

American International University-Bangladesh (AIUB)

Course Code: CSC4180

Course Title: INTRODUCTION TO DATA SCIENCE

Project Title: Data Preparation and Exploration

On Titanic Dataset.

Course: INTRODUCTION TO DATA SCIENCE

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FACULTY OF SCIENCE & TECHNOLOGY

Submitted To

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Project overview:

Titanic dataset, which is widely used in the field of data science and machine learning. This dataset consists of information about the passengers who were on board the titanic during its first voyage in 1912, which tragically ended in the ship sinking. The dataset includes different characteristics of the passengers, such as their age, gender, class, fare, and whether they survived or not. The purpose of this project is to analyze the titanic dataset, extract valuable insights from the data, and potentially create predictive models to understand the factors that influenced passenger survival during the titanic disaster.

Dataset description:

The titanic dataset consists of multiple variables (columns) that describe different aspects of the passengers. Here is a brief description of the key variables in the dataset:

Survived: indicates whether a passenger survived or not (0 = no, 1 = yes)

Pclass: passenger class (1 = first class, 2 = second class, 3 = third class)

Name: passenger's name

Sex: passenger's gender (male or female)

Age: passenger's age in years

Sibsp: number of siblings/spouses aboard the titanic

Parch: number of parents/children aboard the titanic

Ticket: ticket number

Fare: fare paid for the ticket

Cabin: cabin number

Embarked: port of embarkation (c = cherbourg, q = queenstown, s = southampton)

Project solution design:

loading and preprocessing the enormous dataset, doing data analysis and visualization, engineering pertinent features, training predictive models, assessing their performance, interpreting the findings, and documenting the findings are the initial steps. We examine the dataset, deal with the missing values, and modify the data types. Techniques for analysis and visualization are used, as well as feature engineering. The outcomes of the training and testing of machine learning models are analyzed and summarized in a project report. This methodical technique guarantees a thorough review of the data and offers useful insights.

Data pre-processing:

Importing the dataset: Initially, the read.csv function in R is used to read a dataset into the computer from the "dataset.csv" csv file. The generated data frame is then associated with the dataset variable. The dataset variable's contents are then shown in the console by using the print function. This code's output shows every row and column in the dataset as well as all of its data.

```
1 dataset<-read.csv("Dataset_midterm_Section(B).csv")
2 print(dataset)</pre>
```

The output provides a way to verify that the data has been read in correctly and allows for a quick visual inspection of the dataset. The output also provides information about the structure of the data, such as the number of columns and rows and the type of data in each column. Overall, this code and its output are a necessary first step in any data analysis project in R.

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		<pre>> dataset<-read.csv("Dataset_midterm_Section(B).csv") > print(dataset)</pre>												
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2	0	17.0	0	0	8.6625	S	Third	man	TRUE	0				
3	1	21.0	0	0	7.7500	Q	Third	womann	TRUE	0				
4	1	NA	0	0	7.6292	Q	Third	woman	TRUE	0				
5	1	37.0	0	0	9.5875	S	Third	womannn	TRUE	0				
6	NA	16.0	0	0	86.5000	S	First	woman	TRUE	1				
7	0	18.0	1	0	108.9000	C	First	mannn	FALSE	0				
8	1	33.0	0	2	26.0000	S	Second	woman	FALSE	1				
9	0	NA	0	0	26.5500	S	First	man	TRUE	1				
10		28.0	0	0	22.5250	S	Third	man	TRUE	0				
11		26.0	0	0	56.4958	S	Third	man	TRUE	1				
12	0	29.0	0	0	7.7500	Q		man	TRUE	1				
13	0	NA	0	0	8.0500	S	Third	man	TRUE	0				
14		36.0	0	0	26.2875	S		man	TRUE	1				
15		54.0	1	0	59.4000	C	First	woman		1				
16		24.0	0	0	7.4958	S	Third	man	TRUE	0				
17		47.0	0	0	34.0208	S	First	man	TRUE	0				
18		34.0	0	0	10.5000		Second	woman	TRUE	1				
19	0	NA	0	0	24.1500	Q	Third	man	TRUE	0				
20		36.0	1	0	26.0000		Second	woman		1				
21		32.0	0	0	7.8958	S	Third	man	TRUE	0				
22		30.0	0	0	93.5000	S		woman	TRUE	1				
23		22.0	0	0	7.8958	S	Third	man	TRUE	0				
24	0	NA	0	0	7.2250	C	Third	man	TRUE	0				
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39		30.0	0	_	106.4250	C	First	woman	TRUE	í				
40	0	NA	0	0	14.5000	5	Third	man	TRUE	0				

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 [ reached 'max'
```

Then creating a new variable called xdataset which is a copy of the dataset variable created in the previous step

```
4 xdataset <- dataset
5 print(xdataset)</pre>
```

The creation of xdataset allows for a backup copy of the original dataset to be kept while any necessary changes are made to the data. This ensures that the original data is not lost or overwritten accidentally. The output of this code is useful for verifying that the copy was made

correctly and allows for a quick visual comparison of the two datasets to ensure they are identical.

Identifying missing values:

To identify missing value "is.na" function to check for missing values in the xdataset variable. The is.na function returns a logical value of true for each missing value in the data and false for all other values.

```
> is.na(xdataset)
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             age sibsp parch fare embarked class
                                               who alone survived
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       FALSE FALSE FALSE FALSE
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              TRUE FALSE FALSE FALSE
                                         FALSE FALSE FALSE
                                                                     FALSE
       FALSE
[ reached getOption("max.print") -- omitted 201 rows ]
```

The output of this code is a matrix that has the same dimensions as the xdataset variable. The matrix contains true values in the cells where the corresponding value in xdataset is missing and false values in all other cells. This output is useful for identifying any missing values in the dataset and determining the extent to which missing values may affect subsequent analysis.

```
> sum(is.na(xdataset))
[1] 65
> |
```

The sum() function is applied to the logical matrix from the previous step to count the total number of missing values in the dataset. Which is 65.

Handling missing values:

performing a procedure to deal with missing values in a dataset. The missing values are found in specific columns, namely **gender**, **age**, **sibsp**, **parch**, **fare**, **alone**, **and survived**. To address these missing values, the code utilizes the mean of each respective column as a replacement. This is achieved through the mean function and logical indexing. The missing values are then replaced with the mean values using the assignment operator, effectively filling in the gaps in the dataset.

```
> xdataset$Gender[is.na(xdataset$Gender)]<-mean(xdataset$Gender,na.rm=TRUE)</pre>
> xdataset$age[is.na(xdataset$age)]<-mean(xdataset$age,na.rm=TRUE)</pre>
> xdataset$sibsp[is.na(xdataset$sibsp)]<-mean(xdataset$sibsp,na.rm=TRUE)</pre>
> xdataset$parch[is.na(xdataset$parch)]<-mean(xdataset$parch,na.rm=TRUE)
> xdataset$fare[is.na(xdataset$fare)]<-mean(xdataset$fare,na.rm=TRUE)</pre>
> xdataset$alone[is.na(xdataset$alone)]<-mean(xdataset$alone,na.rm=TRUE)</pre>
> xdataset$survived[is.na(xdataset$survived)]<-mean(xdataset$survived,na.rm=TRUE)</pre>
 print(xdataset)
       Gender
                    age sibsp parch
                                        fare embarked
                                                        class
                                                                   who alone survived
    0.0000000 24.00000
                                  0
                                      7.7958
1
                                                        Third
                                                                 mannn
                                                                           1
                                                                                    0
    0.0000000 17.00000
                            0
                                  0
                                      8.6625
                                                     S
                                                        Third
                                                                                    0
                                                                   man
                                                                           1
   1.0000000 21.00000
                                      7.7500
                                                                                    0
                                                     0 Third
                                                               womann
                                                                           1
   1.0000000 34.03508
                            0
                                  0
                                      7.6292
                                                     Q Third
                                                                 woman
                                                                           1
                                                                                    0
    1.0000000 37.00000
                                  0
                                      9.5875
                                                     S
                                                        Third womannn
                                                                           1
                                                                                    0
    0.3198653 16.00000
                                     86.5000
                            0
                                  0
                                                       First
                                                                                    1
                                                                woman
                                                                           1
    0.0000000 18.00000
                                  0 108.9000
                                                     C
                                                       First
                                                                                    0
                                                                 mannn
    1.0000000 33.00000
                            0
                                     26.0000
                                                     S Second
                                                                           0
                                                                                    1
                                                                woman
    0.0000000 34.03508
                            0
                                     26.5500
                                                     S First
                                                                   man
                                                                           1
                                                                                    1
   0.0000000 28.00000
                                                                                     0
                                 0 22.5250
                                                       Third
                                                                   man
                                                                           1
    0.0000000 26.00000
                            0
                                  0 56.4958
                                                     S
                                                                                    1
                                                        Third
                                                                   man
                                                                           1
11
12
    0.0000000 29.00000
                            0
                                 0
                                      7.7500
                                                     Q
                                                        Third
                                                                   man
                                                                           1
                                                                                    1
13
   0.0000000 34.03508
                                     8.0500
                                                     S
                                                        Third
                                                                           1
                                                                   man
                                     26.2875
14
   0.0000000 36.00000
                            0
                                  0
                                                     S
                                                                   man
                                                                           1
                                                                                    1
15
    1.0000000 54.00000
                            1
                                  0
                                     59.4000
                                                     C
                                                        First
                                                                           0
                                                                                    1
                                                                 woman
   0.0000000 24.00000
                            0
                                      7.4958
                                                     S
                                                        Third
                                                                                    0
16
                                                                           1
                                                                   man
                                                                                    0
17
    0.0000000 47.00000
                            0
                                  0 34.0208
                                                     S First
                                                                   man
                                                                           1
    1.0000000 34.00000
                                                     S Second
18
                                  0
                                     10.5000
                                                                woman
                                                                           1
                                                                                    1
19
   0.0000000 34.03508
                            0
                                  0
                                     24.1500
                                                     0
                                                                                    0
                                                       Third
                                                                  man
                                                                           1
   1.0000000 36.00000
                                     26.0000
                                                     S Second
                                                                                    1
                                                                 woman
   0.0000000 32.00000
                            0
                                      7.8958
                                                     S
                                                        Third
                                                                           1
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21
                                                                  man
   1.0000000 30.00000
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22
                                                        First
                                                                 woman
                                                                           1
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                                                       Third
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    0.0000000 34.03508
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                                  1 57.9792
25
   1.0000000 44.00000
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                                                        First
                                                                 woman
                                                                           0
                                                                                    1
26
   0.0000000 34.03508
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                                                     C
                                                        Third
                                                                           1
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                                                                   man
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    0.0000000 40.50000
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                                                     Q
                                                        Third
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                                                                           1
28
    1.0000000 50.00000
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                                                                           1
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                                                                 woman
                                 0 221.7792
   0.0000000 34.03508
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                                                                   man
   0.0000000 39.00000
                                 0 7.9250
                                                        Third
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```

```
0.0000000 34.03508
                                    7.2292
                                                   C Third
70
                                 0
                                                                 man
                                                                                  0
    0.0000000 32.00000
                                    7.8542
                                                    S Third
                                                                 man
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    0.0000000 62.00000
                                 0
                                    10.5000
                                                    S Second
                                                                 man
                                                                         1
                                                                                  1
73
    1.0000000 53.00000
                           2
                                 0
                                    51.4792
                                                    S First
                                                               woman
                                                                         0
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    0.0000000 36.00000
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                                                   Q Third
75
   1.0000000 34.03508
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76
    0.0000000 16.00000
                           0
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                                                                                   0
                                                                 man
                                                      Third
    0.0000000 19.00000
                                    14.5000
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78
   1.0000000 34.00000
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                                                   S Second
                           Ω
                                 Ω
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                                                                                  1
79
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                                                   S First
                                 0
                                    55.9000
                                                               woman
                                                                                  1
80
    1.0000000 34.03508
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                                                                         0
                           1
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81
    0.0000000 32.00000
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                                                   S Third
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82
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83
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    0.0000000 54.00000
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85
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                                    79.6500
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                                                               woman
                                                                                  1
    0.0000000 47.00000
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88
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89
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                                                   C First
                                                                 man
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    0.0000000 22.00000
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91
    0.0000000 34.03508
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    0.0000000 35.00000
                                 0
                                     7.1250
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                                                       Third
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92
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93
    1.0000000 52.00000
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                                                   C First
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94
    0.0000000 47.00000
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                                    7.2500
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95
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    0.0000000 36.00000
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98
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                                                    C Third
                           0
                                    7.2250
                                                                 man
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                                 1 11.5000
                                                                                  0
   0.0000000 23.00000
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31
                           2
                                                    S Second
                                                                 man
    0.3198653 2.00000
                                    26.0000
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                                                               child.
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33
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                                 1
                                     7.2292
                                                   C Third
                                                                 man
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35
                                    22.3583
                                                   C
                                                               woman
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36
   1.0000000 30.00000
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                                     8.6625
                                                   S Third
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37
    1.0000000 7.00000
                                 2
                                    26.2500
                                                   S Second
                                                               child.
38
    0.0000000 45.00000
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                                                   S First
                                                                                  0
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    1.0000000 30.00000
39
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                                                   C
                                                      First
                                                               woman
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   1.0000000 22.00000
41
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                                                               woman
                                                                                  1
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42
    1.0000000 36.00000
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43
    0.3198653 9.00000
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                                                   S Third
                                                               child.
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                                    31.2750
   1.0000000 11.00000
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                                                                         0
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44
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                                                               child.
45
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                                 0
                                    26.0000
                                                    S Second
                                                                 man
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    0.0000000 50.00000
46
                                 0 106.4250
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47
    0.0000000 64.00000
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                                    26.0000
                                                    S First
                                                                 man
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    1.0000000 19.00000
48
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                                    26.0000
                                                    S Second
                                                               woman
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    0.0000000 34.03508
49
                           0
                                 0
                                    13.8625
                                                    C. Second
                                                                 man
                                                                         1
                                                                                  1
50
    0.0000000 33.00000
                                    20.5250
                                                    S Third
                                                                                   0
                                                                 man
51
    0.0000000 8.00000
                           1
                                 1
                                    36.7500
                                                   S Second
                                                               child
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                                                                                  1
    0.0000000 17.00000
52
                           0
                                 2 110.8833
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                                                      First
                                                                 man
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                                                                                  1
    0.0000000 27.00000
                                   26.0000
                                                    S Second
                                                                 man
                                                                         1
    0.0000000 34.03508
                                     7.8292
                                                    Q Third
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54
                                                                 man
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55
    0.0000000 22.00000
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                                     7.2250
                                                    C
                                                      Third
                                                                 man
                                                                         1
                                                                                  1
56
    1.0000000 22.00000
                                     7.7750
                                                    S
                                                      Third
                                                               woman
                                                                         1
                                                                                  1
    0.0000000 62.00000
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                                    26.5500
                                                    S First
                                                                                   0
57
                                                                man
                                                                         1
58
    1.0000000 48.00000
                                 0
                                    39.6000
                                                    C
                                                       First
                                                                         0
                                                                                  1
                           1
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                                                      First
59
    0.0000000 34.03508
                           0
                                 0 227.5250
                                                   C
                                                                                  0
                                                                man
                                                                         1
60
   1.0000000 39.00000
                           1
                                 1 79.6500
                                                   S
                                                      First
                                                               woman
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                                                                                  1
    1.0000000 36.00000
                                                    S
61
                           1
                                    17.4000
                                                       Third
                                                               woman
                                                                         0
                                                                                  1
    0 0000000 34 03508
                                 0
                                     7 7500
                                                    0
                                                      Third
                                                                                  0
62
                           0
                                                                 man
                                                                         1
    0.0000000 40.00000
                                    7.8958
                                                      Third
                                                                                   0
63
                                                    S
                                                                 man
64
    0.0000000 28.00000
                           0
                                 0
                                    13.5000
                                                    S
                                                                 man
                                                                         1
                                                                                  0
    0.0000000 34.03508
                                                      Third
65
                           0
                                 0
                                     8.0500
                                                    S
                                                                 man
                                                                         1
                                                                                  0
    1.0000000 34.03508
                                     8.0500
                                                      Third
                                                               woman
                                                                                   0
67
    0.0000000 24.00000
                           2
                                 0
                                    24.1500
                                                   5
                                                       Third
                                                                 man
                                                                         0
                                                                                  0
68
    0.0000000 19.00000
                                 0
                                     7.8958
                                                    S
                                                       Third
                                                                         1
                                                                                  0
                                                                 man
    1.0000000 29.00000
                                    21.0750
                                                    S
                                                      Third
                                                                                   0
                                                               woman
                           0
                                 0
                                     7.2292
70
   0.0000000 34.03508
                                                   C Third
                                                                                  0
                                                                 man
                                                                         1
```

The result of the code would be a revised dataset in which the means of the missing columns (gender, age, sibsp, parch, fare, alone, and survived) would be used to fill in the blanks. This indicates that the average value of the non-missing values in that specific column would be used to fill in any missing values in those columns. The resulting dataset would have all the missing values replaced, ensuring that each column is complete with no missing data.

Data type conversion:

Age, gender, and fare are the three mentioned columns. The "as.integer" function is used in the code to change the data type of these columns from their initial format to integers. When the variables in these columns are meant to represent discrete numerical values, like categories or whole integers, this conversion is especially helpful. The code guarantees that the variables in these columns are correctly represented as whole numbers rather than as strings or floating-point values by changing the data type to integers. This conversion aids in consistency maintenance and simplifies further analysis or calculations that could call for integer numbers.

```
> xdataset$Gender <- as.integer(xdataset$Gender)</pre>
  xdataset$age <- as.integer(xdataset$age)</pre>
> xdataset$fare <- as.integer(xdataset$fare)</pre>
  print(xdataset)
     Gender age sibsp parch fare embarked
                                                 class
                                                             who alone survived
             24
                      0
                                                 Third
                                                          mannn
2
          0
              17
                      0
                             0
                                   8
                                             S
                                                 Third
                                                                                 0
                                                                      1
                                                             man
3
                                   7
          1
              21
                      0
                             0
                                             0
                                                 Third
                                                         womann
                                                                      1
                                                                                 0
                                   7
          1
              34
                                                 Third
                                                          woman
5
              37
                      0
                                   9
                                                                                 0
                             0
                                                 Third womannn
          1
                                                                      1
6
          0
              16
                      0
                             0
                                  86
                                             S
                                                 First
                                                                      1
                                                                                 1
                                                          woman
          0
              18
                      1
                             0
                                 108
                                             C
                                                First
                                                                      0
                                                          mannn
8
                      0
                                                                      0
          1
              33
                             2
                                  26
                                             S Second
                                                          woman
                                                                                 1
9
          0
              34
                      0
                             0
                                  26
                                                 First
                                                             man
                                                                      1
                                                                                 1
10
              28
                      0
                                                                                 0
          0
                             0
                                             S
                                                 Third
                                                                      1
                                  22
                                                             man
11
          0
              26
                      0
                             0
                                  56
                                             S
                                                 Third
                                                             man
                                                                      1
                                                                                 1
          0
                      0
                             0
12
              29
                                             Q
                                                 Third
                                                             man
                                                                      1
                                                                                 1
13
          0
              34
                      0
                             0
                                   8
                                                 Third
                                                                      1
                                                                                 0
                                                             man
14
          0
              36
                      0
                             0
                                  26
                                             S
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                                                                                 1
                                                             man
15
          1
              54
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                             0
                                  59
                                             C
                                                 First
                                                          woman
                                                                      0
                                                                                 1
16
          0
              24
                      0
                             0
                                             S
                                                 Third
                                                             man
                                                                      1
                                                                                 0
          0
              47
                                  34
17
                                                 First
                                                             man
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                      0
                             0
18
          1
              34
                                  10
                                             S Second
                                                          woman
                                                                      1
                                                                                 1
19
          0
              34
                      0
                             0
                                  24
                                                Third
                                                                      1
                                                                                 0
                                                             man
20
          1
              36
                      1
                             0
                                             S Second
                                                                      0
                                  26
                                                          woman
                                                                                 1
          0
                      0
                             0
                                                                                 0
21
              32
                                                 Third
                                                             man
                                                                      1
22
          1
              30
                      0
                             0
                                  93
                                                 First
                                                                      1
                                                                                 1
                                                           woman
23
          0
              22
                      0
                             0
                                                 Third
                                                                      1
                                                                                 0
                                                             man
24
          0
              34
                      0
                             0
                                             C
                                                 Third
                                                                      1
                                                                                 0
                                                             man
                      0
                             1
                                  57
                                                                      0
25
          1
              44
                                             C
                                                 First
                                                           woman
                                                                                 1
26
          0
              34
                      0
                             0
                                                 Third
                                                                                 0
                                             \boldsymbol{C}
                                                             man
                                                                      1
                                   7
27
          0
              40
                      0
                             0
                                                Third
                                                                      1
                                                                                 0
                                                             man
28
          1
              50
                      0
                             0
                                  10
                                             S Second
                                                          woman
                                                                      1
                                                                                 1
              34
                             0
29
          0
                      0
                                 221
                                                First
                                                             man
                                                                      1
                                                                                 0
30
              39
                                                Third
                                                             man
                                                                      1
          0
                                                                      0
31
              23
                      2
                             1
                                  11
                                             S Second
                                                                                 0
                                                             man
32
          0
               2
                      1
                             1
                                             S Second
                                                           child.
                                                                      0
                                                                                 1
                                  26
              34
33
                             0
                                  7
                                                Third
                                                                      1
                                                             man
          0
              17
                      1
                             1
                                             C
                                                                      0
                                                                                 0
34
                                                 Third
                                                             man
                                  22
35
          1
              34
                                                                      0
                                                                                 1
                                                           woman
```

35	1 34	0	2	22	C	woman	0	1	
36	1 30	Ō	ō	8	S Third	woman	1	0	
37	1 7			26		child		ĭ	
		0	2		S Second		0		
38	0 45	0	0	26	S First	man	1	0	
39	1 30	0	0	106	C First	woman	1	1	
40	0 34	0	0	14	S Third	man	1	0	
41	1 22	0	2	49	C First	woman	0	1	
42	1 36	0	2	71	S First	woman	0	1	
43	0 9	4	2	31	S Third	child	0	0	
44	1 11	4	2	31	S Third	child	0	0	
45	0 32	1	0	26	S Second	man	0	1	
46	0 50	1		106	C First	man	0	0	
47	0 64	0	0	26	S First	man	1	0	
48	1 19	1	0	26	S Second	woman	0	1	
49	0 34	0	0	13	C Second	man	1	1	
			1	20				0	
50		1				man	0		
51	0 8	1	1	36	S Second	child	0	1	
52	0 17	0	2	110	C First	man	0	1	
53	0 27	0	0	26	S Second	man	1	0	
54	0 34	0	0	7	Q Third	man	1	0	
55	0 22	0	0	7	C Third	man	1	1	
56	1 22	0	0	7	S Third	woman	1	1	
57	0 62	0	0	26	S First	man	1	0	
58	1 48		Ö	39	C First		0	1	
		1				woman			
59	0 34	0		227	C First	man	1	0	
60	1 39	1	1	79	S First	woman	0	1	
61	1 36	1	0	17	S Third	woman	0	1	
62	0 34	0	Ö	7			1	0	
					•	man			
63	0 40	0	0	7	S Third	man	1	0	
64	0 28	0	0	13	S	man	1	0	
65	0 34	0	0	8	S Third	man	1	0	
66	1 34	Ö	Ö	8	S Third		1	Ö	
						woman			
67	0 24	2	0	24	S Third	man	0	0	
68	0 19	0	0	7	S Third	man	1	0	
69	1 29	0	4	21	S Third	woman	0	0	
70	0 34	Ö	Ö	7	C Third	man	1	Ö	
71	0 32	0	0	7	S Third	man	1	1	
72	0 62	0	0	10	S Second	man	1	1	
73	1 53	2	0	51	S First	woman	0	1	
74	0 36	0	Ō	26	S First	man	1	1	
75	1 34	0	0	7	Q Third	woman	1	1	
75	1 34	_	0	7	Q Third	woman	1	1	
76		0			S Third	man	1	0	
77		0						•	
//	0 16	0	0	8				0	
	0 16 0 19	0 0	0 0	14	S Third	man	1	0	
78	0 16 0 19 1 34	0 0 0	0 0 0	14 13	S Third S Second			1	
	0 16 0 19	0 0	0 0	14	S Third	man	1		
78 79	0 16 0 19 1 34 1 39	0 0 0 1	0 0 0	14 13 55	S Third S Second S First	man woman woman	1 1 0	1 1	
78 79 80	0 16 0 19 1 34 1 39 1 34	0 0 0 1 1	0 0 0 0	14 13 55 14	S Third S Second S First C Third	man woman woman woman	1 1 0 0	1 1 0	
78 79 80 81	0 16 0 19 1 34 1 39 1 34 0 32	0 0 0 1 1	0 0 0 0 0	14 13 55 14 7	S Third S Second S First C Third S Third	man woman woman woman man	1 1 0 0 1	1 1 0 1	
78 79 80 81 82	0 16 0 19 1 34 1 39 1 34 0 32 1 25	0 0 0 1 1 0	0 0 0 0 0 0	14 13 55 14 7 30	S Third S Second S First C Third S Third S Second	man woman woman woman	1 1 0 0 1	1 1 0 1	
78 79 80 81	0 16 0 19 1 34 1 39 1 34 0 32	0 0 0 1 1	0 0 0 0 0 0	14 13 55 14 7	S Third S Second S First C Third S Third	man woman woman woman man	1 1 0 0 1	1 1 0 1	
78 79 80 81 82 83	0 16 0 19 1 34 1 39 1 34 0 32 1 25 1 39	0 0 0 1 1 0 1	0 0 0 0 0 0 1 1	14 13 55 14 7 30 110	S Third S Second S First C Third S Third S Second C First	man woman woman woman man woman	1 0 0 1 0	1 1 0 1 1	
78 79 80 81 82 83	0 16 0 19 1 34 1 39 1 34 0 32 1 25 1 39 0 54	0 0 0 1 1 0 1 1	0 0 0 0 0 0 1 1	14 13 55 14 7 30 110 26	S Third S Second S First C Third S Third S Second C First S Second	man woman woman woman man woman woman	1 0 0 1 0 0	1 0 1 1 1 0	
78 79 80 81 82 83 84	0 16 0 19 1 34 1 39 1 34 0 32 1 25 1 39 0 54 0 36	0 0 0 1 1 0 1 0	0 0 0 0 0 0 1 1 0	14 13 55 14 7 30 110 26 40	S Third S Second S First C Third S Third S Second C First S Second C First	man woman woman woman man woman woman man	1 1 0 0 1 0 0 1 1	1 0 1 1 1 0 0	
78 79 80 81 82 83 84 85	0 16 0 19 1 34 1 39 1 34 0 32 1 25 1 39 0 54 0 36 0 34	0 0 0 1 1 0 1 1 0 0	0 0 0 0 0 0 1 1 0 0	14 13 55 14 7 30 110 26 40 8	S Third S Second S First C Third S Third S Second C First S Second C First C Third	man woman woman woman man woman woman	1 0 0 1 0 0 1 1 1	1 0 1 1 1 0 0	
78 79 80 81 82 83 84	0 16 0 19 1 34 1 39 1 34 0 32 1 25 1 39 0 54 0 36	0 0 0 1 1 0 1 0	0 0 0 0 0 0 1 1 0	14 13 55 14 7 30 110 26 40	S Third S Second S First C Third S Third S Second C First S Second C First	man woman woman woman man woman woman man	1 1 0 0 1 0 0 1 1	1 0 1 1 1 0 0	
78 79 80 81 82 83 84 85 86	0 16 0 19 1 34 1 39 1 34 0 32 1 25 1 39 0 54 0 36 0 34 1 18	0 0 0 1 1 0 1 1 0 0	0 0 0 0 0 0 1 1 0 0	14 13 55 14 7 30 110 26 40 8 79	S Third S Second S First C Third S Third S Second C First S Second C First C Third S First	man woman woman man woman woman man man man man man woman	1 0 0 1 0 0 1 1 1 1	1 0 1 1 1 0 0 0	
78 79 80 81 82 83 84 85 86 87 88	0 16 0 19 1 34 1 39 1 34 0 32 1 25 1 39 0 54 0 36 0 34 1 18 0 47	0 0 0 1 1 0 1 1 0 0 0	0 0 0 0 0 0 1 1 0 0 0	14 13 55 14 7 30 110 26 40 8 79 15	S Third S Second S First C Third S Third S Second C First S Second C First C Third S First S Second	man woman woman man woman woman man man man man woman man man	1 0 0 1 0 0 1 1 1 0	1 0 1 1 1 0 0 0 1 0	
78 79 80 81 82 83 84 85 86 87 88	0 16 0 19 1 34 1 39 1 34 0 32 1 25 1 39 0 54 0 36 0 34 1 18 0 47 0 60	0 0 0 1 1 0 1 0 0 0 0 0	0 0 0 0 0 0 0 1 1 0 0 0 2 0	14 13 55 14 7 30 110 26 40 8 79 15 79	S Third S Second S First C Third S Third S Second C First S Second C First C Third S First S Second	man woman woman man woman woman man man man man man man man man man	1 1 0 0 1 0 0 1 1 1 0 1	1 0 1 1 1 0 0 0 1	
78 79 80 81 82 83 84 85 86 87 88 89	0 16 0 19 1 34 1 39 1 34 0 32 1 25 1 39 0 54 0 36 0 34 1 18 0 47 0 60 0 22	0 0 0 1 1 0 1 0 0 0 0 0	0 0 0 0 0 0 1 1 0 0 0 2 0	14 13 55 14 7 30 110 26 40 8 79 15 79 8	S Third S Second S First C Third S Third S Second C First S Second C First C Third S First S Second	man woman woman man woman woman man man man man woman man man	1 1 0 0 1 0 0 1 1 1 0 1	1 0 1 1 1 0 0 0 0 1 0	
78 79 80 81 82 83 84 85 86 87 88	0 16 0 19 1 34 1 39 1 34 0 32 1 25 1 39 0 54 0 36 0 34 1 18 0 47 0 60	0 0 0 1 1 0 1 0 0 0 0 0	0 0 0 0 0 0 0 1 1 0 0 0 2 0	14 13 55 14 7 30 110 26 40 8 79 15 79	S Third S Second S First C Third S Third S Second C First S Second C First C Third S First S Second	man woman woman man woman woman man man man man man man man man man	1 1 0 0 1 0 0 1 1 1 0 1	1 0 1 1 1 0 0 0 1	
78 79 80 81 82 83 84 85 86 87 88 89 90	0 16 0 19 1 34 1 39 1 34 0 32 1 25 1 39 0 54 0 36 0 34 1 18 0 47 0 60 0 22 0 34	0 0 0 1 1 0 1 0 0 0 0 0	0 0 0 0 0 0 1 1 0 0 0 2 0 0	14 13 55 14 7 30 110 26 40 8 79 15 79 8 8	S Third S Second S First C Third S Third S Second C First S Second C First C Third S First S Second C First S Third S Third S Third	man woman woman woman woman woman man man man man man man man man man	1 1 0 0 1 0 0 1 1 1 0 1 1	1 0 1 1 1 0 0 0 0 1 0 1	
78 79 80 81 82 83 84 85 86 87 88 89 90 91	0 16 0 19 1 34 1 39 1 34 0 32 1 25 1 39 0 54 0 36 0 34 1 18 0 47 0 60 0 22 0 34 0 35	0 0 0 1 1 0 1 1 0 0 0 0 0 0	0 0 0 0 0 0 1 1 0 0 0 2 0 0	14 13 55 14 7 30 110 26 40 8 79 15 79 8 8 7	S Third S Second S First C Third S Third S Second C First S Second C First C Third S First S Second C First S Third S Third S Third	man woman woman woman woman man man man man man man man man man	1 0 0 1 0 0 1 1 1 0 1 1 1	1 0 1 1 1 0 0 0 0 1 0 0 1	
78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93	0 16 0 19 1 34 1 39 1 34 0 32 1 25 1 39 0 54 0 36 0 34 1 18 0 47 0 60 0 22 0 34 0 35 1 52	0 0 0 1 1 0 1 0 0 0 0 0 0 0	0 0 0 0 0 0 1 1 0 0 0 2 0 0 1 0 0 0 0 0	14 13 55 14 7 30 110 26 40 8 79 15 79 8 8 7	S Third S Second S First C Third S Third S Second C First S Second C First C Third S First S Second C First S Third S Third S Third C First	man woman woman woman woman man man man man man man man man man	1 0 0 1 0 0 1 1 1 0 1 0 1 1 0	1 0 1 1 1 0 0 0 0 1 0 0 0 1	
78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93	0 16 0 19 1 34 1 39 1 34 0 32 1 25 1 39 0 54 0 36 0 34 1 18 0 47 0 60 0 22 0 34 0 35 1 52 0 47	0 0 0 1 1 0 1 0 0 0 0 0 0 0 0 1 0 0	0 0 0 0 0 0 1 1 0 0 0 2 0 1 0 0 0 0 0 0	14 13 55 14 7 30 110 26 40 8 79 15 79 8 8 7	S Third S Second S First C Third S Third S Second C First C Third S First C Third S First S Second C First C Third C First	man woman woman woman woman man man man man man man man man man	1 0 0 1 0 0 1 1 1 0 1 0 1 1 0 1	1 0 1 1 1 0 0 0 0 1 0 0 0 1 0 0 0 1	
78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93	0 16 0 19 1 34 1 39 1 34 0 32 1 25 1 39 0 54 0 36 0 34 1 18 0 47 0 60 0 22 0 34 0 35 1 52	0 0 0 1 1 0 1 0 0 0 0 0 0 0 0	0 0 0 0 0 0 1 1 0 0 0 2 0 0 1 0 0 0 0 0	14 13 55 14 7 30 110 26 40 8 79 15 79 8 8 7	S Third S Second S First C Third S Third S Second C First S Second C First C Third S First S Second C First S Third S Third S Third C First	man woman woman woman woman man man man man man man man man man	1 0 0 1 0 0 1 1 1 0 1 0 1 1 0	1 0 1 1 1 0 0 0 0 1 0 0 0 1	
78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95	0 16 0 19 1 34 1 39 1 34 0 32 1 25 1 39 0 54 0 36 0 34 1 18 0 47 0 60 0 22 0 34 0 35 1 52 0 47 1 34	0 0 0 1 1 0 1 1 0 0 0 0 0 0 0 1 0 0 0	0 0 0 0 0 0 1 1 0 0 0 2 0 0 1 0 0 0 0 0	14 13 55 14 7 30 110 26 40 8 79 15 79 8 8 7 7 7 7	S Third S Second S First C Third S Third S Second C First S Second C First C Third S First S Second C First S Third S Third S Third C First S Third C First C Third C First	man woman woman woman woman man man man man man man man man man	1 0 0 1 0 0 1 1 1 0 1 0 1 1 0 0 1	1 0 1 1 1 0 0 0 0 1 0 0 0 1 0 0 0 1 0	
78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96	0 16 0 19 1 34 1 39 1 34 0 32 1 25 1 39 0 54 0 36 0 34 1 18 0 47 0 60 0 22 0 34 0 35 1 52 0 47 1 34 0 37	0 0 0 1 1 0 1 1 0 0 0 0 0 0 0 1 0 0 0 1 0 0 1	0 0 0 0 0 0 1 1 0 0 0 0 2 0 0 0 0 0 0 0	14 13 55 14 7 30 110 26 40 8 79 15 79 8 8 7 7 7 7 8	S Third S Second S First C Third S Third S Second C First S Second C First C Third S First S Second C First S Third S Third S Third C First	man woman woman woman woman man man man man man man man man man	1 0 0 1 0 0 1 1 1 0 1 0 1 1 0 0 1 0 1	1 0 1 1 1 0 0 0 0 1 0 0 0 1 0 0 0 0 1 0	
78 79 80 81 82 83 84 85 86 87 90 91 92 93 94 95 96 97	0 16 0 19 1 34 1 39 1 34 0 32 1 25 1 39 0 54 0 36 0 34 1 18 0 47 0 60 0 22 0 34 0 35 1 52 0 47 1 34 0 37 0 36	0 0 0 1 1 0 1 1 0 0 0 0 0 0 0 1 0 0 0 0	0 0 0 0 0 0 0 1 1 0 0 0 0 2 0 0 0 0 0 0	14 13 55 14 7 30 110 26 40 8 79 15 79 8 8 7 7 7 7 26 26 24	S Third S Second S First C Third S Third S Second C First S Second C First S First S Second C First S Third S Third S Third S Third C First	man woman woman woman woman man man man man man man man man man	1 0 0 1 0 0 1 1 1 0 1 0 1 1 0 0 1 0 0 1	1 1 0 1 1 1 0 0 0 0 1 0 0 0 1 0 0 0 0 0	
78 79 80 81 82 83 84 85 86 87 90 91 92 93 94 95 96 97 98	0 16 0 19 1 34 1 39 1 34 0 32 1 25 1 39 0 54 0 36 0 34 1 18 0 47 0 60 0 22 0 34 0 35 1 52 0 47 1 34 0 37 0 36 1 34	0 0 0 1 1 0 1 1 0 0 0 0 0 0 0 1 0 0 0 0	0 0 0 0 0 0 1 1 0 0 0 0 2 0 0 0 0 0 0 0	14 13 55 14 7 30 110 26 40 8 79 15 79 8 8 7 7 7 7 26 24 33	S Third S Second S First C Third S Third S Second C First S Second C First S Second C First S Third S Third S Third S Third S Third S Third C First S Third S Second S Second	man woman woman woman woman man man man man man man man man man	1 0 0 1 0 0 1 1 0 1 0 1 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 0 0 1	1 1 0 1 1 1 0 0 0 0 1 0 0 0 1 0 0 0 0 0	
78 79 80 81 82 83 84 85 86 87 88 90 91 92 93 94 95 96 97 98	0 16 0 19 1 34 1 39 1 34 0 32 1 25 1 39 0 54 0 36 0 34 1 18 0 47 0 60 0 22 0 34 0 35 1 52 0 47 1 34 0 37 0 36	0 0 0 1 1 0 1 1 0 0 0 0 0 0 0 1 0 0 0 0	0 0 0 0 0 0 0 1 1 0 0 0 0 2 0 0 0 0 0 0	14 13 55 14 7 30 110 26 40 8 79 15 79 8 8 7 7 7 7 26 26 24	S Third S Second S First C Third S Third S Second C First S Second C First S First S Second C First S Third S Third S Third S Third C First	man woman woman woman woman man man man man man man man man man	1 0 0 1 0 0 1 1 1 0 1 0 1 1 0 0 1 0 0 1	1 1 0 1 1 1 0 0 0 0 1 0 0 0 1 0 0 0 0 0	
78 79 80 81 82 83 84 85 86 87 90 91 92 93 94 95 96 97 98	0 16 0 19 1 34 1 39 1 34 0 32 1 25 1 39 0 54 0 36 0 34 1 18 0 47 0 60 0 22 0 34 0 35 1 52 0 47 1 34 0 37 0 36 1 34	0 0 0 1 1 0 1 1 0 0 0 0 0 0 0 1 0 0 0 0	0 0 0 0 0 0 1 1 0 0 0 0 2 0 0 0 0 0 0 0	14 13 55 14 7 30 110 26 40 8 79 15 79 8 8 7 7 7 7 26 24 33	S Third S Second S First C Third S Third S Second C First S Second C First S Second C First S Third S Third S Third S Third S Third S Third C First S Third S Second S Second	man woman woman woman woman man man man man man man man man man	1 0 0 1 0 0 1 1 0 1 0 1 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 0 0 1	1 1 0 1 1 1 0 0 0 0 1 0 0 0 1 0 0 0 0 0	
78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100	0 16 0 19 1 34 1 39 1 34 0 32 1 25 1 39 0 54 0 36 0 34 1 18 0 47 0 60 0 22 0 34 0 35 1 52 0 47 1 34 0 37 0 36 1 34 0 37 0 36 0 37	0 0 0 1 1 0 0 0 0 0 0 0 0 1 0 0 0 0 0 1 0 0 0 0 0 0	0 0 0 0 0 0 1 1 0 0 0 0 2 0 0 0 0 0 0 0	14 13 55 14 7 30 110 26 40 8 79 15 79 8 8 7 7 7 26 24 33 0 7	S Third S Second S First C Third S Third S Second C First S Second C First S Third S Third S Third S Third C First S Third C First S Third C First S Third C First C Third C First C Third C First C Third	man woman woman woman woman man man man man man man man man man	1 0 0 1 0 0 1 1 1 0 1 0 1 1 0 0 0 1 1 1 0 0 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1	1 1 0 1 1 1 0 0 0 0 1 0 0 0 1 0 0 0 0 0	
78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 [reach	0 16 0 19 1 34 1 39 1 34 0 32 1 25 1 39 0 54 0 36 0 34 1 18 0 47 0 60 0 22 0 34 0 35 1 52 0 47 1 34 0 37 0 36 1 34 0 37 0 36 0 37	0 0 0 1 1 0 0 0 0 0 0 0 0 1 0 0 0 0 0 1 0 0 0 0 0 0	0 0 0 0 0 0 1 1 0 0 0 0 2 0 0 0 0 0 0 0	14 13 55 14 7 30 110 26 40 8 79 15 79 8 8 7 7 7 26 24 33 0 7	S Third S Second S First C Third S Third S Second C First S Second C First S Second C First S Third S Second S Second	man woman woman woman woman man man man man man man man man man	1 0 0 1 0 0 1 1 1 0 1 0 1 1 0 0 0 1 1 1 0 0 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 1 1 1	1 1 0 1 1 1 0 0 0 0 1 0 0 0 1 0 0 0 0 0	
78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100	0 16 0 19 1 34 1 39 1 34 0 32 1 25 1 39 0 54 0 36 0 34 1 18 0 47 0 60 0 22 0 34 0 35 1 52 0 47 1 34 0 37 0 36 1 34 0 37 0 36 0 37	0 0 0 1 1 0 0 0 0 0 0 0 0 1 0 0 0 0 0 1 0 0 0 0 0 0	0 0 0 0 0 0 1 1 0 0 0 0 2 0 0 0 0 0 0 0	14 13 55 14 7 30 110 26 40 8 79 15 79 8 8 7 7 7 26 24 33 0 7	S Third S Second S First C Third S Third S Second C First S Second C First S Third S Third S Third S Third C First S Third C First S Third C First S Third C First C Third C First C Third C First C Third	man woman woman woman woman man man man man man man man man man	1 0 0 1 0 0 1 1 1 0 1 0 1 1 0 0 0 1 1 1 0 0 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 1 1 1	1 1 0 1 1 1 0 0 0 0 1 0 0 0 1 0 0 0 0 0	

The output of the code would be an updated dataset where the gender, age, and fare columns have been converted to integers. This means that the original values in these columns, which may have been in a different data type (such as strings or floating-point numbers), will be converted to whole numbers. The resulting dataset will have these specific columns represented as integers, ensuring that they are suitable for analysis or computations that require discrete numerical values.

Transforming passenger class:

A code snippet that performs transformations on the "class" column of a dataset. The original column consists of string labels representing different classes ("first", "second", "third"). The code uses nested if else statements to convert these string labels into numerical values (1, 2, 3). The transformed numerical values are then stored back into the "class" column, replacing the original string labels. This conversion allows for easier analysis and computations that require numerical representations of the classes. Additionally, the code handles missing values in the "class" column. If any missing values are present, they are replaced with the mean value of the non-missing values in

> x	<pre>> xdataset\$class <- ifelse(xdataset\$class == "Third",3,</pre>														
+															
+	<pre>ifelse(xdataset\$class == "First",1,NA)))</pre>														
>															
	<pre>vdataset\$class <- as.integer(xdataset\$class) print(xdataset)</pre>														
> p					_		,		,						
						embarked				survived					
1	0	24	0	0	7	S	3	mannn	1	0					
2	0	17	0	0	8	5	3	man	1	0					
3	1	21 34	0	0	7	Q	3	womann	1	0					
4	1		0	0	7	Q	3	woman	1	0					
5 6	1	37 16	0	0	9	S	3	womannn	1	0					
	0		0	0	86	S	1	woman	1	1					
7	0 1	18 33	1	0 2	108 26	C S	1 2	mannn	0	0 1					
8 9	0	34	0	0	26		1	woman	_	1					
_	_	28	0	0	20	S	3	man	1 1	0					
10 11	0	26	0	0	56	S S	3	man	1	1					
12	0	29	0	0	7		3	man	1	1					
13	0	34	0	0	8	Q S	3	man	1	0					
14	0	36	0	0	26	S	2	man	1	1					
15	1	54	1	0	59	C	1	man	0	1					
16	0	24	0	0	7	5	3	woman man	1	0					
17	0	47	0	0	34	S	1	man	1	0					
18	1	34	0	0	10	S	2	woman	1	1					
19	0	34	0	0	24	Q	3	man	1	0					
20	1	36	1	0	26	S	2	woman	0	1					
21	0	32	0	0	7	S	3	man	1	0					
22	1	30	0	0	93	S	1	woman	1	ĭ					
23	0	22	0	0	7	S	3	man	1	0					
24	0	34	0	0	7	C	3	man	1	Ö					
25	1	44	0	1	57	C	1	woman	0	í					
26	0	34	0	0	7	C	3	man	1	0					
27	0	40	0	ő	7	Q	3	man	1	Ö					
28	1	50	0	0	10	S	2	woman	1	1					
29	0	34	ő	0	221	S	1	man	1	0					
30	Õ	39	Ö	ő	7	S	3	man	1	0					
31	Õ	23	2	1	11	S	2	man	0	0					
32	0	2	1	1	26	5	2	child	0	1					
33	0	34	0	0	7	C	3	man	1	0					
34	0	17	1	1	7	C	3	man	0	0					
35	1	34	0	2	22	C	2	woman	0	1					

the column. This imputation method ensures that the missing values are filled with a representative value, enabling a complete dataset for further analysis.

				_		_	_			_
35	1	34	0	2	22	C	2	woman	0	1
36	1	30	0	0	8	S	3	woman	1	0
37	1	7	0	2	26	S	2	child	0	1
38	0	45	0	0	26	S	1	man	1	0
39	1	30	0	Ö	106	Č	1	woman	1	1
40	Ō	34	Õ	0	14	5	3		1	0
								man		
41	1	22	0	2	49	C	1	woman	0	1
42	1	36	0	2	71	S	1	woman	0	1
43	0	9	4	2	31	S	3	child	0	0
44	1	11	4	2	31	S	3	child	0	0
45	0	32	1	0	26	S	2	man	0	1
	0	50		0					0	
46			1		106	C	1	man		0
47	0	64	0	0	26	S	1	man	1	0
48	1	19	1	0	26	S	2	woman	0	1
49	0	34	0	0	13	C	2	man	1	1
50	0	33	1	1	20	S	3	man	0	0
51	0	8	1	1	36	S	2	child	0	1
52	Ö	17	0	2	110	Č	1	man	ő	1
53	0	27	0	0	26	S	2	man	1	0
54	0	34	0	0	7	Q	3	man	1	0
55	0	22	0	0	7	C	3	man	1	1
56	1	22	0	0	7	S	3	woman	1	1
57	0	62	0	0	26	S	1	man	1	0
58	1	48	1	0	39	Č	1	woman	0	1
	_									
59	0	34	0	0	227	C	1	man	1	0
60	1	39	1	1	79	S	1	woman	0	1
61	1	36	1	0	1 7	S	3	woman	0	1
62	0	34	0	0	7	Q	3	man	1	0
63	Ō	40	0	Ō	7	ŝ	3	man	1	Ō
64	0	28	ő	0	13	S	2		1	0
								man		
65	0	34	0	0	8	S	3	man	1	0
66	1	34	0	0	8	S	3	woman	1	0
67	0	24	2	0	24	S	3	man	0	0
68	0	19	0	0	7	S	3	man	1	0
69	1	29	0	4	21	S	3	woman	0	0
70	0	34	0	0	7	C	3	man	1	0
71	0	32	0	ő	7	S	3	man	1	1
	_									
72	0	62	0	0	10	S	2	man	1	1
73	1	53	2	0	51	S	1	woman	0	1
74	0	36	0	0	26	S	1	man	1	1
75	1	34	0	0	7	Q	3	woman	1	1
76	0	16	0	0	8	S	3	man	1	0
77	0	19	0	0	14	S	3	man	1	0
78	1	34	Ö	ő	13	S	2	woman	1	1
	1									
79		39	1	0	55	S	1	woman	0	1
80	1	34	1	0	14	C	3	woman	0	0
81	0	32	0	0	7	S	3	man	1	1
82	1	25	1	1	30	S	2	woman	0	1
83	1	39	1	1	110	C	1	woman	0	1
84	0	54	0	0	26	S	2	man	1	0
85	0	36	Ö	ő	40	Č	1	man	1	0
86			0		8	C				
	0	34		0			3	man	1	0
87	1	18	0	2	79	S	1	woman	0	1
88	0	47	0	0	15	S	2	man	1	0
89	0	60	1	1	79	C	1	man	0	1
90	0	22	0	0	8	S	3	man	1	0
91	0	34	0	0	8	S	3	man	1	0
92	0	35	Ö	0	7	S	3	man	1	ő
93	1	52	1	0	78	C	1	woman	0	1
94	0	47	0	0	7	S	3	man	1	0
95	1	34	0	2	7	Q	3	woman	0	0
96	0	37	1	0	26	S	2	man	0	0
97	0	36	1	1	24	S	3	man	0	0
98	1	34	ō	ō	33	S	2	woman	1	1
99	0	49	0	0	0	S	2	man	1	0
	_	34		0	7	C				
100	0		0				3	man	1	0
	nea	max.	/ get(prior	ı (max	.print")	om	rtted 201	rows]	
>										

Reverting passenger class to labels:

The numerical transformations applied to the "class" column back to its original string labels ("first", "second", "third"). To achieve this, the code uses nested if else statements to conditionally assign the corresponding string label based on the numerical value. The original numerical values in the "class" column are replaced with their respective string labels. Once the transformation is complete, the resulting "class" column, now containing the original string labels, is printed to the console. This allows for the verification and inspection of the transformed column.

```
> xdataset$class <- ifelse(xdataset$class == 3, "Third"</pre>
                             ifelse(xdataset$class == 2,"Second"
                                     ifelse(xdataset$class == 1,"First",NA)))
  print(xdataset)
    Gender age sibsp parch fare embarked
                                              class
                                                         who alone survived
         0
            24
                    0
                           0
                                              Third
                                                      mannn
                                                                 1
                                                                           0
                                 8
2
         0
             17
                    0
                           0
                                          S
                                              Third
                                                         man
                                                                 1
                                                                           0
3
         1
             21
                    0
                           0
                                7
                                          Q
                                              Third
                                                     womann
                                                                 1
                                                                           0
                                7
4
             34
                    0
                           0
                                              Third
                                                                 1
                                                                           0
         1
                                          Q
                                                      woman
5
             37
                    0
                           0
                                9
                                              Third womannn
                                                                 1
                                                                           0
6
         0
             16
                    0
                           0
                               86
                                          S
                                              First
                                                                 1
                                                                           1
                                                       woman
         0
             18
                    1
                           0
                              108
                                          C
                                              First
                                                       mannn
                                                                 0
                                                                           0
8
                                          S Second
             33
                               26
                                                       woman
                                                                  0
                                                                           1
9
         0
             34
                    0
                           0
                                26
                                                                           1
                                          S
                                              First
                                                                 1
                                                         man
10
         0
             28
                    0
                           0
                                22
                                          S
                                              Third
                                                         man
                                                                 1
                                                                           0
11
         0
             26
                    0
                           0
                                56
                                          S
                                              Third
                                                                 1
                                                                           1
                                                         man
         0
                           0
12
             29
                    0
                                          Q
                                             Third
                                                         man
                                                                 1
                                                                           1
13
         0
             34
                    0
                           0
                                8
                                          S
                                              Third
                                                                 1
                                                                           0
                                                         man
14
         0
             36
                    0
                           0
                                26
                                          S Second
                                                                 1
                                                                           1
                                                         man
                           0
15
         1
             54
                    1
                                59
                                          C
                                              First
                                                       woman
                                                                  0
                                                                           1
16
         0
             24
                    0
                           0
                                              Third
                                                                 1
                                                                           0
                                                         man
                                34
17
         0
             47
                           0
                                                                           0
                    0
                                          S
                                              First
                                                         man
                                                                 1
18
         1
             34
                    0
                           0
                               10
                                          S Second
                                                                 1
                                                                           1
                                                       woman
19
         0
             34
                    0
                           0
                                24
                                          Q Third
                                                                 1
                                                                           0
                                                         man
                           0
20
         1
             36
                    1
                                26
                                          S Second
                                                       woman
                                                                  0
                                                                           1
21
          0
             32
                           0
                                          S Third
                                                         man
22
         1
             30
                    0
                           0
                               93
                                          S
                                                                 1
                                                                           1
                                              First
                                                       woman
23
         0
             22
                    0
                           0
                                          S
                                              Third
                                                         man
                                                                 1
                                                                           0
24
         0
             34
                    0
                                          C
                                              Third
                                                                 1
                                                         man
                               57
25
         1
             44
                    0
                           1
                                          C
                                              First
                                                       woman
                                                                 0
                                                                           1
26
         0
             34
                    0
                                          C
                                              Third
                                                                 1
                                                                           0
                                                         man
27
         0
             40
                    0
                           0
                                              Third
                                                                           0
                                          0
                                                                 1
                                                         man
                           0
                               10
28
         1
             50
                    0
                                          S Second
                                                       woman
                                                                 1
                                                                           1
29
          0
             34
                    0
                                                                           0
                              221
                                              First
                                                         man
                                                                 1
30
             39
                                              Third
                                                                 1
                                                         man
```

70 71										
	0	34	0	0	7	С	Third	man	1	0
/ 1	0	32	0	0	7	S	Third	man	1	1
72	0	62	0	0	10		Second	man	1	1
73	1	53	2	0	51	S	First	woman	0	1
74	0	36	0	0	26	5	First	man	1	1
75	1	34	0	0	7	Q	Third	woman	1	1
76	0	16	Ō	Ō	8	ŝ	Third	man	1	0
77	0	19	Ō	Ō	14	S	Third	man	1	Ō
78	1	34	Ö	0	13		Second	woman	1	1
79	1	39	1	Õ	55	S	First	woman	0	1
80	1	34	1	Ö	14	Č	Third	woman	Ö	0
81	0	32	0	0	7	5	Third	man	1	í
82	1	25	1	1	30		Second	woman	0	1
83	1	39	1	1	110	C	First	woman	0	1
84	0	54	0	0	26		Second	man	1	0
85	0	36	0	Ö	40	C	First	man	1	0
86	0	34	Ö	Ö	8	C	Third	man	1	0
87	1	18	0	2	79	5	First	woman	0	1
88	0	47	0	0	15		Second		1	0
89	0	60	1	1	79	C	First	man man	0	1
90	0	22	0	0	8	5	Third		1	0
91	0	34	0	0	8	S	Third	man	1	0
92	0	35	0	0	7	S	Third	man	1	0
93	1	52	1	0	78		First	man	0	
	0	47		0	7	C		woman		1
94			0			S	Third	man	1	0
95	1	34	0	2	7	Q	Third	woman	0	0
96	0	37	1	0	26		Second	man	0	0
97	0	36	1	1	24	S	Third	man	0	0
98	1	34	0	0	33		Second	woman	1	1
99	0	49	0	0	0		Second	man	1	0
100	0	34	0	0		C	Third	man	1	0
	eached	'max'				c.princ)		tted 201		
30	0	39	0	0	7	S	Third	man	1	0
31	0	23	2	1	11	S	Second	man	0	0
32	0	2	1	1	26	S	Second	child	0	1
33	0	34	0	0	7	C	Third	man	1	0
34	0	17	1	1	7	C	Third	man	0	0
35	1	34	0	2	22	C	Second	woman	0	1
26										
36	1	30	0	0	8	S	Third	woman	1	0
37	1 1	30 7	0 0	0 2	8 26		Second	woman child	1 0	0 1
37	1	7	0	2	26	S	Second	chi1d	0	1
37 38	1 0	7 45	0 0	2 0	26 26	S	Second First	child man	0 1	1 0
37 38 39	1 0 1	7 45 30	0 0 0	2 0 0	26 26 106	S S C	Second First First	child man woman	0 1 1	1 0 1
37 38 39 40	1 0 1 0	7 45 30 34	0 0 0	2 0 0 0	26 26 106 14	S S C S	Second First First Third	child man woman man	0 1 1 1	1 0 1 0
37 38 39 40 41	1 0 1 0	7 45 30 34 22	0 0 0 0	2 0 0 0 2	26 26 106 14 49	S S C S C	Second First First Third First	child man woman man woman	0 1 1 1 0	1 0 1 0
37 38 39 40 41 42	1 0 1 0 1	7 45 30 34 22 36	0 0 0 0 0	2 0 0 0 2 2	26 26 106 14 49 71	S S C S C S S	Second First First Third First First	child man woman man woman woman	0 1 1 1 0 0	1 0 1 0 1
37 38 39 40 41 42 43	1 0 1 0 1 1 0	7 45 30 34 22 36 9	0 0 0 0 0 0 4	2 0 0 0 2 2 2	26 26 106 14 49 71 31	S S C S C S S S	Second First First Third First First Third Third	child man woman man woman woman child child	0 1 1 1 0 0	1 0 1 0 1 1 0 0
37 38 39 40 41 42 43 44	1 0 1 0 1 1 0	7 45 30 34 22 36 9 11	0 0 0 0 0 0 0 4 4	2 0 0 0 2 2 2 2	26 26 106 14 49 71 31 31 26	S S C S C S S S	Second First First Third First First Third	child man woman man woman woman child child man	0 1 1 1 0 0 0	1 0 1 0 1 1
37 38 39 40 41 42 43 44 45	1 0 1 0 1 1 0 1	7 45 30 34 22 36 9 11 32	0 0 0 0 0 0 0 4 4 1	2 0 0 0 2 2 2 2 0	26 26 106 14 49 71 31	S S C S S S S	Second First First Third First First Third Third Third Second	child man woman man woman woman child child man man	0 1 1 1 0 0 0 0	1 0 1 0 1 1 0 0
37 38 39 40 41 42 43 44 45 46	1 0 1 0 1 1 0 1 0 0	7 45 30 34 22 36 9 11 32 50	0 0 0 0 0 0 0 4 4 1 1	2 0 0 0 2 2 2 2 2 0 0	26 26 106 14 49 71 31 31 26	S S C S S S S S S S S S S S S S S S S S	Second First First Third First First Third Third Third Second First	child man woman man woman child child man man man	0 1 1 1 0 0 0 0 0	1 0 1 0 1 1 0 0 0 1 0 0
37 38 39 40 41 42 43 44 45 46 47	1 0 1 0 1 1 0 1 0 0 0	7 45 30 34 22 36 9 11 32 50 64	0 0 0 0 0 0 0 4 4 4 1 1	2 0 0 0 2 2 2 2 0 0	26 26 106 14 49 71 31 31 26 106 26	S S C S S S S S S S S S S S S S S S S S	Second First First Third First First Third Third Second First First	child man woman man woman woman child child man man	0 1 1 1 0 0 0 0 0 0	1 0 1 0 1 1 0 0 0 1
37 38 39 40 41 42 43 44 45 46 47 48	1 0 1 0 1 1 0 1 0 0 0	7 45 30 34 22 36 9 11 32 50 64 19	0 0 0 0 0 0 4 4 1 1 0	2 0 0 0 2 2 2 2 2 0 0 0	26 26 106 14 49 71 31 31 26 106 26 26	S S C S S S S S S S S S S S S S S S S S	Second First First Third First Third Third Third Second First First Second	child man woman moman woman child child man man man woman	0 1 1 1 0 0 0 0 0 0	1 0 1 0 1 1 0 0 0 1 0 0
37 38 39 40 41 42 43 44 45 46 47 48 49	1 0 1 0 1 1 0 0 0 0 0 0	7 45 30 34 22 36 9 11 32 50 64 19 34	0 0 0 0 0 0 4 4 1 1 0	2 0 0 0 2 2 2 2 2 0 0 0	26 26 106 14 49 71 31 31 26 106 26 26 13	S S C S S S C S S C S S C S	Second First First First Third First Third Third Second First First Second Second	child man woman moman woman child child man man man woman	0 1 1 1 0 0 0 0 0 0 0	1 0 1 0 1 1 0 0 1 0 0 1 1 1
37 38 39 40 41 42 43 44 45 46 47 48 49 50	1 0 1 0 1 1 0 0 0 0 0 0 0	7 45 30 34 22 36 9 11 32 50 64 19 34 33	0 0 0 0 0 0 4 4 1 1 0 1	2 0 0 0 2 2 2 2 2 0 0 0 0	26 26 106 14 49 71 31 26 106 26 26 13 20	S S C S S S C S S C S S C S	Second First First First Third First Third Second First First Second Second Third	child man woman man woman child man man man man man man man man	0 1 1 1 0 0 0 0 0 0 0 1 0	1 0 1 0 1 1 0 0 1 0 0 1 1 0 0
37 38 39 40 41 42 43 44 45 46 47 48 49 50 51	1 0 1 0 1 1 0 0 0 0 0 0 0 0	7 45 30 34 22 36 9 11 32 50 64 19 34 33 8	0 0 0 0 0 0 4 4 1 1 0 1	2 0 0 0 2 2 2 2 0 0 0 0	26 26 106 14 49 71 31 26 106 26 26 13 20 36 110	S S C S S C S S C S S C S S C	Second First First Third First Third Third Second First Second Second Third Second	child man woman woman child man man woman child man man man man child	0 1 1 1 0 0 0 0 0 0 0 1 0 0	1 0 1 0 1 1 0 0 0 1 1 0 0 1 1 0 1
37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52	1 0 1 0 1 1 0 0 0 0 0 0 0 0 0	7 45 30 34 22 36 9 11 32 50 64 19 34 33 8 17	0 0 0 0 0 0 4 4 1 1 0 1 0	2 0 0 2 2 2 2 0 0 0 0 0	26 26 106 14 49 71 31 26 106 26 26 13 20 36	S S C S S C S S C S S C S S C S	Second First First Third First Third Third Second First Second Second Third Second First	child man woman moman woman child child man man woman man child man man man man man man child man man	0 1 1 1 0 0 0 0 0 0 0 1 0 0	1 0 1 0 1 1 0 0 0 1 1 0 0 1 1 0 1
37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53	1 0 1 0 1 1 0 0 0 0 0 0 0 0 0 0	7 45 30 34 22 36 9 11 32 50 64 19 34 33 8 17 27	0 0 0 0 0 0 4 4 1 1 0 1 0 1	2 0 0 2 2 2 2 0 0 0 0 1 1 2	26 26 106 14 49 71 31 31 26 106 26 26 13 20 36 110 26	S S C S S C S S C S S C S S C	Second First First Third First Third Third Second First Second Second Third Second First Second Second Third Second	child man woman moman woman child child man man woman man man man man man child man man man man man man	0 1 1 1 0 0 0 0 0 0 0 1 0 0 0	1 0 1 0 1 1 0 0 0 1 1 0 0 1 1 0 0 1 1 0
37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55	1 0 1 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7 45 30 34 22 36 9 11 32 50 64 19 34 33 8 17 27 34 22	0 0 0 0 0 0 4 4 1 1 0 1 0 0 1 1 0 0	2 0 0 2 2 2 2 0 0 0 0 0 1 1 1 2 0	26 26 106 14 49 71 31 31 26 106 26 26 13 20 36 110 26 7	S S C S C S S C S C S S C S C S S C S S C S C S S C S C S S C S C S S C S C S S C S C S S C S C S S C S C S S C S C S S C S C S S C S C S S C S C S S C S C S S C S C S S C S C S C S S C S C S S C S C S S C S C S S C S C S S C	Second First First Third First Third Third Second First Second Third Second Third Second Third	child man woman woman child child man man woman man man man man man man child man man man man man man	0 1 1 1 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0	1 0 1 0 1 1 0 0 0 1 1 0 0 1 1 0 0 1 1 0 0 1 0 1 0 0 1 0 0 1 0 0 1 0
37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56	1 0 1 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7 45 30 34 22 36 9 11 32 50 64 19 34 33 8 17 27 34 22 22	0 0 0 0 0 0 4 4 1 1 0 1 0 0 0 0 0 0 0 0	2 0 0 2 2 2 2 0 0 0 0 1 1 2 0	26 26 106 14 49 71 31 31 26 106 26 26 13 20 36 110 26 7 7	S S C S C S S C S C S S C S C S S C S C S S C S C S S C S C S S C S C S S C S C S S C S C S S C S C S S C S C S S C S C S S C S C S S C S S C S C S S C	Second First First Third First Third Third Second First Second Third Second Third Second Third Third Third Third Third Third Third Third Third	child man woman moman woman child child man man man man man man man man child man	0 1 1 1 0 0 0 0 0 0 1 0 0 0 0 0 0 1 1 0 0 0 0 1	1 0 1 0 1 1 0 0 0 1 1 0 0 1 1 0 0 0 1 1 0 0 0 1 1 1 0 0 0 0 0 1 1 1 0 0 0 0 0 0 0 1
37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55	1 0 1 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7 45 30 34 22 36 9 11 32 50 64 19 34 33 8 17 27 34 22	0 0 0 0 0 0 4 4 1 1 0 1 0 0 1 1 0 0	2 0 0 0 2 2 2 2 2 2 0 0 0 0 0 0 1 1 1 2 0 0 0 0	26 26 106 14 49 71 31 31 26 106 26 26 13 20 36 110 26 7	S S C S C S S C S C S S C S C S S C S S C S C S S C S C S S C S C S S C S C S S C S C S S C S C S S C S C S S C S C S S C S C S S C S C S S C S C S S C S C S S C S C S S C S C S C S S C S C S S C S C S S C S C S S C S C S S C	Second First First Third First Third Third Second First Second Third Second Third Second Third	child man woman woman child child man man woman man man man man man man child man man man man man man	0 1 1 1 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0	1 0 1 0 1 1 0 0 0 1 1 0 0 1 1 0 0 1 1 0 0 1 0 1 0 0 1 0 0 1 0 0 1 0
37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58	1 0 1 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7 45 30 34 22 36 9 11 32 50 64 19 34 33 8 17 27 34 22 22 62 48	0 0 0 0 0 0 4 4 1 1 0 1 0 0 0 0 0 0 0 0	2 0 0 0 2 2 2 2 2 2 0 0 0 0 0 0 0 0 0 0	26 26 106 14 49 71 31 31 26 106 26 26 13 20 36 110 26 7 7 7 26 39	S S C S S S S S C S C S S C S C S S C S C S S C S C S S C	Second First First Third First Third Third Second First Second Third Second Third Second Third First Second Third First	child man woman woman child child man man woman woman man man man man child man man man man child man	0 1 1 1 0 0 0 0 0 0 1 0 0 0 0 0 1 0 0 0 0 1 1 1 1 0 0 0 1	1 0 1 0 1 1 0 0 0 1 1 0 0 1 1 0 0 0 1 1 0 0 1 1 0 0 0 1 1 0 0 0 1 1 0 0 0 1
37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59	1 0 1 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7 45 30 34 22 36 9 11 32 50 64 19 34 33 8 17 27 34 22 62 48 34	0 0 0 0 0 0 4 4 1 1 0 1 0 0 0 0 0 0 0 0	2 0 0 0 2 2 2 2 2 2 0 0 0 0 0 0 0 0 0 0	26 26 106 14 49 71 31 31 26 106 26 26 13 20 36 110 26 7 7 7 7 26 39 227	S S C S S C S S C S S C S S C S S C C S S C S C S S C S C S S C S C S S C S C S S C S C S C S C S C S S C	Second First First Third First Third Third Second First Second Third Second Third Second Third First Second Third First First First First First First	child man woman moman woman child child man man woman man man man man man child man	0 1 1 1 0 0 0 0 0 0 1 0 0 0 0 0 1 0 0 0 1	1 0 1 0 1 1 0 0 0 1 1 0 0 1 1 0 0 0 1 1 0 0 1 1 0 0 0 1 0 0 1 0 0 1 0 0 0 1
37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60	1 0 1 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7 45 30 34 22 36 9 11 32 50 64 19 34 33 8 17 27 34 22 22 62 48 34 39	0 0 0 0 0 0 4 4 1 1 0 1 0 0 0 0 0 1 0 0 0 1 0 0 0 0	2 0 0 0 0 2 2 2 2 2 0 0 0 0 0 0 1 1 2 2 0 0 0 0	26 26 106 14 49 71 31 26 106 26 26 13 20 36 110 26 7 7 7 7 26 39 227 79	s s c s c s s s s s c s s c s s c s s c s s c s s c s s c s s c s s c s s c s s c s s c c c s s c c c s s c c c s s c c c s s c c c s s c c c s c c c s c c c s c c c s c c c s c c c c s c c c c s c c c c s c c c c s c	Second First First Third First Third Third Second First Second Third Second Third Second Third First Second Third First First First First First	child man woman moman woman child child man	0 1 1 1 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0	1 0 1 0 1 1 0 0 0 1 1 0 0 1 1 0 0 1 1 0 0 1 1 0 0 1 1 0 0 1 0 1 0 0 1 0 0 1
37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61	1 0 1 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7 45 30 34 22 36 9 11 32 50 64 19 34 33 8 17 27 34 22 22 62 48 34 39 36	0 0 0 0 0 0 4 4 1 1 0 1 0 0 0 0 0 0 1 1 0 0 0 0	2 0 0 0 0 2 2 2 2 2 0 0 0 0 0 0 0 0 0 0	26 26 106 14 49 71 31 32 6 106 26 26 13 20 36 110 26 7 7 7 26 39 227 79 17	s s c s c s s s s s s c s s c s s c s s c s s c s s c s s c s s c s s c s s c s s c c s s c c s s c c s s s c s s c s s c c s s s c c s s c c s c c s c c s c c s c c c s c c c s c c c s c c c s c c c s c c c s c c c s c c c s c c c c s c c c c c s c	Second First First Third First Third Second First Second Third Second Third Second Third First First First First First First First First First	child man woman man woman child man man woman man man woman man man child man man man woman man man man man man man man man man	0 1 1 1 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 1 1 0 0 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 0 0 0 0 0	1 0 1 0 1 1 0 0 0 1 1 0 0 1 1 0 0 1 1 0 0 1 1 0 0 1 1 0 0 1 1 0 0 1 1 1 0 0 1 1 1 0 0 1
37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 60 61 62	1 0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7 45 30 34 22 36 9 11 32 50 64 19 34 33 8 17 27 34 22 22 62 48 34 39 36 34	0 0 0 0 0 0 4 4 1 1 0 1 0 0 0 0 0 0 1 1 0 0 0 0	2 0 0 0 0 2 2 2 2 2 0 0 0 0 0 0 0 0 0 0	26 26 106 14 49 71 31 31 26 106 26 26 13 20 36 110 26 7 7 7 26 39 227 79 17 7	s s c s c s s s s s c s s c s s c s d c s s c c s s d	Second First First Third First Third Second First Second Second Third Second Third Third Third First First First First First First First First Third	child man woman man woman child man man woman man man man man child man	0 1 1 1 0 0 0 0 0 0 1 0 0 0 0 0 0 0 1	1 0 1 0 1 1 0 0 0 1 1 0 0 1 1 0 0 1 1 0 0 1 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 0 0 0 1 0
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Converting "alone" column:

Transformation on the "alone" column of a dataset. The original column contains numerical values (0 and 1), which likely represent binary indicators (e.g., 0 for "not alone" and 1 for "alone"). The code utilizes the ifelse statement to conditionally assign string labels ("false" and "true") based on the numerical values in the "alone" column. This transformation converts the numerical values into their corresponding string labels. After the transformation is applied, the resulting "alone" column, now consisting of the string labels ("false" and "true"), is printed to the console. This allows for visual inspection and verification of the transformed column.

>	<pre>> xdataset\$alone <- ifelse(xdataset\$alone == 1,"TRUE",</pre>														
+	<pre>ifelse(xdataset\$alone == 0,"FALSE",NA))</pre>														
>															
>	print(xdataset) Gender age sibsp parch fare embarked class who alone survived														
				-				who		survived					
1	0	24	0	0	7	S	Third	mannn	TRUE	0					
2	0	17	0	0	8	S	Third	man	TRUE	0					
3	1	21	0	0	7	Q		womann	TRUE	0					
4	1	34	0	0	7	Q		woman	TRUE	0					
5	1	37	0	0	9	S		womannn	TRUE	0					
6	0	16	0	0	86	S	First	woman	TRUE	1					
7	0	18	1	0	108	C	First	mannn		0					
8	1	33	0	2	26		Second	woman		1					
9	0	34	0	0	26	S	First	man	TRUE	1					
10	0	28	0	0	22	S	Third	man	TRUE	0					
11	0	26	0	0	56	S	Third	man	TRUE	1					
12		29	0	0	7	Q	Third	man	TRUE	1					
13	0	34	0	0	8	S	Third	man	TRUE	0					
14		36	0	0	26	S	Second	man	TRUE	1					
15	1	54	1	0	59	C	First	woman	FALSE	1					
16	0	24	0	0	7	S	Third	man	TRUE	0					
17	0	47	0	0	34	S	First	man	TRUE	0					
18	1	34	0	0	10	S	Second	woman	TRUE	1					
19		34	0	0	24	Q	Third	man	TRUE	0					
20		36	1	0	26	S	Second	woman	FALSE	1					
21		32	0	0	7	S	Third	man	TRUE	0					
22		30	0	0	93	S	First	woman	TRUE	1					
23	0	22	0	0	7	S	Third	man	TRUE	0					
24	0	34	0	0	7	C	Third	man	TRUE	0					
25	1	44	0	1	57	C	First	woman	FALSE	1					
26	0	34	0	0	7	C	Third	man	TRUE	0					
27	0	40	0	0	7	Q	Third	man	TRUE	0					
28	1	50	0	0	10	S	Second	woman	TRUE	1					
29	0	34	0	0	221	S	First	man	TRUE	0					
30	0	39	0	0	7	S	Third	man	TRUE	0					

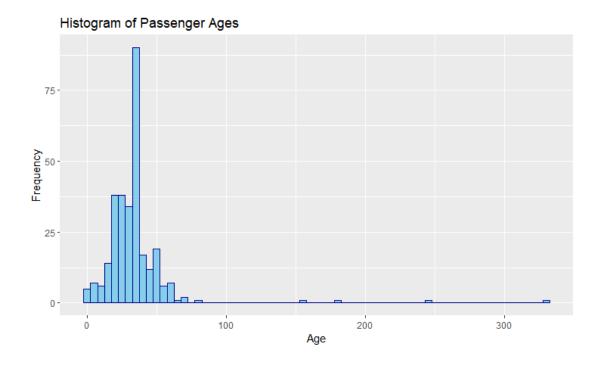
31	0	23	2	1	11	S Sec	cond mai	n FALSE	0
32	0	2	1	1	26	S Sec	cond chil	d FALSE	1
33	0	34	0	0	7	C Th	hird ma	n TRUE	0
34	0	17	1	1	7	C Th	hird ma	n FALSE	0
35	1	34	0	2	22	C Sec	cond woma	n FALSE	1
36	1	30	0	0	8	s Th	hird woma	n TRUE	0
37	1	7	0	2	26			d FALSE	1
38	0	45	0	0	26	S F	irst ma	n TRUE	0
39	1	30	0	0	106	C F	irst woma	n TRUE	1
40	0	34	0	0	14	S Th	hird ma	n TRUE	0
41	1	22	0	2	49	C F	irst woma	n FALSE	1
42	1	36	0	2	71	S F	irst woma	n FALSE	1
43	0	9	4	2	31			d FALSE	0
44	1	11	4	2	31	S Th	hird chil	d FALSE	0
45	0	32	1	0	26	S Sec	cond mai	n FALSE	1
46	0	50	1	0	106	C F	irst ma	n FALSE	0
47	0	64	0	0	26	S F	irst ma		0
48	1	19	1	0	26	S Sec	cond woma	n FALSE	1
49	0	34	0	0	13		cond mai	n TRUE	1
50	0	33	1	1	20			n FALSE	0
51	0	8	1	1	36			d FALSE	1
52	0	17	0	2	110			n FALSE	1
53	0	27	0	0	26		cond mai		0
54	0	34	0	0	7		hird ma		0
55	0	22	0	0	7		hird ma		1
56	1	22	0	0	7		hird woma		1
57	0	62	0	0	26		irst ma		0
58	1	48	1	0	39			n FALSE	1
59	0	34	0	0	227		irst ma		0
60	1	39	1	1	79			n FALSE	1
61	1	36	1	0	17			n FALSE	1
62	0	34	0	0	7	•	hird ma		0
63	0	40	0	0	7		hird ma		0
64	0	28	0	0	13		cond mai		0
65	0	34	0	0	8		hird ma		0
66	1	34	0	0	8		hird woma		0
67	0	24	2	0	24			n FALSE	0
68	0	19	0	0	7		hird ma		0
69	1	29	0	4	21			n FALSE	0
70	0	34	0	0	7	C Th	hird ma	n TRUE	0

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 [ reached 'max' / getOption("max.print") -- omitted 201 rows ]
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Data visualization:

the code checks if the "ggplot2" package is installed. If not, it installs the package using the install packages function. Then, it loads the "ggplot2" library using the library function.

A histogram is created using the ggplot function from the "ggplot2" package. The histogram represents the distribution of passenger ages from the xdataset. The geom_histogram function is used to create the histogram, specifying the binwidth, fill color, and line color. The labs function is used to set the title and labels for the x and y axes. The resulting plot is displayed.



Discussion & conclusion:

The analysis of the titanic passenger dataset involved data preprocessing steps and data visualization. The missing values were handled using mean imputation, ensuring that no missing data hindered subsequent analyses. Additionally, variable transformations were performed to enable more accurate analysis and interpretation. The resulting dataset, along with the generated histogram, provides valuable insights and sets the stage for further exploration and modeling tasks. It is important to note that any future analyses or modeling based on this dataset should consider the preprocessing steps performed here to ensure reliable results.