Information belongs to someone else
## 4                        Sent card you never applied for
## 5                      Information belongs to someone else
## 6        Reporting company used your report improperly
##                                                   SubIssue
## 1 Their investigation did not fix an error on your report
## 2                      Information belongs to someone else
## 3                      Information belongs to someone else
## 4                        Sent card you never applied for
## 5                      Information belongs to someone else
## 6        Reporting company used your report improperly
##                                     Company State ZIPCode          Tags
## 1                            EQUIFAX, INC.    TX   75024
## 2    Experian Information Solutions Inc.    FL   32825
## 3    Experian Information Solutions Inc.    TX   77515
## 4       CAPITAL ONE FINANCIAL CORPORATION    GA   30093 Servicemember
## 5 UNITED SERVICES AUTOMOBILE ASSOCIATION    GA   30120
## 6       CAPITAL ONE FINANCIAL CORPORATION    NY   11219
##      ConsumerConsent SubmittedVia DateSentToCompany
## 1    Consent provided          Web      2023-09-15
## 2 Consent not provided         Web      2023-09-15
## 3                             Web      2024-03-25
## 4                             Web      2024-03-25
## 5    Consent provided          Web      2024-02-09
## 6                             Web      2024-03-25
##      CompanyResponseToConsumer TimelyResponse ConsumerDisputed ComplaintID
## 1         Closed with explanation            Yes              N/A     7549128
## 2 Closed with non-monetary relief            Yes              N/A     7549460
## 3                 In progress            Yes              N/A     8616224
## 4                 In progress            Yes              N/A     8623665
## 5 Closed with non-monetary relief            Yes              N/A     8313688
## 6                 In progress            Yes              N/A     8624546
```

```
summary(CreditFull16)
```

```
##    DateReceived
##  Min.    :2011-12-01
##  1st Qu.:2020-10-29
##  Median :2022-10-05
##  Mean   :2021-11-10
##  3rd Qu.:2023-08-22
##  Max.    :2024-04-09
##
##                                                                    Product
##  Credit reporting, credit repair services, or other personal consumer reports:2163880
##  Credit reporting or other personal consumer reports                  : 817854
##  Credit card or prepaid card                                          : 206374
##  Credit reporting                                                     : 140429
##  Credit card                                                          : 127024
##  Bank account or service                                              :      0
##  (Other)                                                              :      0
##                                     SubProduct
##  Credit reporting                   :2956061
##                                     : 229621
##  General-purpose credit card or charge card: 192618
##  Store credit card                  :  32015
##  Other personal consumer report     :  20605
##  Government benefit card            :   9070
##  (Other)                            :  15571
##                                             Issue
##  Information belongs to someone else                  :951267
##  Reporting company used your report improperly        :492980
##  Their investigation did not fix an error on your report :436720
##  Credit inquiries on your report that you don't recognize:254532
##  Account information incorrect                        :168624
##  Investigation took more than 30 days                 :163628
##  (Other)                                              :987810
##     SubIssue                                Company
##  Length:3455561    EQUIFAX, INC.                      :1012638
##  Class :character   TRANSUNION INTERMEDIATE HOLDINGS, INC.: 932487
##  Mode  :character   Experian Information Solutions Inc.  : 851301
##                     CAPITAL ONE FINANCIAL CORPORATION    :  70771
##                     CITIBANK, N.A.                       :  55544
##                     JPMORGAN CHASE & CO.                 :  43101
##                     (Other)                              : 489719
##      State        ZIPCode                         Tags
##  FL     : 446062   XXXXX  :  70250                        :3214279
##  TX     : 394775          :  11244   Older American       :  63873
##  CA     : 369064   30349  :   7396   Older American, Servicemember:  15273
##  GA     : 257700   19143  :   6731   Servicemember        : 162136
##  NY     : 222195   35405  :   6067
##  PA     : 180147   33025  :   5774
##  (Other):1585618   (Other):3348099
##             ConsumerConsent        SubmittedVia     DateSentToCompany
##                       : 209110   Email     :    112   Min.   :2011-12-01
##  Consent not provided:1617997   Fax       :  12337   1st Qu.:2020-10-29
```

```
##   Consent provided    :1158974   Phone        :  70835   Median :2022-10-05
##   Consent withdrawn    :   5540   Postal mail :  50579   Mean   :2021-11-11
##   N/A                  : 257229   Referral    :  56022   3rd Qu.:2023-08-23
##   Other                : 206711   Web         :3265201   Max.   :2024-04-09
##                                   Web Referral:    475
##                   CompanyResponseToConsumer TimelyResponse ConsumerDisputed
##   Closed with explanation       :2100842    No :  12836    N/A:3225943
##   Closed with non-monetary relief:1091136   Yes:3442725    No : 189301
##   In progress                   : 189808                   Yes:  40317
##   Closed with monetary relief   :  63709
##   Closed without relief         :   4308
##   Closed with relief            :   2528
##   (Other)                       :   3230
##   ComplaintID
##   Min.   :      1
##   1st Qu.:3924986
##   Median :6051345
##   Mean   :5666193
##   3rd Qu.:7440909
##   Max.   :8727252
##
```

```r
#Experiments ----
#CSV doesn't work at columns data has ',' in-between
##Exporting in tabSpace
write.table(CreditOnly, "C:/Users/vk0589/OneDrive - UNT System/Documents/UNT/Courses/ADTA_5240/FinalPro
           row.names = FALSE, quote = FALSE, sep = "\t") #Didn't work for 18

write.table(CreditOnly16, "C:/Users/vk0589/OneDrive - UNT System/Documents/UNT/Courses/ADTA_5240/FinalP
           row.names = FALSE, quote = FALSE, sep = "\t") #Worked for 16 Columns

write.table(CreditOnly, "C:/Users/vk0589/OneDrive - UNT System/Documents/UNT/Courses/ADTA_5240/FinalPro
           row.names = FALSE, quote = FALSE, sep = "\t\t") #NotPossible with Limitations of GCP

#Creating CreditPartil16 and CreditFull16 with tabSpace
write.table(CreditPartial16, "C:/Users/vk0589/OneDrive - UNT System/Documents/UNT/Courses/ADTA_5240/Fina
           row.names = FALSE, quote = FALSE, sep = "\t")

write.table(CreditFull16, "C:/Users/vk0589/OneDrive - UNT System/Documents/UNT/Courses/ADTA_5240/FinalP
           row.names = FALSE, quote = FALSE, sep = "\t")
```