Loan Application Analysis

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# Data analysis

## Dimensions

The dimensions of the dataset

dim(data)

## [1] 1000 21

nrow(data)

## [1] 1000

ncol(data)

## [1] 21

The data set has the following columns:

colnames(data)

## [1] "checking\_account" "duration\_months"   
## [3] "credit\_history" "purpose"   
## [5] "credit\_amount" "savings"   
## [7] "present\_employment\_since" "installment\_rate"   
## [9] "personal\_status\_sex" "other\_deptors"   
## [11] "present\_residence" "property"   
## [13] "age\_years" "other\_installment\_plans"   
## [15] "housing" "existing\_credits"   
## [17] "job" "people\_liable\_maintenance"  
## [19] "telephone" "foreign\_worker"   
## [21] "response"

length(colnames(data))

## [1] 21

## Statistics of the dataset

### Entire data set

A summarization of the entire data set

summary(data)

## checking\_account duration\_months credit\_history purpose   
## Length:1000 Min. : 4.0 Length:1000 Length:1000   
## Class :character 1st Qu.:12.0 Class :character Class :character   
## Mode :character Median :18.0 Mode :character Mode :character   
## Mean :20.9   
## 3rd Qu.:24.0   
## Max. :72.0   
## credit\_amount savings present\_employment\_since installment\_rate  
## Min. : 250 Length:1000 Length:1000 Min. :1.000   
## 1st Qu.: 1366 Class :character Class :character 1st Qu.:2.000   
## Median : 2320 Mode :character Mode :character Median :3.000   
## Mean : 3271 Mean :2.973   
## 3rd Qu.: 3972 3rd Qu.:4.000   
## Max. :18424 Max. :4.000   
## personal\_status\_sex other\_deptors present\_residence property   
## Length:1000 Length:1000 Min. :1.000 Length:1000   
## Class :character Class :character 1st Qu.:2.000 Class :character   
## Mode :character Mode :character Median :3.000 Mode :character   
## Mean :2.845   
## 3rd Qu.:4.000   
## Max. :4.000   
## age\_years other\_installment\_plans housing existing\_credits  
## Min. :19.00 Length:1000 Length:1000 Min. :1.000   
## 1st Qu.:27.00 Class :character Class :character 1st Qu.:1.000   
## Median :33.00 Mode :character Mode :character Median :1.000   
## Mean :35.55 Mean :1.407   
## 3rd Qu.:42.00 3rd Qu.:2.000   
## Max. :75.00 Max. :4.000   
## job people\_liable\_maintenance telephone   
## Length:1000 Min. :1.000 Length:1000   
## Class :character 1st Qu.:1.000 Class :character   
## Mode :character Median :1.000 Mode :character   
## Mean :1.155   
## 3rd Qu.:1.000   
## Max. :2.000   
## foreign\_worker response   
## Length:1000 Min. :0.0   
## Class :character 1st Qu.:0.0   
## Mode :character Median :0.0   
## Mean :0.3   
## 3rd Qu.:1.0   
## Max. :1.0

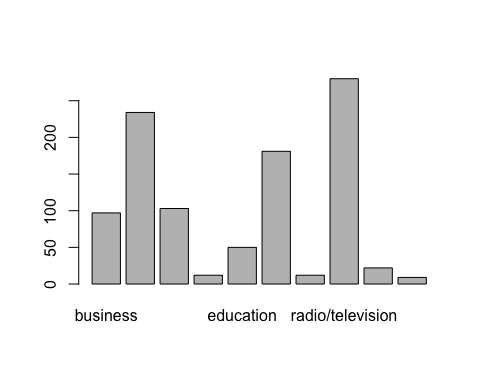
### Specific columns

Purposes for loans

summary(factor(data$purpose))

## business car (new) car (used) domestic appliances   
## 97 234 103 12   
## education furniture/equipment others radio/television   
## 50 181 12 280   
## repairs retraining   
## 22 9

barplot(summary(factor(data$purpose)))



Mean duration of loans

mean\_months <- mean(data$duration\_months)  
mean\_months

## [1] 20.903

Total number of loans with a duration higher than 20

sum(data$duration\_months > 20)

## [1] 446

# Sub-selections of DataFrames

Sub-select a specific cell:

data[1,4]

## [1] "radio/television"

Select multiple rows, and columns by name.

data[5:20, c("duration\_months" ,"purpose", "response")]

## duration\_months purpose response  
## 5 24 car (new) 1  
## 6 36 education 0  
## 7 24 furniture/equipment 0  
## 8 36 car (used) 0  
## 9 12 radio/television 0  
## 10 30 car (new) 1  
## 11 12 car (new) 1  
## 12 48 business 1  
## 13 12 radio/television 0  
## 14 24 car (new) 1  
## 15 15 car (new) 0  
## 16 24 radio/television 1  
## 17 24 radio/television 0  
## 18 30 business 0  
## 19 24 car (used) 1  
## 20 24 radio/television 0

# Filtering Data Frames

## Individual filters

Loans with a duration higher than 50 months

data\_high\_duration <- data[data$duration\_months > 50, ]  
data\_high\_duration

## checking\_account duration\_months  
## 30 ... < 0 euro 60  
## 79 No checking account 54  
## 96 0 <= ... < 102 euro 54  
## 135 No checking account 60  
## 256 0 <= ... < 102 euro 60  
## 333 0 <= ... < 102 euro 60  
## 374 No checking account 60  
## 375 0 <= ... < 102 euro 60  
## 617 0 <= ... < 102 euro 60  
## 638 No checking account 60  
## 673 No checking account 60  
## 678 0 <= ... < 102 euro 72  
## 686 No checking account 60  
## 715 0 <= ... < 102 euro 60  
## 939 0 <= ... < 102 euro 60  
## 974 ... < 0 euro 60  
## credit\_history purpose  
## 30 delay in paying off in the past business  
## 79 no credits taken/ all credits paid back duly car (used)  
## 96 no credits taken/ all credits paid back duly business  
## 135 existing credits paid back duly till now radio/television  
## 256 delay in paying off in the past radio/television  
## 333 existing credits paid back duly till now car (new)  
## 374 critical account/other credits existing (not at this bank) car (new)  
## 375 all credits at this bank paid back duly others  
## 617 delay in paying off in the past radio/television  
## 638 delay in paying off in the past radio/television  
## 673 existing credits paid back duly till now car (new)  
## 678 existing credits paid back duly till now radio/television  
## 686 existing credits paid back duly till now car (new)  
## 715 existing credits paid back duly till now car (new)  
## 939 existing credits paid back duly till now education  
## 974 existing credits paid back duly till now business  
## credit\_amount savings present\_employment\_since  
## 30 6836 ... < 51 euro .. >= 7 years  
## 79 9436 unknown/ no savings account 1 <= ... < 4 years  
## 96 15945 ... < 51 euro ... < 1 year  
## 135 10144 51 <= ... < 255 euro 4 <= ... < 7 years  
## 256 7418 unknown/ no savings account 1 <= ... < 4 years  
## 333 7408 51 <= ... < 255 euro ... < 1 year  
## 374 13756 unknown/ no savings account .. >= 7 years  
## 375 14782 51 <= ... < 255 euro .. >= 7 years  
## 617 9157 unknown/ no savings account 1 <= ... < 4 years  
## 638 15653 ... < 51 euro 4 <= ... < 7 years  
## 673 10366 ... < 51 euro .. >= 7 years  
## 678 5595 51 <= ... < 255 euro 1 <= ... < 4 years  
## 686 6527 unknown/ no savings account 1 <= ... < 4 years  
## 715 14027 ... < 51 euro 4 <= ... < 7 years  
## 939 6288 ... < 51 euro 1 <= ... < 4 years  
## 974 7297 ... < 51 euro .. >= 7 years  
## installment\_rate personal\_status\_sex other\_deptors  
## 30 3 male : single none  
## 79 2 male : single none  
## 96 3 male : single none  
## 135 2 female : divorced/separated/married none  
## 256 1 male : single none  
## 333 4 female : divorced/separated/married none  
## 374 2 male : single none  
## 375 3 female : divorced/separated/married none  
## 617 2 male : single none  
## 638 2 male : single none  
## 673 2 male : single none  
## 678 2 male : married/widowed none  
## 686 4 male : single none  
## 715 4 male : single none  
## 939 4 male : single none  
## 974 4 male : single co-applicant  
## present\_residence  
## 30 4  
## 79 2  
## 96 4  
## 135 4  
## 256 1  
## 333 2  
## 374 4  
## 375 4  
## 617 2  
## 638 4  
## 673 4  
## 678 2  
## 686 4  
## 715 2  
## 939 4  
## 974 4  
## property  
## 30 unknown / no property  
## 79 (if not real estate) building society savings agreement/ life insurance  
## 96 unknown / no property  
## 135 real estate  
## 256 real estate  
## 333 (if not real estate) building society savings agreement/ life insurance  
## 374 unknown / no property  
## 375 unknown / no property  
## 617 unknown / no property  
## 638 (if not optin 1 or 2) car or other, not in attribute  
## 673 (if not real estate) building society savings agreement/ life insurance  
## 678 (if not optin 1 or 2) car or other, not in attribute  
## 686 unknown / no property  
## 715 unknown / no property  
## 939 unknown / no property  
## 974 unknown / no property  
## age\_years other\_installment\_plans housing existing\_credits  
## 30 63 none own 2  
## 79 39 none own 1  
## 96 58 none rent 1  
## 135 21 none own 1  
## 256 27 none own 1  
## 333 24 none own 1  
## 374 63 bank for free 1  
## 375 60 bank for free 2  
## 617 27 none for free 1  
## 638 21 none own 2  
## 673 42 none own 1  
## 678 24 none own 1  
## 686 34 none for free 1  
## 715 27 none own 1  
## 939 42 none for free 1  
## 974 36 none rent 1  
## job  
## 30 skilled employee / official  
## 79 unskilled - resident  
## 96 skilled employee / official  
## 135 skilled employee / official  
## 256 unskilled - resident  
## 333 management/ self-employed/highly qualified employee/ officer  
## 374 management/ self-employed/highly qualified employee/ officer  
## 375 management/ self-employed/highly qualified employee/ officer  
## 617 management/ self-employed/highly qualified employee/ officer  
## 638 skilled employee / official  
## 673 management/ self-employed/highly qualified employee/ officer  
## 678 skilled employee / official  
## 686 skilled employee / official  
## 715 management/ self-employed/highly qualified employee/ officer  
## 939 skilled employee / official  
## 974 skilled employee / official  
## people\_liable\_maintenance telephone  
## 30 1 yes, registered under the customers name  
## 79 2 none  
## 96 1 yes, registered under the customers name  
## 135 1 yes, registered under the customers name  
## 256 1 none  
## 333 1 none  
## 374 1 yes, registered under the customers name  
## 375 1 yes, registered under the customers name  
## 617 1 none  
## 638 1 yes, registered under the customers name  
## 673 1 yes, registered under the customers name  
## 678 1 none  
## 686 2 yes, registered under the customers name  
## 715 1 yes, registered under the customers name  
## 939 1 none  
## 974 1 none  
## foreign\_worker response  
## 30 yes 1  
## 79 yes 0  
## 96 yes 1  
## 135 yes 0  
## 256 yes 0  
## 333 yes 1  
## 374 yes 0  
## 375 yes 1  
## 617 yes 0  
## 638 yes 0  
## 673 yes 0  
## 678 yes 1  
## 686 yes 0  
## 715 yes 1  
## 939 yes 1  
## 974 yes 1

What are the purposes of these high duration loans?

summary(factor(data\_high\_duration$purpose))

## business car (new) car (used) education   
## 3 5 1 1   
## others radio/television   
## 1 5

## Combined filters

data\_high\_amount\_radio <- data[(data$credit\_amount > 5000) & (data$purpose == "radio/television") ,]  
data\_high\_amount\_radio

## checking\_account duration\_months  
## 2 0 <= ... < 102 euro 48  
## 57 0 <= ... < 102 euro 12  
## 58 No checking account 36  
## 81 No checking account 24  
## 117 ... < 0 euro 42  
## 135 No checking account 60  
## 153 >= 102 euro 36  
## 227 0 <= ... < 102 euro 48  
## 256 0 <= ... < 102 euro 60  
## 354 ... < 0 euro 12  
## 372 No checking account 18  
## 468 No checking account 48  
## 478 >= 102 euro 24  
## 553 ... < 0 euro 48  
## 570 ... < 0 euro 48  
## 572 No checking account 30  
## 617 0 <= ... < 102 euro 60  
## 638 No checking account 60  
## 658 No checking account 48  
## 678 0 <= ... < 102 euro 72  
## 684 No checking account 24  
## 731 0 <= ... < 102 euro 24  
## 754 No checking account 30  
## 834 0 <= ... < 102 euro 24  
## 880 No checking account 30  
## 922 No checking account 48  
## 969 No checking account 42  
## credit\_history purpose  
## 2 existing credits paid back duly till now radio/television  
## 57 existing credits paid back duly till now radio/television  
## 58 critical account/other credits existing (not at this bank) radio/television  
## 81 existing credits paid back duly till now radio/television  
## 117 existing credits paid back duly till now radio/television  
## 135 existing credits paid back duly till now radio/television  
## 153 existing credits paid back duly till now radio/television  
## 227 existing credits paid back duly till now radio/television  
## 256 delay in paying off in the past radio/television  
## 354 no credits taken/ all credits paid back duly radio/television  
## 372 critical account/other credits existing (not at this bank) radio/television  
## 468 delay in paying off in the past radio/television  
## 478 existing credits paid back duly till now radio/television  
## 553 existing credits paid back duly till now radio/television  
## 570 existing credits paid back duly till now radio/television  
## 572 critical account/other credits existing (not at this bank) radio/television  
## 617 delay in paying off in the past radio/television  
## 638 delay in paying off in the past radio/television  
## 658 existing credits paid back duly till now radio/television  
## 678 existing credits paid back duly till now radio/television  
## 684 critical account/other credits existing (not at this bank) radio/television  
## 731 delay in paying off in the past radio/television  
## 754 critical account/other credits existing (not at this bank) radio/television  
## 834 existing credits paid back duly till now radio/television  
## 880 critical account/other credits existing (not at this bank) radio/television  
## 922 delay in paying off in the past radio/television  
## 969 existing credits paid back duly till now radio/television  
## credit\_amount savings present\_employment\_since  
## 2 5951 ... < 51 euro 1 <= ... < 4 years  
## 57 6468 unknown/ no savings account unemployed  
## 58 9566 ... < 51 euro 1 <= ... < 4 years  
## 81 5943 unknown/ no savings account ... < 1 year  
## 117 7174 unknown/ no savings account 4 <= ... < 7 years  
## 135 10144 51 <= ... < 255 euro 4 <= ... < 7 years  
## 153 5848 ... < 51 euro 1 <= ... < 4 years  
## 227 10961 .. >= 511 euro 4 <= ... < 7 years  
## 256 7418 unknown/ no savings account 1 <= ... < 4 years  
## 354 6199 ... < 51 euro 1 <= ... < 4 years  
## 372 6070 ... < 51 euro .. >= 7 years  
## 468 7238 unknown/ no savings account .. >= 7 years  
## 478 5152 ... < 51 euro 4 <= ... < 7 years  
## 553 6999 ... < 51 euro 4 <= ... < 7 years  
## 570 6758 ... < 51 euro 1 <= ... < 4 years  
## 572 5954 ... < 51 euro 4 <= ... < 7 years  
## 617 9157 unknown/ no savings account 1 <= ... < 4 years  
## 638 15653 ... < 51 euro 4 <= ... < 7 years  
## 658 10222 unknown/ no savings account 4 <= ... < 7 years  
## 678 5595 51 <= ... < 255 euro 1 <= ... < 4 years  
## 684 5103 ... < 51 euro ... < 1 year  
## 731 6403 ... < 51 euro ... < 1 year  
## 754 5771 ... < 51 euro 4 <= ... < 7 years  
## 834 5084 unknown/ no savings account .. >= 7 years  
## 880 6742 unknown/ no savings account 4 <= ... < 7 years  
## 922 12749 255 euro <= ... < 511 euro 4 <= ... < 7 years  
## 969 7166 unknown/ no savings account 4 <= ... < 7 years  
## installment\_rate personal\_status\_sex other\_deptors  
## 2 2 female : divorced/separated/married none  
## 57 2 male : single none  
## 58 2 female : divorced/separated/married none  
## 81 1 female : divorced/separated/married none  
## 117 4 female : divorced/separated/married none  
## 135 2 female : divorced/separated/married none  
## 153 4 male : single none  
## 227 1 male : single co-applicant  
## 256 1 male : single none  
## 354 4 male : single none  
## 372 3 male : single none  
## 468 3 male : single none  
## 478 4 male : single none  
## 553 1 male : married/widowed guarantor  
## 570 3 female : divorced/separated/married none  
## 572 3 male : single co-applicant  
## 617 2 male : single none  
## 638 2 male : single none  
## 658 4 male : single none  
## 678 2 male : married/widowed none  
## 684 3 male : married/widowed none  
## 731 1 male : single none  
## 754 4 female : divorced/separated/married none  
## 834 2 female : divorced/separated/married none  
## 880 2 male : single none  
## 922 4 male : single none  
## 969 2 male : married/widowed none  
## present\_residence  
## 2 2  
## 57 1  
## 58 2  
## 81 1  
## 117 3  
## 135 4  
## 153 1  
## 227 2  
## 256 1  
## 354 2  
## 372 4  
## 468 3  
## 478 2  
## 553 1  
## 570 2  
## 572 2  
## 617 2  
## 638 4  
## 658 3  
## 678 2  
## 684 3  
## 731 2  
## 754 2  
## 834 4  
## 880 3  
## 922 1  
## 969 4  
## property  
## 2 real estate  
## 57 unknown / no property  
## 58 (if not optin 1 or 2) car or other, not in attribute  
## 81 (if not optin 1 or 2) car or other, not in attribute  
## 117 (if not optin 1 or 2) car or other, not in attribute  
## 135 real estate  
## 153 (if not optin 1 or 2) car or other, not in attribute  
## 227 unknown / no property  
## 256 real estate  
## 354 (if not real estate) building society savings agreement/ life insurance  
## 372 (if not optin 1 or 2) car or other, not in attribute  
## 468 (if not optin 1 or 2) car or other, not in attribute  
## 478 (if not optin 1 or 2) car or other, not in attribute  
## 553 real estate  
## 570 (if not optin 1 or 2) car or other, not in attribute  
## 572 (if not optin 1 or 2) car or other, not in attribute  
## 617 unknown / no property  
## 638 (if not optin 1 or 2) car or other, not in attribute  
## 658 (if not optin 1 or 2) car or other, not in attribute  
## 678 (if not optin 1 or 2) car or other, not in attribute  
## 684 unknown / no property  
## 731 (if not optin 1 or 2) car or other, not in attribute  
## 754 (if not optin 1 or 2) car or other, not in attribute  
## 834 (if not optin 1 or 2) car or other, not in attribute  
## 880 (if not real estate) building society savings agreement/ life insurance  
## 922 (if not optin 1 or 2) car or other, not in attribute  
## 969 (if not real estate) building society savings agreement/ life insurance  
## age\_years other\_installment\_plans housing existing\_credits  
## 2 22 none own 1  
## 57 52 none own 1  
## 58 31 stores own 2  
## 81 44 none own 2  
## 117 30 none own 1  
## 135 21 none own 1  
## 153 24 none own 1  
## 227 27 bank own 2  
## 256 27 none own 1  
## 354 28 none rent 2  
## 372 33 none own 2  
## 468 32 bank own 2  
## 478 25 bank own 1  
## 553 34 none own 2  
## 570 31 none own 1  
## 572 38 none own 1  
## 617 27 none for free 1  
## 638 21 none own 2  
## 658 37 stores own 1  
## 678 24 none own 1  
## 684 47 none for free 3  
## 731 33 none own 1  
## 754 25 none own 2  
## 834 42 none own 1  
## 880 36 none own 2  
## 922 37 none own 1  
## 969 29 none rent 1  
## job  
## 2 skilled employee / official  
## 57 management/ self-employed/highly qualified employee/ officer  
## 58 skilled employee / official  
## 81 skilled employee / official  
## 117 management/ self-employed/highly qualified employee/ officer  
## 135 skilled employee / official  
## 153 skilled employee / official  
## 227 skilled employee / official  
## 256 unskilled - resident  
## 354 skilled employee / official  
## 372 skilled employee / official  
## 468 skilled employee / official  
## 478 skilled employee / official  
## 553 skilled employee / official  
## 570 skilled employee / official  
## 572 skilled employee / official  
## 617 management/ self-employed/highly qualified employee/ officer  
## 638 skilled employee / official  
## 658 skilled employee / official  
## 678 skilled employee / official  
## 684 skilled employee / official  
## 731 skilled employee / official  
## 754 skilled employee / official  
## 834 skilled employee / official  
## 880 skilled employee / official  
## 922 management/ self-employed/highly qualified employee/ officer  
## 969 skilled employee / official  
## people\_liable\_maintenance telephone  
## 2 1 none  
## 57 1 yes, registered under the customers name  
## 58 1 none  
## 81 1 yes, registered under the customers name  
## 117 1 yes, registered under the customers name  
## 135 1 yes, registered under the customers name  
## 153 1 none  
## 227 1 yes, registered under the customers name  
## 256 1 none  
## 354 1 yes, registered under the customers name  
## 372 1 yes, registered under the customers name  
## 468 2 none  
## 478 1 none  
## 553 1 yes, registered under the customers name  
## 570 1 yes, registered under the customers name  
## 572 1 none  
## 617 1 none  
## 638 1 yes, registered under the customers name  
## 658 1 yes, registered under the customers name  
## 678 1 none  
## 684 1 yes, registered under the customers name  
## 731 1 none  
## 754 1 none  
## 834 1 yes, registered under the customers name  
## 880 1 none  
## 922 1 yes, registered under the customers name  
## 969 1 yes, registered under the customers name  
## foreign\_worker response  
## 2 yes 1  
## 57 yes 1  
## 58 yes 0  
## 81 yes 1  
## 117 yes 1  
## 135 yes 0  
## 153 yes 0  
## 227 yes 1  
## 256 yes 0  
## 354 yes 1  
## 372 yes 0  
## 468 yes 0  
## 478 yes 0  
## 553 yes 1  
## 570 yes 1  
## 572 yes 0  
## 617 yes 0  
## 638 yes 0  
## 658 yes 0  
## 678 yes 1  
## 684 yes 0  
## 731 yes 0  
## 754 yes 0  
## 834 yes 0  
## 880 yes 0  
## 922 yes 0  
## 969 yes 0

## Creating categories in R

data$age\_class <- cut(data$age\_years,   
 breaks = c(18, 25, 50, 65, 100),   
 labels = c("young", "adult", "senior", "retired"))

Only selecting the age\_years and age\_class columns

data[,c("age\_years", "age\_class")]

## age\_years age\_class  
## 1 67 retired  
## 2 22 young  
## 3 49 adult  
## 4 45 adult  
## 5 53 senior  
## 6 35 adult  
## 7 53 senior  
## 8 35 adult  
## 9 61 senior  
## 10 28 adult  
## 11 25 young  
## 12 24 young  
## 13 22 young  
## 14 60 senior  
## 15 28 adult  
## 16 32 adult  
## 17 53 senior  
## 18 25 young  
## 19 44 adult  
## 20 31 adult  
## 21 48 adult  
## 22 44 adult  
## 23 48 adult  
## 24 44 adult  
## 25 26 adult  
## 26 36 adult  
## 27 39 adult  
## 28 42 adult  
## 29 34 adult  
## 30 63 senior  
## 31 36 adult  
## 32 27 adult  
## 33 30 adult  
## 34 57 senior  
## 35 33 adult  
## 36 25 young  
## 37 31 adult  
## 38 37 adult  
## 39 37 adult  
## 40 24 young  
## 41 30 adult  
## 42 26 adult  
## 43 44 adult  
## 44 24 young  
## 45 58 senior  
## 46 35 adult  
## 47 39 adult  
## 48 23 young  
## 49 39 adult  
## 50 28 adult  
## 51 29 adult  
## 52 30 adult  
## 53 25 young  
## 54 31 adult  
## 55 57 senior  
## 56 26 adult  
## 57 52 senior  
## 58 31 adult  
## 59 23 young  
## 60 23 young  
## 61 27 adult  
## 62 50 adult  
## 63 61 senior  
## 64 25 young  
## 65 26 adult  
## 66 48 adult  
## 67 29 adult  
## 68 22 young  
## 69 37 adult  
## 70 25 young  
## 71 30 adult  
## 72 46 adult  
## 73 51 senior  
## 74 41 adult  
## 75 40 adult  
## 76 66 retired  
## 77 34 adult  
## 78 51 senior  
## 79 39 adult  
## 80 22 young  
## 81 44 adult  
## 82 47 adult  
## 83 24 young  
## 84 58 senior  
## 85 52 senior  
## 86 29 adult  
## 87 27 adult  
## 88 47 adult  
## 89 30 adult  
## 90 28 adult  
## 91 56 senior  
## 92 54 senior  
## 93 33 adult  
## 94 20 young  
## 95 54 senior  
## 96 58 senior  
## 97 61 senior  
## 98 34 adult  
## 99 36 adult  
## 100 36 adult  
## 101 41 adult  
## 102 24 young  
## 103 24 young  
## 104 35 adult  
## 105 26 adult  
## 106 39 adult  
## 107 39 adult  
## 108 32 adult  
## 109 30 adult  
## 110 35 adult  
## 111 31 adult  
## 112 23 young  
## 113 28 adult  
## 114 25 young  
## 115 35 adult  
## 116 47 adult  
## 117 30 adult  
## 118 27 adult  
## 119 23 young  
## 120 36 adult  
## 121 25 young  
## 122 41 adult  
## 123 24 young  
## 124 63 senior  
## 125 27 adult  
## 126 30 adult  
## 127 40 adult  
## 128 30 adult  
## 129 34 adult  
## 130 29 adult  
## 131 24 young  
## 132 29 adult  
## 133 27 adult  
## 134 47 adult  
## 135 21 young  
## 136 38 adult  
## 137 27 adult  
## 138 66 retired  
## 139 35 adult  
## 140 44 adult  
## 141 27 adult  
## 142 30 adult  
## 143 27 adult  
## 144 22 young  
## 145 23 young  
## 146 30 adult  
## 147 39 adult  
## 148 51 senior  
## 149 28 adult  
## 150 46 adult  
## 151 42 adult  
## 152 38 adult  
## 153 24 young  
## 154 29 adult  
## 155 36 adult  
## 156 20 young  
## 157 48 adult  
## 158 45 adult  
## 159 38 adult  
## 160 34 adult  
## 161 36 adult  
## 162 30 adult  
## 163 36 adult  
## 164 70 retired  
## 165 36 adult  
## 166 32 adult  
## 167 33 adult  
## 168 20 young  
## 169 25 young  
## 170 31 adult  
## 171 33 adult  
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## 997 40 adult  
## 998 38 adult  
## 999 23 young  
## 1000 27 adult

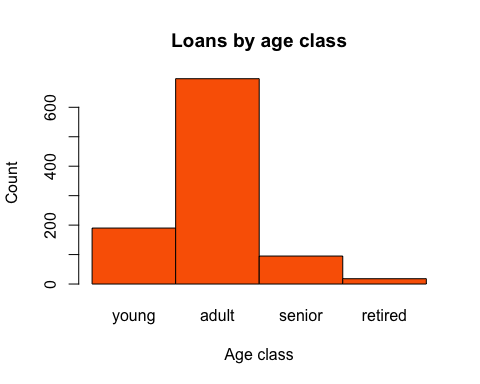
Display how much values we have for each category:

table(data$age\_class)

##   
## young adult senior retired   
## 190 697 95 18

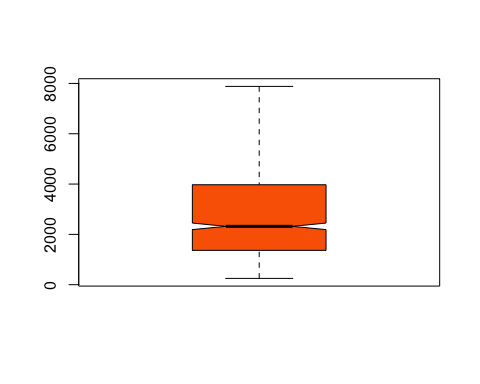
# Exploration with basic visualisations

count\_age\_class <- table(data$age\_class)  
  
barplot(count\_age\_class, main = "Loans by age class",  
 xlab = "Age class",  
 ylab = "Count",  
 col = "#fa6400",  
 space = 0)



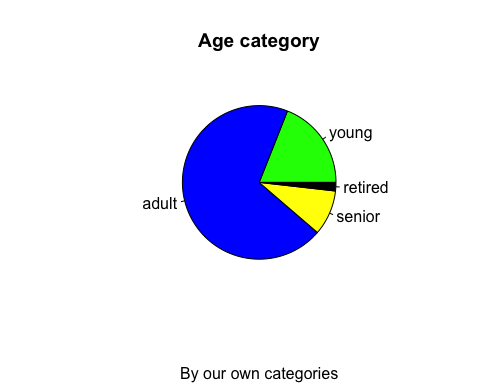
Boxplot

boxplot(data$credit\_amount,  
 col = "#fa6400",  
 outline=FALSE,  
 notch = TRUE)



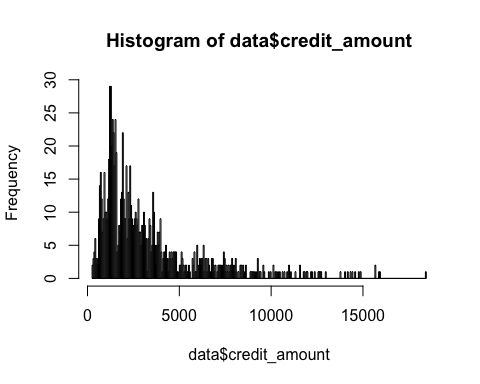
Piecharts

pie(count\_age\_class,   
 main="Age category",  
 sub="By our own categories",  
 col = c("green", "blue", "yellow", "black"))



Histogram

hist(data$credit\_amount, breaks=500)



plot(density(data$age\_years))

