greatlearning
Learning for Life

Project - Cardio Good Fitness

Model Report

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1 Project Objective

The objective of the report is to explore the cardio data set ("CardioGoodFitness") in R and generate insights about the data set. This exploration report will consists of the following:

Importing the dataset in R
Understanding the structure of dataset
Graphical exploration
Descriptive statistics
Insights from the dataset

2 Assumptions

<Think from practical Project Execution perspective. Add all your assumptions here.>

3 Exploratory Data Analysis – Step by step approach

A Typical Data exploration activity consists of the following steps:

1. Environment Set up and Data Import
2. Variable Identification
3. Univariate Analysis
4. Bi-Variate Analysis
5. Missing Value Treatment (Not in scope for our project)
6. Outlier Treatment (Not in scope for our project)
7. Variable Transformation / Feature Creation
8. Feature Exploration

We shall follow these steps in exploring the provided dataset.

Although Steps 5 and 6 are not in scope for this project, a brief about these steps (and other steps as well) is given, as these are important steps for Data Exploration journey.

3.1 Environment Set up and Data Import

3.1.1 Install necessary Packages and Invoke Libraries

Use this section to install necessary packages and invoke associated libraries. Having all the packages at the same places increases code readability.

3.1.2 Set up working Directory

Setting a working directory on starting of the R session makes importing and exporting data files and code files easier. Basically, working directory is the location/ folder on the PC where you have the data, codes etc. related to the project.

Please refer Appendix A for Source Code.

3.1.3 Import and Read the Dataset

The given dataset is in .csv format. Hence, the command 'read.csv' is used for importing the file.

Please refer Appendix A for Source Code.

3.2 Variable Identification

<Specify which R functions you are using for what purpose in brief. >

3.2.1 Variable Identification – Inferences

<Provide your insides from the output of various R functions used to explore the data such as dim, names, str, head, tail, etc.>

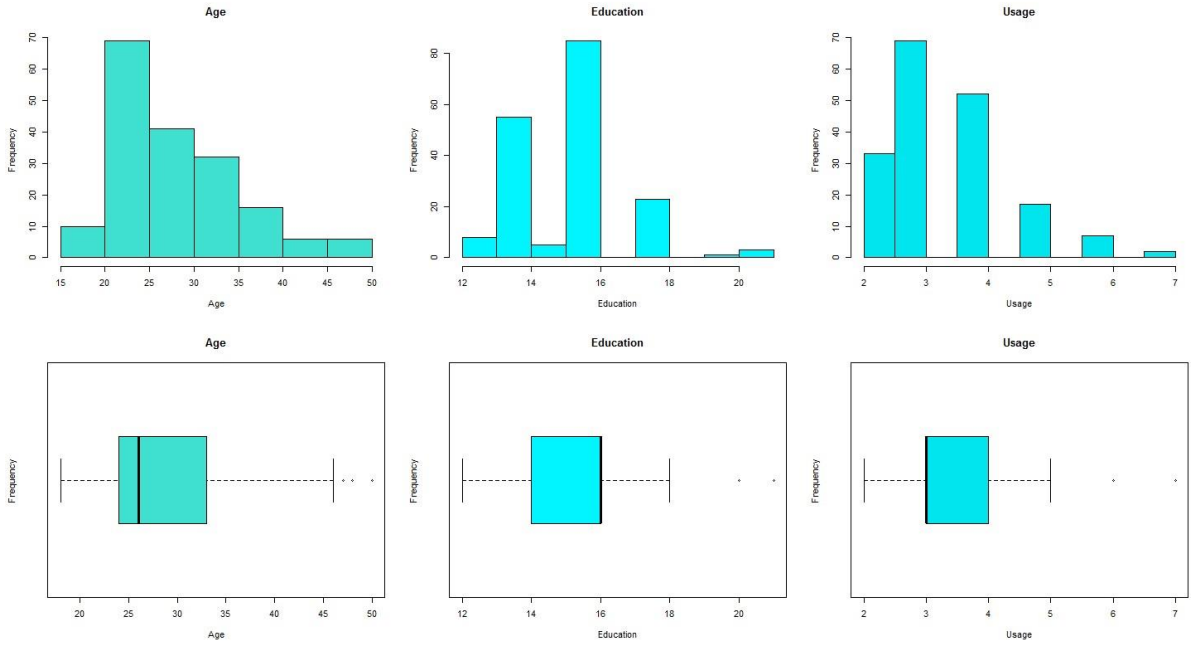
3.3 Univariate Analysis

<Explore individual variables one by one. >

<Present your findings in tabular format, make use of appropriate Graphs>

<A Sample graph image is provided below>

<Summarize key observations about each variable>



3.4 Bi-Variate Analysis

<To explore relationship between two variables >

<Interpret the findings>

3.5 Missing Value Identification

<See if any missing values / Outliers?>

3.6 Outlier Identification

3.7 Variable Transformation / Feature Creation

<Do you see a need of transforming a variable / creating new variables for better understanding of the data, or presenting the results to the customer?>

<Act accordingly>

4 Conclusion

<Very important section of the report, often ignored, or just produced technical details.

Always keep in mind that the Sr. Management / Customer is going to read this section, so it has to be in business language.

You may provide the conclusion for each attribute in brief.>

5 Appendix A – Source Code

<This is another section often ignored. Although not mandatory, make a practice of providing source code for every assignment you are submitting. R Mark down language is one of the powerful features available in RStudio. If not for this assignment, try to learn it for documentation purpose. It can be self-learnt.

Here is a sample piece of code produced in RStudio using R Markdown>

```
#=============================================================================
#
#   Exploratory Data Analysis - CardioFitness
#
#=============================================================================
# Environment Set up and Data Import
# Setup Working Directory
setwd("D:/M1 Project")
getwd()

#
# Read Input File
cgf_data=read.csv("CardioGoodFitness.csv")
attach(cgf_data)
```

```
#
# Find out Total Number of Rows and Columns
dim(cgf_data)

## [1] 180   9

# Find out Names of the Columns (Features)
names(cgf_data)

## [1] "Product"       "Age"           "Gender"        "Education"
## [5] "MaritalStatus" "Usage"         "Fitness"       "Income"
## [9] "Miles"

# Find out Class of each Feature, along with internal structure
str(cgf_data)

## 'data.frame':    180 obs. of  9 variables:
##  $ Product      : Factor w/ 3 levels "TM195","TM498",..: 1 1 1 1 1 1 1
1 1 1 ...
##  $ Age          : int  18 19 19 19 20 20 21 21 21 21 ...
##  $ Gender       : Factor w/ 2 levels "Female","Male": 2 2 1 2 2 1 1 2 2
1 ...
##  $ Education    : int  14 15 14 12 13 14 14 13 15 15 ...
##  $ MaritalStatus: Factor w/ 2 levels "Partnered","Single": 2 2 1 2 1 1
1 2 2 1 ...
##  $ Usage        : int  3 2 4 3 4 3 3 3 5 2 ...
##  $ Fitness      : int  4 3 3 3 2 3 3 3 4 3 ...
##  $ Income       : int  29562 31836 30699 32973 35247 32973 35247 32973
35247 37521 ...
##  $ Miles        : int  112 75 66 85 47 66 75 85 141 85 ...

#
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.

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#=====================================================================
#
#                          T H E - E N D
#
#=====================================================================
```