```
#Loading the creditcardfraud csv file into a data frame
credit_card=read.csv("creditcardfraud.csv")
credit_card
#Checking if there are any NA values in the dataset
any(is.na(credit_card))
# So from the output it is understood that there are NA values in the dataset
#Let us extract the count of NA values in the dataset
sum(is.na(credit_card))

#Replacing the NA values in each column with the mean value of the values in
#the column
credit_card$Time[is.na(credit_card$Time)]=mean(credit_card$Time,na.rm=TRUE)
credit_card$V1[is.na(credit_card$V1)]=mean(credit_card$V1,na.rm=TRUE)
credit_card$V2[is.na(credit_card$V2)]=mean(credit_card$V2,na.rm=TRUE)
credit_card$V3[is.na(credit_card$V3)]=mean(credit_card$V3,na.rm=TRUE)
credit_card$V4[is.na(credit_card$V4)]=mean(credit_card$V4,na.rm=TRUE)
credit_card$V5[is.na(credit_card$V5)]=mean(credit_card$V5,na.rm=TRUE)
credit_card$V6[is.na(credit_card$V6)]=mean(credit_card$V6,na.rm=TRUE)
credit_card$V7[is.na(credit_card$V7)]=mean(credit_card$V7,na.rm=TRUE)
credit_card$V8[is.na(credit_card$V8)]=mean(credit_card$V8,na.rm=TRUE)
credit_card$V9[is.na(credit_card$V9)]=mean(credit_card$V9,na.rm=TRUE)
credit_card$V10[is.na(credit_card$V10)]=mean(credit_card$V10,na.rm=TRUE)
credit_card$V11[is.na(credit_card$V11)]=mean(credit_card$V11,na.rm=TRUE)
credit_card$V12[is.na(credit_card$V12)]=mean(credit_card$V12,na.rm=TRUE)
credit_card$V13[is.na(credit_card$V13)]=mean(credit_card$V13,na.rm=TRUE)
credit_card$V14[is.na(credit_card$V14)]=mean(credit_card$V14,na.rm=TRUE)
credit_card$V15[is.na(credit_card$V15)]=mean(credit_card$V15,na.rm=TRUE)
credit_card$V16[is.na(credit_card$V16)]=mean(credit_card$V16,na.rm=TRUE)
credit_card$V17[is.na(credit_card$V17)]=mean(credit_card$V17,na.rm=TRUE)
credit_card$V18[is.na(credit_card$V18)]=mean(credit_card$V18,na.rm=TRUE)
```

```
credit_card$V19[is.na(credit_card$V19)]=mean(credit_card$V19,na.rm=TRUE)
credit_card$V20[is.na(credit_card$V20)]=mean(credit_card$V20,na.rm=TRUE)
credit_card$V21[is.na(credit_card$V21)]=mean(credit_card$V21,na.rm=TRUE)
credit_card$V22[is.na(credit_card$V22)]=mean(credit_card$V22,na.rm=TRUE)
credit_card$V23[is.na(credit_card$V23)]=mean(credit_card$V23,na.rm=TRUE)
credit_card$V24[is.na(credit_card$V24)]=mean(credit_card$V24,na.rm=TRUE)
credit_card$V25[is.na(credit_card$V25)]=mean(credit_card$V25,na.rm=TRUE)
credit_card$V26[is.na(credit_card$V26)]=mean(credit_card$V26,na.rm=TRUE)
credit_card$V27[is.na(credit_card$V27)]=mean(credit_card$V27,na.rm=TRUE)
credit_card$V28[is.na(credit_card$V28)]=mean(credit_card$V28,na.rm=TRUE)
credit_card$Amount[is.na(credit_card$Amount)]=mean(credit_card$Amount,na.rm=TRUE)
credit_card$Class[is.na(credit_card$Class)]=mean(credit_card$Class,na.rm=TRUE)

options(scipen = 5)
credit_card
any(is.na(credit_card))
#From the result it is understood that there are NA values in the dataset
#So the data is now cleaned

#Class of data object
class(credit_card)

#Display Internal structure of data
str(credit_card)

#Summary of data
summary(credit_card)

#Column names
names(credit_card)
```

#Dimensions of data

dim(credit_card)

Data of the top

head(credit_card)

#Data from the top

tail(credit_card)

```
#Class of data object
class(credit_card)

#Display Internal structure of data
str(credit_card)

#Summary of data
summary(credit_card)

#Column names
names(credit_card)

#Dimensions of data
dim(credit_card)

# Data of the top
head(credit_card)

#Data from the top
tail(credit_card)
```

```
> #Class of data object
> class(credit_card)
[1] "data.frame"
> #Display Internal structure of data
> str(credit_card)
'data.frame':   284807 obs. of  31 variables:
 $ Time  : num  0 0 1 1 2 2 4 7 7 9 ...
 $ V1    : num  -1.36 1.192 NA -0.966 -1.158 ...
 $ V2    : num  -0.0728 0.2662 -1.3402 -0.1852 0.8777 ...
 $ V3    : num  2.536 0.166 1.773 1.793 1.549 ...
 $ V4    : num  1.378 0.448 0.38 -0.863 0.403 ...
 $ V5    : num  -0.338 0.06 -0.503 NA -0.407 ...
 $ V6    : num  0.4624 -0.0824 1.8005 1.2472 0.0959 ...
 $ V7    : num  0.2396 -0.0788 0.7915 0.2376 0.5929 ...
 $ V8    : num  0.0987 0.0851 0.2477 0.3774 -0.2705 ...
 $ V9    : num  0.364 -0.255 -1.515 -1.387 0.818 ...
 $ V10   : num  0.0908 -0.167 0.2076 -0.055 0.7531 ...
 $ V11   : num  -0.552 1.613 0.625 -0.226 NA ...
 $ V12   : num  -0.6178 NA 0.0661 0.1782 0.5382 ...
 $ V13   : num  -0.991 0.489 0.717 0.508 1.346 ...
 $ V14   : num  -0.311 -0.144 -0.166 -0.288 -1.12 ...
 $ V15   : num  1.468 0.636 2.346 -0.631 NA ...
 $ V16   : num  -0.47 0.464 -2.89 -1.06 -0.451 ...
 $ V17   : num  0.208 -0.115 1.11 -0.684 -0.237 ...
 $ V18   : num  0.0258 -0.1834 -0.1214 NA -0.0382 ...
 $ V19   : num  0.404 -0.146 -2.262 -1.233 NA ...
 $ V20   : num  0.2514 -0.0691 0.525 -0.208 0.4085 ...
 $ V21   : num  -0.01831 -0.22578 0.248 -0.1083 -0.00943 ...
 $ V22   : num  0.278 -0.639 0.772 NA 0.798 ...
 $ V23   : num  -0.11 0.101 0.909 -0.19 -0.137 ...
 $ V24   : num  0.0669 -0.3398 -0.6893 -1.1756 0.1413 ...
 $ V25   : num  0.129 0.167 -0.328 0.647 -0.206 ...
 $ V26   : num  -0.189 0.126 -0.139 -0.222 0.502 ...
 $ V27   : num  0.13356 -0.00898 -0.05535 0.06272 0.21942 ...
 $ V28   : num  -0.0211 0.0147 -0.0598 NA 0.2152 ...
 $ Amount: num  149.62 2.69 378.66 123.5 69.99 ...
 $ Class : int  0 0 0 0 0 0 0 0 0 0 ...
> #Summary of data
> summary(credit_card)
      Time              V1                  V2                  V3
 Min.   :     0   Min.   :-56.40751   Min.   :-72.71573   Min.   :-48.3256
 1st Qu.: 54202   1st Qu.: -0.92037   1st Qu.: -0.59856   1st Qu.: -0.8904
 Median : 84692   Median :  0.01811   Median :  0.06548   Median :  0.1799
 Mean   : 94814   Mean   :  0.00000   Mean   : -0.00001   Mean   :  0.0000
 3rd Qu.:139321   3rd Qu.:  1.31565   3rd Qu.:  0.80372   3rd Qu.:  1.0272
 Max.   :172792   Max.   :  2.45493   Max.   : 22.05773   Max.   :  9.3826
                  NA's   :2           NA's   :3           NA's   :2
       V4                  V5                  V6                  V7
 Min.   :-5.683171   Min.   :-113.74331   Min.   :-26.1605   Min.   :-43.5572
 1st Qu.:-0.848642   1st Qu.:  -0.69159   1st Qu.: -0.7683   1st Qu.: -0.5541
 Median :-0.019845   Median :  -0.05433   Median : -0.2742   Median :  0.0401
 Mean   : 0.000001   Mean   :   0.00001   Mean   :  0.0000   Mean   :  0.0000
 3rd Qu.: 0.743348   3rd Qu.:   0.61193   3rd Qu.:  0.3986   3rd Qu.:  0.5704
 Max.   :16.875344   Max.   :  34.80167   Max.   : 73.3016   Max.   :120.5895
 NA's   :1           NA's   :3                               NA's   :1
```

```
       V8                  V9                  V10                 V11
 Min.   :-73.21672   Min.   :-13.434066   Min.   :-24.588262   Min.   :-4.797473
 1st Qu.: -0.20863   1st Qu.: -0.643095   1st Qu.: -0.535426   1st Qu.:-0.762467
 Median :  0.02236   Median : -0.051428   Median : -0.092921   Median :-0.032757
 Mean   :  0.00000   Mean   :  0.000003   Mean   : -0.000005   Mean   : 0.000008
 3rd Qu.:  0.32735   3rd Qu.:  0.597140   3rd Qu.:  0.453898   3rd Qu.: 0.739595
 Max.   : 20.00721   Max.   : 15.594995   Max.   : 23.745136   Max.   :12.018913
 NA's   :1           NA's   :1            NA's   :1            NA's   :5
      V12                 V13                 V14                 V15
 Min.   :-18.683715   Min.   :-5.791881   Min.   :-19.2143   Min.   :-4.498945
 1st Qu.: -0.405569   1st Qu.:-0.648535   1st Qu.: -0.4256   1st Qu.:-0.582888
 Median :  0.140029   Median :-0.013568   Median :  0.0506   Median : 0.048064
 Mean   : -0.000003   Mean   : 0.000002   Mean   :  0.0000   Mean   :-0.000005
 3rd Qu.:  0.618237   3rd Qu.: 0.662507   3rd Qu.:  0.4931   3rd Qu.: 0.648821
 Max.   :  7.848392   Max.   : 7.126883   Max.   : 10.5268   Max.   : 8.877742
 NA's   :3            NA's   :2           NA's   :3          NA's   :4
      V16                 V17                 V18                 V19
 Min.   :-14.129855   Min.   :-25.162799   Min.   :-9.498746   Min.   :-7.213527
 1st Qu.: -0.468037   1st Qu.: -0.483744   1st Qu.:-0.498850   1st Qu.:-0.456295
 Median :  0.066432   Median : -0.065670   Median :-0.003644   Median : 0.003737
 Mean   :  0.000008   Mean   :  0.000005   Mean   :-0.000011   Mean   : 0.000001
 3rd Qu.:  0.523305   3rd Qu.:  0.399677   3rd Qu.: 0.500798   3rd Qu.: 0.458949
 Max.   : 17.315112   Max.   :  9.253526   Max.   : 5.041069   Max.   : 5.591971
 NA's   :4            NA's   :2            NA's   :3           NA's   :3
      V20                 V21                 V22                 V23
 Min.   :-54.49772   Min.   :-34.83038   Min.   :-10.933144   Min.   :-44.80774
 1st Qu.: -0.21172   1st Qu.: -0.22840   1st Qu.: -0.542352   1st Qu.: -0.16185
 Median : -0.06248   Median : -0.02945   Median :  0.006791   Median : -0.01119
 Mean   :  0.00000   Mean   :  0.00000   Mean   :  0.000001   Mean   :  0.00000
 3rd Qu.:  0.13304   3rd Qu.:  0.18638   3rd Qu.:  0.528555   3rd Qu.:  0.14764
```

```
      V24                 V25                 V26                 V27
 Min.   :-2.836627   Min.   :-10.29540   Min.   :-2.604551   Min.   :-22.565679
 1st Qu.:-0.354590   1st Qu.: -0.31714   1st Qu.:-0.326981   1st Qu.: -0.070839
 Median : 0.040974   Median :  0.01659   Median :-0.052142   Median :  0.001342
 Mean   :-0.000003   Mean   :  0.00000   Mean   : 0.000001   Mean   : -0.000001
 3rd Qu.: 0.439525   3rd Qu.:  0.35072   3rd Qu.: 0.240958   3rd Qu.:  0.091044
 Max.   : 4.584549   Max.   :  7.51959   Max.   : 3.517346   Max.   : 31.612198
 NA's   :1           NA's   :2           NA's   :3           NA's   :3
      V28                 Amount              Class
 Min.   :-15.43008   Min.   :    0.00   Min.   :0.000000
 1st Qu.: -0.05296   1st Qu.:    5.60   1st Qu.:0.000000
 Median :  0.01124   Median :   22.00   Median :0.000000
 Mean   :  0.00000   Mean   :   88.35   Mean   :0.001728
 3rd Qu.:  0.07828   3rd Qu.:   77.17   3rd Qu.:0.000000
 Max.   : 33.84781   Max.   :25691.16   Max.   :1.000000
 NA's   :4
> #Column names
> names(credit_card)
 [1] "Time"   "V1"     "V2"     "V3"     "V4"     "V5"     "V6"     "V7"     "V8"
[10] "V9"     "V10"    "V11"    "V12"    "V13"    "V14"    "V15"    "V16"    "V17"
[19] "V18"    "V19"    "V20"    "V21"    "V22"    "V23"    "V24"    "V25"    "V26"
[28] "V27"    "V28"    "Amount" "Class"
> #Dimensions of data
> dim(credit_card)
[1] 284807     31
```

```
> # Data of the top
> head(credit_card)
  Time         V1          V2        V3         V4          V5          V6          V7
1    0 -1.3598071 -0.07278117 2.5363467  1.3781552 -0.33832077  0.46238778  0.23959855
2    0  1.1918571  0.26615071 0.1664801  0.4481541  0.06001765 -0.08236081 -0.07880298
3    1         NA -1.34016307 1.7732093  0.3797796 -0.50319813  1.80049938  0.79146096
4    1 -0.9662717 -0.18522601 1.7929933 -0.8632913          NA  1.24720317  0.23760894
5    2 -1.1582331  0.87773676 1.5487178  0.4030339 -0.40719338  0.09592146  0.59294075
6    2 -0.4259659  0.96052304 1.1411093 -0.1682521  0.42098688 -0.02972755  0.47620095
          V8         V9         V10        V11         V12        V13        V14
1  0.09869790  0.3637870  0.09079417 -0.5515995 -0.61780086 -0.9913898 -0.3111694
2  0.08510165 -0.2554251 -0.16697441  1.6127267          NA  0.4890950 -0.1437723
3  0.24767579 -1.5146543  0.20764287  0.6245015  0.06608369  0.7172927 -0.1659459
4  0.37743587 -1.3870241 -0.05495192 -0.2264873  0.17822823  0.5077569 -0.2879237
5 -0.27053268  0.8177393  0.75307443         NA  0.53819555  1.3458516 -1.1196698
6          NA -0.5686714 -0.37140720  1.3412620  0.35989384 -0.3580907 -0.1371337
         V15        V16         V17         V18         V19         V20          V21
1  1.4681770 -0.4704005  0.20797124  0.02579058  0.40399296  0.25141210 -0.018306778
2  0.6355581  0.4639170 -0.11480466 -0.18336127 -0.14578304 -0.06908314 -0.225775248
3  2.3458649 -2.8900832  1.10996938 -0.12135931 -2.26185709  0.52497973  0.247998153
4 -0.6314181 -1.0596472 -0.68409279          NA -1.23262197 -0.20803778 -0.108300452
5          NA -0.4514492 -0.23703324 -0.03819479          NA  0.40854236 -0.009430697
6  0.5176168  0.4017259 -0.05813282  0.06865315 -0.03319379  0.08496767 -0.208253515
         V22         V23         V24        V25        V26         V27         V28 Amount
1  0.2778376 -0.11047391  0.06692808  0.1285394 -0.1891148  0.133558377 -0.02105305 149.62
2 -0.6386720  0.10128802 -0.33984648  0.1671704  0.1258945 -0.008983099  0.01472417   2.69
3  0.7716794  0.90941226 -0.68928096 -0.3276418 -0.1390966 -0.055352794 -0.05975184 378.66
4          NA -0.19032052 -1.17557533  0.6473760 -0.2219288  0.062722849          NA 123.50
5  0.7982785 -0.13745808  0.14126698 -0.2060096  0.5022922  0.219422230  0.21515315  69.99
6 -0.5598248 -0.02639767 -0.37142658 -0.2327938         NA  0.253844225  0.08108026   3.67

  Class
1     0
2     0
3     0
4     0
5     0
6     0
> #Data from the top
> tail(credit_card)
         Time          V1          V2         V3         V4          V5         V6
284802 172785   0.1203164  0.93100513 -0.5460121 -0.7450968  1.13031398 -0.2359732
284803 172786 -11.8811179 10.07178497 -9.8347835 -2.0666557 -5.36447278 -2.6068373
284804 172787  -0.7327887 -0.05508049  2.0350297 -0.7385886  0.86822940  1.0584153
284805 172788   1.9195650 -0.30125385 -3.2496398 -0.5578281  2.63051512  3.0312601
284806 172788  -0.2404400  0.53048251  0.7025102  0.6897992 -0.37796113  0.6237077
284807 172792  -0.5334125 -0.18973334  0.7033374 -0.5062712 -0.01254568 -0.6496167
               V7         V8         V9         V10        V11         V12        V13
284802  0.8127221  0.1150929 -0.2040635 -0.6574221  0.6448373  0.19091623 -0.5463289
284803 -4.9182154  7.3053340  1.9144283  4.3561704 -1.5931053  2.71194079 -0.6892556
284804  0.0243297  0.2948687  0.5848000 -0.9759261 -0.1501888  0.91580191  1.2147558
284805 -0.2968265  0.7084172  0.4324540 -0.4847818  0.4116137  0.06311886 -0.1836987
284806 -0.6861800  0.6791455  0.3920867 -0.3991257 -1.9338488 -0.96288614 -1.0420817
284807  1.5770063 -0.4146504  0.4861795 -0.9154266 -1.0404583 -0.03151305 -0.1880929
               V14         V15         V16         V17         V18         V19         V20
284802 -0.73170658 -0.80803553  0.5996281  0.07044075  0.3731103  0.1289038 0.000675833
284803  4.62694202 -0.92445871  1.1076406  1.99169111  0.5106323 -0.6829197 1.475829135
284804 -0.67514296  1.16493091 -0.7117573 -0.02569286 -1.2211789 -1.5455561 0.059615900
284805 -0.51060184  1.32928351  0.1407160  0.31350179  0.3956525 -0.5772518 0.001395970
284806  0.44962444  1.96256312 -0.6085771  0.50992846  1.1139806  2.8978488 0.127433516
284807 -0.08431647  0.04133345 -0.3026201 -0.66037665  0.1674299 -0.2561169 0.382948105
```

```
              V21        V22         V23          V24        V25        V26          V27
284802 -0.3142046 -0.8085204  0.05034266  0.102799590 -0.4358701  0.1240789  0.217939865
284803  0.2134541  0.1118637  1.01447990 -0.509348453  1.4368069  0.2500343  0.943651172
284804  0.2142053  0.9243836  0.01246304 -1.016225669 -0.6066240 -0.3952551  0.068472470
284805  0.2320450  0.5782290 -0.03750085  0.640133881  0.2657455 -0.0873706  0.004454772
284806  0.2652449  0.8000487 -0.16329794  0.123205244 -0.5691589  0.5466685  0.108820735
284807  0.2610573  0.6430784  0.37677701  0.008797379 -0.4736487 -0.8182671 -0.002415309
              V28 Amount Class
284802  0.06880333   2.69     0
284803  0.82373096   0.77     0
284804 -0.05352739  24.79     0
284805 -0.02656083  67.88     0
284806  0.10453282  10.00     0
284807  0.01364891 217.00     0
> 
```

```r
#Loading the creditcardfraud csv file into a data frame
credit_card=read.csv("creditcardfraud.csv")
credit_card
#Checking if there are any NA values in the dataset
any(is.na(credit_card))
# So from the output it is understood that there are NA values in the dataset
#Let us extract the count of NA values in the dataset
sum(is.na(credit_card))

#Replacing the NA values in each column with the mean value of the values in
#the column
credit_card$Time[is.na(credit_card$Time)]=mean(credit_card$Time,na.rm=TRUE)
credit_card$V1[is.na(credit_card$V1)]=mean(credit_card$V1,na.rm=TRUE)
credit_card$V2[is.na(credit_card$V2)]=mean(credit_card$V2,na.rm=TRUE)
credit_card$V3[is.na(credit_card$V3)]=mean(credit_card$V3,na.rm=TRUE)
credit_card$V4[is.na(credit_card$V4)]=mean(credit_card$V4,na.rm=TRUE)
credit_card$V5[is.na(credit_card$V5)]=mean(credit_card$V5,na.rm=TRUE)
credit_card$V6[is.na(credit_card$V6)]=mean(credit_card$V6,na.rm=TRUE)
credit_card$V7[is.na(credit_card$V7)]=mean(credit_card$V7,na.rm=TRUE)
credit_card$V8[is.na(credit_card$V8)]=mean(credit_card$V8,na.rm=TRUE)
credit_card$V9[is.na(credit_card$V9)]=mean(credit_card$V9,na.rm=TRUE)
credit_card$V10[is.na(credit_card$V10)]=mean(credit_card$V10,na.rm=TRUE)
credit_card$V11[is.na(credit_card$V11)]=mean(credit_card$V11,na.rm=TRUE)
credit_card$V12[is.na(credit_card$V12)]=mean(credit_card$V12,na.rm=TRUE)
```

```r
credit_card$V13[is.na(credit_card$V13)]=mean(credit_card$V13,na.rm=TRUE)
credit_card$V14[is.na(credit_card$V14)]=mean(credit_card$V14,na.rm=TRUE)
credit_card$V15[is.na(credit_card$V15)]=mean(credit_card$V15,na.rm=TRUE)
credit_card$V16[is.na(credit_card$V16)]=mean(credit_card$V16,na.rm=TRUE)
credit_card$V17[is.na(credit_card$V17)]=mean(credit_card$V17,na.rm=TRUE)
credit_card$V18[is.na(credit_card$V18)]=mean(credit_card$V18,na.rm=TRUE)
credit_card$V19[is.na(credit_card$V19)]=mean(credit_card$V19,na.rm=TRUE)
credit_card$V20[is.na(credit_card$V20)]=mean(credit_card$V20,na.rm=TRUE)
credit_card$V21[is.na(credit_card$V21)]=mean(credit_card$V21,na.rm=TRUE)
credit_card$V22[is.na(credit_card$V22)]=mean(credit_card$V22,na.rm=TRUE)
credit_card$V23[is.na(credit_card$V23)]=mean(credit_card$V23,na.rm=TRUE)
credit_card$V24[is.na(credit_card$V24)]=mean(credit_card$V24,na.rm=TRUE)
credit_card$V25[is.na(credit_card$V25)]=mean(credit_card$V25,na.rm=TRUE)
credit_card$V26[is.na(credit_card$V26)]=mean(credit_card$V26,na.rm=TRUE)
credit_card$V27[is.na(credit_card$V27)]=mean(credit_card$V27,na.rm=TRUE)
credit_card$V28[is.na(credit_card$V28)]=mean(credit_card$V28,na.rm=TRUE)
credit_card$Amount[is.na(credit_card$Amount)]=mean(credit_card$Amount,na.rm=TRUE)
credit_card$Class[is.na(credit_card$Class)]=mean(credit_card$Class,na.rm=TRUE)

options(scipen = 5)
credit_card
any(is.na(credit_card))
#From the result it is understood that there are NA values in the dataset
#So the data is now cleaned
```

```
> #Loading the creditcardfraud csv file into a data frame
> credit_card=read.csv("creditcardfraud.csv")
> credit_card
   Time         V1          V2          V3          V4           V5          V6
1     0 -1.3598071 -0.07278117  2.53634674  1.37815522 -0.338320770  0.46238778
2     0  1.1918571  0.26615071  0.16648011  0.44815408  0.060017649 -0.08236081
3     1         NA -1.34016307  1.77320934  0.37977959 -0.503198133  1.80049938
4     1 -0.9662717 -0.18522601  1.79299334 -0.86329128           NA  1.24720317
5     2 -1.1582331  0.87773676  1.54871785  0.40303393 -0.407193377  0.09592146
6     2 -0.4259659  0.96052304  1.14110934 -0.16825208  0.420986881 -0.02972755
7     4  1.2296576  0.14100351  0.04537077  1.20261274  0.191880989  0.27270812
8     7 -0.6442694          NA  1.07438038 -0.49219902  0.948934095  0.42811846
9     7 -0.8942861  0.28615720 -0.11319221          NA  2.669598660  3.72181806
10    9 -0.3382618  1.11959338  1.04436655 -0.22218728  0.499360806 -0.24676110
11   10  1.4490438 -1.17633882  0.91385983 -1.37566666           NA -0.62915214
12   10         NA  0.61610946 -0.87429970 -0.09401863  2.924584378  3.31702717
13   10  1.2499987 -1.22163681  0.38393015 -1.23489869 -1.485419474 -0.75323016
14   11  1.0693736  0.28772213  0.82861273  2.71252043 -0.178398016  0.33754373
15   12 -2.7918548          NA  1.64175016  1.76747274 -0.136588446  0.80759647
16   12 -0.7524170  0.34548542  2.05732291 -1.46864330 -1.158393680 -0.07784983
17   12  1.1032154 -0.04029622  1.26733209  1.28909147 -0.735997164  0.28806916
18   13 -0.4369051  0.91896621          NA -0.72721905  0.915678718 -0.12786735
19   14 -5.4012577 -5.45014783  1.18630463  1.73623880  3.049105878 -1.76340557
20   15  1.4929360 -1.02934573  0.45479473 -1.43802588 -1.555434101 -0.72096115
21   16  0.6948848 -1.36181910  1.02922104  0.83415930 -1.191208794  1.30910882
22   17  0.9624961  0.32846103 -0.17147905  2.10920407  1.129565571  1.69603769
23   18  1.1666164          NA -0.06730031  2.26156924  0.428804195  0.08947352
24   18  0.2474911  0.27766563  1.18547084 -0.09260255           NA -0.15011600
25   22 -1.9465251 -0.04490051          NA -1.01305734  2.941967700  2.95505340
26   22 -2.0742947 -0.12148180  1.32202063  0.41000751  0.295197546 -0.95953723
27   23  1.1732846  0.35349788  0.28390507  1.13356332 -0.172577182 -0.91605371
28   23  1.3227073 -0.17404083  0.43455503  0.57603765 -0.836758046 -0.83108341
29   23 -0.4142888  0.90543732  1.72745294  1.47347127  0.007442741 -0.20033068
30   23  1.0593871 -0.17531919  1.26612964  1.18610996 -0.786001753  0.57843528
31   24  1.2374290  0.06104258  0.38052588  0.76156411 -0.359770710 -0.49408415
32   25  1.1140086  0.08554609  0.49370249  1.33575998 -0.300188551 -0.01075378
            V7           V8         V9         V10         V11         V12
1   0.239598554  0.098697901  0.3637870  0.09079417 -0.55159953 -0.61780086
2  -0.078802983  0.085101655 -0.2554251 -0.16697441  1.61272666          NA
3   0.791460956  0.247675787 -1.5146543  0.20764287  0.62450146  0.06608369
4   0.237608940  0.377435875 -1.3870241 -0.05495192 -0.22648726  0.17822823
5   0.592940745 -0.270532677  0.8177393  0.75307443          NA  0.53819555
6   0.476200949           NA -0.5686714 -0.37140720  1.34126198  0.35989384
7  -0.005159003  0.081212940  0.4649600 -0.09925432          NA -0.15382583
8   1.120631358 -3.807864239  0.6153747  1.24937618 -0.61946780  0.29147435
9   0.370145128  0.851084443 -0.3920476 -0.41043043 -0.70511659 -0.11045226
10  0.651583206  0.069538587         NA -0.36684564          NA  0.83638957
11 -1.423235601  0.048455888 -1.7204084  1.62665906  1.19964395 -0.67143978
12  0.470454672  0.538247228 -0.5588946  0.30975539 -0.25911556 -0.32614323
13 -0.689404975 -0.227487228 -2.0940106          NA  0.22766623 -0.24268200
14 -0.096716862  0.115981736 -0.2210826  0.46023044 -0.77365693          NA
15 -0.422911390 -1.907107476  0.7557129  1.15108699  0.84455547  0.79294395
16 -0.608581418  0.003603484 -0.4361670  0.74773083 -0.79398060 -0.77040673
17 -0.586056786  0.189379714  0.7823329 -0.26797507 -0.45031128  0.93670772
18  0.707641607  0.087962355 -0.6652714 -0.73797982  0.32409781  0.27719211
19 -1.559737699  0.160841747  1.2330897  0.34517283  0.91722987  0.97011672
```

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20 -1.080664130 -0.053127118 -1.9786816  1.63807604  1.07754241 -0.63204651
21 -0.878585911  0.445290128 -0.4461958  0.56852073  1.01915061  1.29832870
22           NA  0.521502164 -1.1913111  0.72439632  1.69032992  0.40677358
23  0.241146580  0.138081705 -0.9891624  0.92217497  0.74478579          NA
24 -0.946364950 -1.617935051  1.5440714 -0.82988060 -0.58319953  0.52493323
25 -0.063063147  0.855546309  0.0499669  0.57374251          NA -0.21574500
26  0.543985491 -0.104626728  0.4756640  0.14945062          NA -0.18052316
27  0.369024845 -0.327260242 -0.2466510 -0.04613930 -0.14341853  0.97935038
28 -0.264904961 -0.220981943 -1.0714246  0.86855855 -0.64150629 -0.11131578
29  0.740228319 -0.029247400 -0.5933920 -0.34618823 -0.01214219  0.78679632
30 -0.767084276  0.401046149  0.6994997 -0.06473756  1.04829249  1.00561836
31  0.006494218 -0.133862380  0.4388097 -0.20735805 -0.92918212  0.52710606
32 -0.118760015  0.188616696  0.2056868  0.08226226  1.13355567  0.62669900
           V13          V14          V15          V16          V17          V18
1  -0.99138985 -0.31116935  1.468176972 -0.470400525  0.207971242  0.02579058
2   0.48909502 -0.14377230  0.635558093  0.463917041 -0.114804663 -0.18336127
3   0.71729273 -0.16594592  2.345864949 -2.890083194  1.109969379 -0.12135931
4   0.50775687 -0.28792375 -0.631418118 -1.059647245 -0.684092786          NA
5   1.34585159 -1.11966984           NA -0.451449183 -0.237033239 -0.03819479
6  -0.35809065 -0.13713370  0.517616807  0.401725896 -0.058132823  0.06865315
7           NA  0.16737196  0.050143594           NA  0.002820512 -0.61198734
8   1.75796421 -1.32386522  0.686132504 -0.076126999 -1.222127345 -0.35822157
9  -0.28625363  0.07435536 -0.328783050 -0.210077268 -0.499767969  0.11876486
10  1.00684351 -0.44352282  0.150219101  0.739452777          NA          NA
11 -0.51394715 -0.09504504           NA  0.031967467  0.253414716  0.85434381
12 -0.09004672  0.36283237  0.928903661 -0.129486811 -0.809978926  0.35998539
13  1.20541681 -0.31763053  0.725674990 -0.815612186  0.873936448 -0.84778860
14 -0.01107589 -0.17848517 -0.655564278 -0.199925171  0.124005415 -0.98049620
```

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15  0.37044809          NA  0.406795710 -0.303057624 -0.155868715          NA
16  1.04762700 -1.06660368  1.106953457  1.660113557 -0.279265373 -0.41999414
17  0.70838041 -0.46864729  0.354574063           NA -0.009212378 -0.59591241
18          NA -0.29189646           NA  1.143173707          NA  0.68046959
19 -0.26656777 -0.47912993 -0.526608503  0.472004112 -0.725480945  0.07508135
20 -0.41695717  0.05201052 -0.042978923 -0.166432496  0.304241419  0.55443250
21  0.42048027 -0.37265100 -0.807979513 -2.044557483  0.515663469  0.62584730
22 -0.93642130          NA  0.710910766 -0.602231772  0.402484376 -1.73716204
23 -2.10534645  1.12687011  0.003075323  0.424424506 -0.454475292 -0.09887063
24 -0.45337530  0.08139309  1.555204196 -1.396894893  0.783130838  0.43662121
25  0.04416063  0.03389776           NA  0.578843475 -0.975667025  0.04406282
26 -0.65523293          NA -0.211667955 -0.333320610  0.010751094 -0.48847267
27  1.49228544  0.10141753  0.761477545 -0.014584082 -0.511640117 -0.32505636
28  0.36148541  0.17194512  0.782166532 -1.355870730 -0.216935153  1.27176538
29  0.63595388 -0.08632447  0.076803687           NA  0.775591738 -0.94288893
30 -0.54200158 -0.03991450 -0.218683248  0.004475682 -0.193554039  0.04238796
31  0.34867590 -0.15253514 -0.218385630 -0.191551818 -0.116580603 -0.63379082
32 -1.49278039  0.52078789 -0.674592597 -0.529108242  0.158256198 -0.39875148
           V19          V20          V21          V22          V23          V24
1   0.40399296  0.25141210 -0.018306778  0.277837576 -0.110473910  0.06692808
2  -0.14578304 -0.06908314 -0.225775248 -0.638671953  0.101288021 -0.33984648
3  -2.26185709  0.52497973  0.247998153  0.771679402  0.909412262 -0.68928096
4  -1.23262197 -0.20803778 -0.108300452           NA -0.190320519 -1.17557533
5           NA  0.40854236 -0.009430697  0.798278495 -0.137458080  0.14126698
6  -0.03319379  0.08496767 -0.208253515 -0.559824796 -0.026397668 -0.37142658
7  -0.04557505 -0.21963255 -0.167716266 -0.270709726          NA -0.78005541
8   0.32450473 -0.15674185  1.943465340 -1.015454710  0.057503530 -0.64970901
9   0.57032817  0.05273567           NA -0.268091632 -0.204232670  1.01159180
```

```
10  0.45177296  0.20371146 -0.246913937 -0.633752642 -0.120794084 -0.38504993
11 -0.22136541 -0.38722647 -0.009301897  0.313894411  0.027740158  0.50051229
12  0.70766383  0.12599158  0.049923686  0.238421512  0.009129869          NA
13          NA -0.10275594 -0.231809239 -0.483285330  0.084667691  0.39283089
14 -0.98291608 -0.15319723 -0.036875532  0.074412403 -0.071407433  0.10474375
15  2.22186801 -1.58212204  1.151663048  0.222181966  1.020586204  0.02831665
16  0.43253535  0.26345086  0.499624955  1.353650486 -0.256573280 -0.06508371
17 -0.57568162 -0.11391018           NA  0.196001953  0.013801654  0.10375833
18  0.02543646 -0.04702128 -0.194795824 -0.672637997           NA -0.88838632
19          NA -2.19684802 -0.503600329  0.984459786  2.458588576  0.04211890
20  0.05422951 -0.38791017 -0.177649846           NA  0.040002219  0.29581386
21 -1.30040817 -0.13833394 -0.295582932 -0.571955007 -0.050880701 -0.30421450
22 -2.02761232 -0.26932097  0.143997423  0.402491661 -0.048508221 -1.37186630
23 -0.81659731 -0.30716851  0.018701872 -0.061972267 -0.103854922 -0.37041518
24  2.17780717 -0.23098314  1.650180361  0.200454091 -0.185352508  0.42307315
25  0.48860287 -0.21671525 -0.579525934 -0.799228953  0.870300215  0.98342149
26  0.50575103 -0.38669357 -0.403639499 -0.227404004  0.742434864  0.39853486
27 -0.39093380  0.02787791  0.067003304  0.227811928 -0.150487225  0.43504510
28 -1.24062194 -0.52295094 -0.284375572 -0.323357411 -0.037709905  0.34715094
29  0.54396946  0.09730759  0.077237434  0.457330599 -0.038499725  0.64252190
30 -0.27783372 -0.17802337  0.013676294  0.213733610           NA  0.00295086
31  0.34841580 -0.06635133 -0.245682498 -0.530900256 -0.044265397  0.07916803
32 -0.14570891 -0.27383237 -0.053233660 -0.004760151 -0.031470170  0.19805372
          V25         V26          V27          V28 Amount Class
1   0.12853936 -0.18911484  0.133558377 -0.021053053 149.62     0
2   0.16717040  0.12589453 -0.008983099  0.014724169   2.69     0
3  -0.32764183 -0.13909657 -0.055352794 -0.059751841 378.66     0
4   0.64737603 -0.22192884  0.062722849           NA 123.50     0
```

```
6  -0.23279382          NA  0.253844225  0.081080257   3.67     0
7   0.75013694 -0.25723685  0.034507430  0.005167769   4.99     0
8           NA -0.05163430 -1.206921081 -1.085339188  40.80     0
9   0.37320468 -0.38415731           NA  0.142404330  93.20     0
10 -0.06973305  0.09419883  0.246219305  0.083075649   3.68     0
11  0.25136736 -0.12947795  0.042849871  0.016253262   7.80     0
12 -0.76731483 -0.49220830  0.042472442 -0.054337388   9.99     0
13  0.16113455 -0.35499004  0.026415549  0.042422089 121.50     0
14  0.54826473          NA  0.021491058  0.021293311  27.50     0
15 -0.23274632 -0.23555722           NA -0.030153637  58.80     0
16 -0.03912435 -0.08708647 -0.180997500  0.129394059  15.99     0
17  0.36429754 -0.38226057  0.092809187           NA  12.99     0
18 -0.34241322 -0.04902673  0.079692399  0.131023789   0.89     0
19 -0.48163082 -0.62127201           NA  0.949594246  46.80     0
20  0.33293060 -0.22038485  0.022298436  0.007602256   5.00     0
21  0.07200101          NA  0.086553398  0.063498649 231.71     0
22  0.39081389  0.19996366  0.016370643 -0.014605328  34.09     0
23  0.60320034  0.10855587 -0.040520706           NA   2.28     0
24  0.82059126 -0.22763186  0.336634447  0.250475352  22.75     0
25  0.32120113  0.14964988  0.707518836  0.014599752   0.89     0
26  0.24921216  0.27440427  0.359969356  0.243231672  26.43     0
27  0.72482458 -0.33708206  0.016368379  0.030041191  41.88     0
28  0.55963914 -0.28015817  0.042335258           NA  16.00     0
29 -0.18389133 -0.27746402  0.182687486  0.152664645  33.00     0
30          NA -0.39506950  0.081461117  0.024220349  12.99     0
31  0.50913569  0.28885783 -0.022704982  0.011836231  17.28     0
32  0.56500731 -0.33771813  0.029057402  0.004452631   4.45     0
 [ reached 'max' / getOption("max.print") -- omitted 284775 rows ]
```

```
> #Checking if there are any NA values in the dataset
> any(is.na(credit_card))
[1] TRUE
> # So from the output it is understood that there are NA values in the dataset
> #Let us extract the count of NA values in the dataset
> sum(is.na(credit_card))
[1] 64
>
```

```
> #Replacing the NA values in each column with the mean value of the values in
> #the column
> credit_card$Time[is.na(credit_card$Time)]=mean(credit_card$Time,na.rm=TRUE)
> credit_card$V1[is.na(credit_card$V1)]=mean(credit_card$V1,na.rm=TRUE)
> credit_card$V2[is.na(credit_card$V2)]=mean(credit_card$V2,na.rm=TRUE)
> credit_card$V3[is.na(credit_card$V3)]=mean(credit_card$V3,na.rm=TRUE)
> credit_card$V4[is.na(credit_card$V4)]=mean(credit_card$V4,na.rm=TRUE)
> credit_card$V5[is.na(credit_card$V5)]=mean(credit_card$V5,na.rm=TRUE)
> credit_card$V6[is.na(credit_card$V6)]=mean(credit_card$V6,na.rm=TRUE)
> credit_card$V7[is.na(credit_card$V7)]=mean(credit_card$V7,na.rm=TRUE)
> credit_card$V8[is.na(credit_card$V8)]=mean(credit_card$V8,na.rm=TRUE)
> credit_card$V9[is.na(credit_card$V9)]=mean(credit_card$V9,na.rm=TRUE)
> credit_card$V10[is.na(credit_card$V10)]=mean(credit_card$V10,na.rm=TRUE)
> credit_card$V11[is.na(credit_card$V11)]=mean(credit_card$V11,na.rm=TRUE)
> credit_card$V12[is.na(credit_card$V12)]=mean(credit_card$V12,na.rm=TRUE)
> credit_card$V13[is.na(credit_card$V13)]=mean(credit_card$V13,na.rm=TRUE)
> credit_card$V14[is.na(credit_card$V14)]=mean(credit_card$V14,na.rm=TRUE)
> credit_card$V15[is.na(credit_card$V15)]=mean(credit_card$V15,na.rm=TRUE)
> credit_card$V16[is.na(credit_card$V16)]=mean(credit_card$V16,na.rm=TRUE)
> credit_card$V17[is.na(credit_card$V17)]=mean(credit_card$V17,na.rm=TRUE)
> credit_card$V18[is.na(credit_card$V18)]=mean(credit_card$V18,na.rm=TRUE)
> credit_card$V19[is.na(credit_card$V19)]=mean(credit_card$V19,na.rm=TRUE)
> credit_card$V20[is.na(credit_card$V20)]=mean(credit_card$V20,na.rm=TRUE)
> credit_card$V21[is.na(credit_card$V21)]=mean(credit_card$V21,na.rm=TRUE)
> credit_card$V22[is.na(credit_card$V22)]=mean(credit_card$V22,na.rm=TRUE)
> credit_card$V23[is.na(credit_card$V23)]=mean(credit_card$V23,na.rm=TRUE)
> credit_card$V24[is.na(credit_card$V24)]=mean(credit_card$V24,na.rm=TRUE)
> credit_card$V25[is.na(credit_card$V25)]=mean(credit_card$V25,na.rm=TRUE)
> credit_card$V26[is.na(credit_card$V26)]=mean(credit_card$V26,na.rm=TRUE)
> credit_card$V27[is.na(credit_card$V27)]=mean(credit_card$V27,na.rm=TRUE)
> credit_card$V28[is.na(credit_card$V28)]=mean(credit_card$V28,na.rm=TRUE)
> credit_card$Amount[is.na(credit_card$Amount)]=mean(credit_card$Amount,na.rm=TRUE)
> credit_card$Class[is.na(credit_card$Class)]=mean(credit_card$Class,na.rm=TRUE)
> options(scipen = 5)
> credit_card
   Time              V1              V2              V3               V4
1     0 -1.359807134000 -0.072781173000  2.536346738000  1.3781552240000
2     0  1.191857111000  0.266150712000  0.166480113000  0.4481540780000
3     1  0.000003417694 -1.340163075000  1.773209343000  0.3797795930000
4     1 -0.966271712000 -0.185226008000  1.792993340000 -0.8632912750000
5     2 -1.158233093000  0.877736755000  1.548717847000  0.4030339340000
6     2 -0.425965884000  0.960523045000  1.141109342000 -0.1682520800000
7     4  1.229657635000  0.141003507000  0.045370774000  1.2026127370000
8     7 -0.644269442000 -0.000005590909  1.074380376000 -0.4921990180000
9     7 -0.894286082000  0.286157196000 -0.113192213000  0.0000009533731
10    9 -0.338261752000  1.119593376000  1.044366552000 -0.2221872770000
11   10  1.449043781000 -1.176338825000  0.913859833000 -1.3756666550000
12   10  0.000003417694  0.616109459000 -0.874299703000 -0.0940186260000
13   10  1.249998742000 -1.221636809000  0.383930151000 -1.2348986880000
14   11  1.069373588000  0.287722129000  0.828612727000  2.7125204300000
15   12 -2.791854766000 -0.000005590909  1.641750161000  1.7674727440000
16   12 -0.752417043000  0.345485415000  2.057322913000 -1.4686432980000
17   12  1.103215435000 -0.040296215000  1.267332089000  1.2890914700000
18   13 -0.436905071000  0.918966213000 -0.000001822373 -0.7272190540000
19   14 -5.401257663000 -5.450147834000  1.186304631000  1.7362388000000
20   15  1.492935977000 -1.029345732000  0.454794734000 -1.4380258800000
21   16  0.694884776000 -1.361819103000  1.029221040000  0.8341592990000
22   17  0.962496070000  0.328461026000 -0.171479054000  2.1092040680000
23   18  1.166616382000 -0.000005590909 -0.067300314000  2.2615692390000
24   18  0.247491128000  0.277665627000  1.185470842000 -0.0926025500000
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25	22	-1.946525131000	-0.044900505000	-0.000001822373	-1.0130573370000	
26	22	-2.074294672000	-0.121481799000	1.322020630000	0.4100075140000	
27	23	1.173284610000	0.353497877000	0.283905065000	1.1335633180000	
28	23	1.322707269000	-0.174040833000	0.434555031000	0.5760376520000	
29	23	-0.414288810000	0.905437323000	1.727452944000	1.4734712670000	
30	23	1.059387115000	-0.175319187000	1.266129643000	1.1861099550000	
31	24	1.237429030000	0.061042584000	0.380525880000	0.7615641110000	
32	25	1.114008595000	0.085546090000	0.493702487000	1.3357599850000	

	V5	V6	V7	V8	V9
1	-0.33832077000	0.46238778	0.2395985540000	0.0986979010000	0.363786970000
2	0.06001764900	-0.08236081	-0.0788029830000	0.0851016550000	-0.255425128000
3	-0.50319813300	1.80049938	0.7914609560000	0.2476757870000	-1.514654323000
4	0.00001157317	1.24720317	0.2376089400000	0.3774358750000	-1.387024063000
5	-0.40719337700	0.09592146	0.5929407450000	-0.2705326770000	0.817739308000
6	0.42098688100	-0.02972755	0.4762009490000	-0.0000009140057	-0.568671376000
7	0.19188098900	0.27270812	-0.0051590030000	0.0812129400000	0.464959995000
8	0.94893409500	0.42811846	1.1206313580000	-3.8078642390000	0.615374731000
9	2.66959866000	3.72181806	0.3701451280000	0.8510844430000	-0.392047587000
10	0.49936080600	-0.24676110	0.6515832060000	0.0695385870000	0.000002586768
11	0.00001157317	-0.62915214	-1.4232356010000	0.0484558880000	-1.720408393000
12	2.92458437800	3.31702717	0.4704546720000	0.5382472280000	-0.558894612000
13	-1.48541947400	-0.75323016	-0.6894049750000	-0.2274872280000	-2.094010573000
14	-0.17839801600	0.33754373	-0.0967168620000	0.1159817360000	-0.221082566000
15	-0.13658844600	0.80759647	-0.4229113900000	-1.9071074760000	0.755712908000
16	-1.15839368000	-0.07784983	-0.6085814180000	0.0036034840000	-0.436166984000
17	-0.73599716400	0.28806916	-0.5860567860000	0.1893797140000	0.782332892000
18	0.91567871800	-0.12786735	0.7076416070000	0.0879623550000	-0.665271354000
19	3.04910587800	-1.76340557	-1.5597376990000	0.1608417470000	1.233089740000
20	-1.55543410100	-0.72096115	-1.0806641300000	-0.0531271180000	-1.978681595000
21	-1.19120879400	1.30910882	-0.8785859110000	0.4452901280000	-0.446195832000

22	1.12956557100	1.69603769	-0.0000003781932	0.5215021640000	-1.191311102000
23	0.42880419500	0.08947352	0.2411465800000	0.1380817050000	-0.989162395000
24	0.00001157317	-0.15011600	-0.9463649500000	-1.6179350510000	1.544071402000
25	2.94196770000	2.95505340	-0.0630631470000	0.8555463090000	0.049966900000
26	0.29519754600	-0.95953723	0.5439854910000	-0.1046267280000	0.475664018000
27	-0.17257718200	-0.91605371	0.3690248450000	-0.3272602420000	-0.246651028000
28	-0.83675804600	-0.83108341	-0.2649049610000	-0.2209819430000	-1.071424618000
29	0.00744274100	-0.20033068	0.7402283190000	-0.0292474000000	-0.593392019000
30	-0.78600175300	0.57843528	-0.7670842760000	0.4010461490000	0.699499676000
31	-0.35977071000	-0.49408415	0.0064942180000	-0.1338623800000	0.438809737000
32	-0.30018855100	-0.01075378	-0.1187600150000	0.1886166960000	0.205686849000

	V10	V11	V12	V13
1	0.090794172000	-0.551599533000	-0.617800856000	-0.991389847000
2	-0.166974414000	1.612726661000	-0.000003009947	0.489095016000
3	0.207642865000	0.624501459000	0.066083685000	0.717292731000
4	-0.054951922000	-0.226487264000	0.178228226000	0.507756870000
5	0.753074432000	0.000007584073	0.538195550000	1.345851593000
6	-0.371407197000	1.341261980000	0.359893837000	-0.358090653000
7	-0.099254321000	0.000007584073	-0.153825826000	0.000001750105
8	1.249376178000	-0.619467796000	0.291474353000	1.757964214000
9	-0.410430433000	-0.705116587000	-0.110452262000	-0.286253632000
10	-0.366845639000	0.000007584073	0.836389570000	1.006843514000
11	1.626659058000	1.199643950000	-0.671439778000	-0.513947153000
12	0.309755394000	-0.259115564000	-0.326143234000	-0.090046723000
13	-0.000004647827	0.227666231000	-0.242681999000	1.205416808000
14	0.460230444000	-0.773656931000	-0.000003009947	-0.011075887000
15	1.151086988000	0.844555471000	0.792943952000	0.370448093000
16	0.747730827000	-0.793980603000	-0.770406729000	1.047626997000
17	-0.267975067000	-0.450311280000	0.936707715000	0.708380406000
18	-0.737979824000	0.324097813000	0.277192107000	0.000001750105

19	0.345172827000	0.917229868000	0.970116716000	-0.266567765000	
20	1.638076037000	1.077542412000	-0.632046515000	-0.416957167000	
21	0.568520735000	1.019150613000	1.298328701000	0.420480265000	
22	0.724396315000	1.690329921000	0.406773576000	-0.936421296000	
23	0.922174967000	0.744785789000	-0.000003009947	-2.105346450000	
24	-0.829880601000	-0.583199527000	0.524933232000	-0.453375297000	
25	0.573742508000	0.000007584073	-0.215745003000	0.044160628000	
26	0.149450615000	0.000007584073	-0.180523156000	-0.655232930000	
27	-0.046139302000	-0.143418527000	0.979350376000	1.492285435000	
28	0.868558548000	-0.641506290000	-0.111315775000	0.361485410000	
29	-0.346188231000	-0.012142188000	0.786796316000	0.635953883000	
30	-0.064737556000	1.048292488000	1.005618365000	-0.542001579000	
31	-0.207358046000	-0.929182115000	0.527106061000	0.348675901000	
32	0.082262259000	1.133555671000	0.626699002000	-1.492780392000	

	V14	V15	V16	V17	V18
1	-0.3111693540000	1.468176972000	-0.470400525000	0.207971242000	0.02579058000
2	-0.1437722960000	0.635558093000	0.463917041000	-0.114804663000	-0.18336127000
3	-0.1659459230000	2.345864949000	-2.890083194000	1.109969379000	-0.12135931300
4	-0.2879237450000	-0.631418118000	-1.059647245000	-0.684092786000	-0.00001130854
5	-1.1196698350000	-0.000004958688	-0.451449183000	-0.237033239000	-0.03819478700
6	-0.1371337000000	0.517616807000	0.401725896000	-0.058132823000	0.06865314900
7	0.1673719630000	0.050143594000	0.000008363863	0.002820512000	-0.61198734000
8	-1.3238652200000	0.686132504000	-0.076126999000	-1.222127345000	-0.35822157000
9	0.0743553600000	-0.328783050000	-0.210077268000	-0.499767969000	0.11876486100
10	-0.4435228170000	0.150219101000	0.739452777000	0.000005160334	-0.00001130854
11	-0.0950450450000	-0.000004958688	0.031967467000	0.253414716000	0.85434381400
12	0.3628323690000	0.928903661000	-0.129486811000	-0.809978926000	0.35998539000
13	-0.3176305270000	0.725674990000	-0.815612186000	0.873936448000	-0.84778859900
14	-0.1784851750000	-0.655564278000	-0.199925171000	0.124005415000	-0.98049620200
15	0.0000001089609	0.406795710000	-0.303057624000	-0.155868715000	-0.00001130854
16	-1.0666036810000	1.106953457000	1.660113557000	-0.279265373000	-0.41999414100
17	-0.4686472880000	0.354574063000	0.000008363863	-0.009212378000	-0.59591240600
18	-0.2918964600000	-0.000004958688	1.143173707000	0.000005160334	0.68046959300
19	-0.4791299290000	-0.526608503000	0.472004112000	-0.725480945000	0.07508135200
20	0.0520105150000	-0.042978923000	-0.166432496000	0.304241419000	0.55443249900
21	-0.3726509970000	-0.807979513000	-2.044557483000	0.515663469000	0.62584729800
22	0.0000001089609	0.710910766000	-0.602231772000	0.402484376000	-1.73716203500
23	1.1268701050000	0.003075323000	0.424424506000	-0.454475292000	-0.09887062700
24	0.0813930880000	1.555204196000	-1.396894893000	0.783130838000	0.43662121400
25	0.0338977570000	-0.000004958688	0.578843475000	-0.975667025000	0.04406281800
26	0.0000001089609	-0.211667955000	-0.333320610000	0.010751094000	-0.48847266600
27	0.1014175260000	0.761477545000	-0.014584082000	-0.511640117000	-0.32505635500
28	0.1719451220000	0.782166532000	-1.355870730000	-0.216935153000	1.27176538500
29	-0.0863244720000	0.076803687000	0.000008363863	0.775591738000	-0.94288892700
30	-0.0399145020000	-0.218683248000	0.004475682000	-0.193554039000	0.04238796200
31	-0.1525351390000	-0.218385630000	-0.191551818000	-0.116580603000	-0.63379081700
32	0.5207878940000	-0.674592597000	-0.529108242000	0.158256198000	-0.39875147900

	V19	V20	V21	V22	V23
1	0.403992960000	0.25141210	-0.018306778000	0.2778375760000	-0.110473910000
2	-0.145783041000	-0.06908314	-0.225775248000	-0.6386719530000	0.101288021000
3	-2.261857095000	0.52497973	0.247998153000	0.7716794020000	0.909412262000
4	-1.232621970000	-0.20803778	-0.108300452000	0.0000005961976	-0.190320519000
5	0.000001006209	0.40854236	-0.009430697000	0.7982784950000	-0.137458080000
6	-0.033193788000	0.08496767	-0.208253515000	-0.5598247960000	-0.026397668000
7	-0.045575045000	-0.21963255	-0.167716266000	-0.2707097260000	0.000001041064
8	0.324504731000	-0.15674185	1.943465340000	-1.0154547100000	0.057503530000
9	0.570328167000	0.05273567	0.000000344225	-0.2680916320000	-0.204232670000
10	0.451772964000	0.20371146	-0.246913937000	-0.6337526420000	-0.120794084000
11	-0.221365414000	-0.38722647	-0.009301897000	0.3138944110000	0.027740158000
12	0.707663826000	0.12599158	0.049923686000	0.2384215120000	0.009129869000

13	0.000001006209	-0.10275594	-0.231809239000	-0.4832853300000	0.084667691000
14	-0.982916082000	-0.15319723	-0.036875532000	0.0744124030000	-0.071407433000
15	2.221868014000	-1.58212204	1.151663048000	0.2221819660000	1.020586204000
16	0.432535349000	0.26345086	0.499624955000	1.3536504860000	-0.256573280000
17	-0.575681622000	-0.11391018	0.000000344225	0.1960019530000	0.013801654000
18	0.025436462000	-0.04702128	-0.194795824000	-0.6726379970000	0.000001041064
19	0.000001006209	-2.19684802	-0.503600329000	0.9844597860000	2.458588576000
20	0.054229515000	-0.38791017	-0.177649846000	0.0000005961976	0.040002219000
21	-1.300408169000	-0.13833394	-0.295582932000	-0.5719550070000	-0.050880701000
22	-2.027612322000	-0.26932097	0.143997423000	0.4024916610000	-0.048508221000
23	-0.816597307000	-0.30716851	0.018701872000	-0.0619722670000	-0.103854922000
24	2.177807168000	-0.23098314	1.650180361000	0.2004540910000	-0.185352508000
25	0.488602869000	-0.21671525	-0.579525934000	-0.7992289530000	0.870300215000
26	0.505751034000	-0.38669357	-0.403639499000	-0.2274040040000	0.742434864000
27	-0.390933798000	0.02787791	0.067003304000	0.2278119280000	-0.150487225000
28	-1.240621935000	-0.52295094	-0.284375572000	-0.3233574110000	-0.037709905000
29	0.543969462000	0.09730759	0.077237434000	0.4573305990000	-0.038499725000
30	-0.277833721000	-0.17802337	0.013676294000	0.2137336100000	0.000001041064
31	0.348415801000	-0.06635133	-0.245682498000	-0.5309002560000	-0.044265397000
32	-0.145708909000	-0.27383237	-0.053233660000	-0.0047601510000	-0.031470170000

	V24	V25	V26	V27
1	0.06692807500	0.1285393580000	-0.1891148440000	0.1335583770000
2	-0.33984647600	0.1671704040000	0.1258945320000	-0.0089830990000
3	-0.68928095600	-0.3276418340000	-0.1390965720000	-0.0553527940000
4	-1.17557533200	0.6473760350000	-0.2219288440000	0.0627228490000
5	0.14126698400	-0.2060095880000	0.5022922240000	0.2194222300000
6	-0.37142658300	-0.2327938170000	0.0000007451628	0.2538442250000
7	-0.78005541500	0.7501369360000	-0.2572368460000	0.0345074300000
8	-0.64970900600	0.0000004235472	-0.0516342970000	-1.2069210810000
9	1.01159180200	0.3732046800000	-0.3841573080000	-0.0000008392515

10	-0.38504992500	-0.0697330460000	0.0941988340000	0.2462193050000
11	0.50051228700	0.2513673590000	-0.1294779540000	0.0428498710000
12	-0.00000349961	-0.7673148270000	-0.4922082950000	0.0424724420000
13	0.39283088500	0.1611345540000	-0.3549900400000	0.0264155490000
14	0.10474375300	0.5482647250000	0.0000007451628	0.0214910580000
15	0.02831665100	-0.2327463240000	-0.2355572180000	-0.0000008392515
16	-0.06508370800	-0.0391243540000	-0.0870864730000	-0.1809975000000
17	0.10375833100	0.3642975410000	-0.3822605740000	0.0928091870000
18	-0.88838632100	-0.3424132190000	-0.0490267290000	0.0796923990000
19	0.04211889700	-0.4816308240000	-0.6212720140000	-0.0000008392515
20	0.29581386300	0.3329305990000	-0.2203848510000	0.0222984360000
21	-0.30421450100	0.0720010060000	0.0000007451628	0.0865533980000
22	-1.37186629500	0.3908138850000	0.1999636580000	0.0163706430000
23	-0.37041517700	0.6032003390000	0.1085558730000	-0.0405207060000
24	0.42307314800	0.8205912620000	-0.2276318640000	0.3366344470000
25	0.98342149300	0.3212011330000	0.1496498770000	0.7075188360000
26	0.39853485500	0.2492121610000	0.2744042740000	0.3599693560000
27	0.43504510300	0.7248245800000	-0.3370820600000	0.0163683790000
28	0.34715093900	0.5596391370000	-0.2801581660000	0.0423352580000
29	0.64252190300	-0.1838913350000	-0.2774640190000	0.1826874860000
30	0.00295086000	0.0000004235472	-0.3950695050000	0.0814611170000
31	0.07916802900	0.5091356900000	0.2888578340000	-0.0227049820000
32	0.19805371800	0.5650073130000	-0.3377181260000	0.0290574020000

	V28	Amount	Class
1	-0.0210530530000	149.62	0
2	0.0147241690000	2.69	0
3	-0.0597518410000	378.66	0
4	-0.0000004069958	123.50	0
5	0.2151531470000	69.99	0
6	0.0810802570000	3.67	0

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7   0.0051677690000   4.99     0
8  -1.0853391880000  40.80     0
9   0.1424043300000  93.20     0
10  0.0830756490000   3.68     0
11  0.0162532620000   7.80     0
12 -0.0543373880000   9.99     0
13  0.0424220890000 121.50     0
14  0.0212933110000  27.50     0
15 -0.0301536370000  58.80     0
16  0.1293940590000  15.99     0
17 -0.0000004069958  12.99     0
18  0.1310237890000   0.89     0
19  0.9495942460000  46.80     0
20  0.0076022560000   5.00     0
21  0.0634986490000 231.71     0
22 -0.0146053280000  34.09     0
23 -0.0000004069958   2.28     0
24  0.2504753520000  22.75     0
25  0.0145997520000   0.89     0
26  0.2432316720000  26.43     0
27  0.0300411910000  41.88     0
28 -0.0000004069958  16.00     0
29  0.1526646450000  33.00     0
30  0.0242203490000  12.99     0
31  0.0118362310000  17.28     0
32  0.0044526310000   4.45     0
 [ reached 'max' / getOption("max.print") -- omitted 284775 rows ]
```

```
> any(is.na(credit_card))
[1] FALSE
```