

Multivariate Analysis for the Behavioral Sciences,
Second Edition (Chapman and Hall/CRC, 2019)

Exercises of Chapter 11:
Missing Values

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Exercises

Exercise 11.1

Use the strings data, modifying the related R code given in the **Examples of Chapter 11**.

```
strings <- read.table("data/strings.txt", header = TRUE)
strings
```

```
##      String Length Graham Brian David
## 1         1      6.3     5.0   4.8   6.0
## 2         2      4.1     3.2   3.1   3.5
## 3         3      5.1      NA   3.8   4.5
## 4         4      5.0     4.5   4.1    NA
## 5         5      5.7      NA    NA   5.0
## 6         6      3.3     2.5   2.8   2.6
## 7         7      1.3     1.7   1.4    NA
## 8         8      5.8     4.8   4.2   5.5
## 9         9      2.8      NA    NA   2.1
## 10        10      6.7     5.2    NA    NA
## 11        11      1.5     1.2   1.1   1.2
## 12        12      2.1     1.8   1.6   1.8
## 13        13      4.6     3.4   4.1   3.8
## 14        14      7.6     6.0   6.3   6.5
## 15        15      2.5      NA   1.6   2.0
```

Exercise 11.2

Continue with the data given in the previous exercise.

Exercise 11.3

Use the implants data, modifying the related R code given in the **Examples of Chapter 11** to analyse the data.

```
implants <- read.table("data/implants.txt", header = TRUE)
implants
```

##	Group	ID	month1	month9	month18	month30
## 1	1	1	28.57	53.00	57.83	59.22
## 2	1	2	NA	13.00	21.00	26.50
## 3	1	3	60.37	86.41	NA	NA
## 4	1	4	33.87	55.50	61.06	NA
## 5	1	5	1.61	0.69	NA	NA
## 6	1	6	26.04	61.98	67.28	NA
## 7	1	7	NA	59.00	66.80	83.20
## 8	1	8	11.29	38.02	NA	NA
## 9	1	9	0.00	0.00	0.00	2.76
## 10	1	10	NA	35.10	37.79	54.80
## 11	1	11	16.00	33.00	45.39	40.09
## 12	1	12	40.55	50.69	41.70	52.07
## 13	1	13	3.90	11.06	4.15	14.90
## 14	1	14	1.80	2.30	2.53	2.53
## 15	1	15	0.00	17.74	44.70	48.85
## 16	1	16	64.75	84.50	92.40	NA
## 17	1	17	38.25	81.57	89.63	NA
## 18	1	18	67.50	91.47	92.86	NA
## 19	1	19	45.62	58.00	NA	NA
## 20	1	20	0.00	0.00	37.00	NA
## 21	1	21	51.15	66.13	NA	NA
## 22	1	22	0.00	48.16	NA	NA
## 23	1	23	0.00	0.92	NA	NA
## 24	2	1	NA	0.00	0.90	1.61
## 25	2	2	0.00	0.00	0.00	NA
## 26	2	3	0.00	0.00	NA	NA
## 27	2	4	8.76	24.42	NA	NA
## 28	2	5	0.00	20.79	27.42	31.80
## 29	2	6	2.30	12.67	28.80	24.42
## 30	2	7	12.90	28.34	NA	NA
## 31	2	8	NA	45.50	43.32	36.80
## 32	2	9	68.00	96.08	97.47	99.00
## 33	2	10	20.28	41.01	51.15	61.98
## 34	2	11	65.90	81.30	71.20	70.00
## 35	2	12	0.00	8.76	16.59	14.75
## 36	2	13	0.00	0.00	0.00	0.00
## 37	2	14	9.22	14.98	9.86	NA
## 38	2	15	11.29	44.47	62.90	68.20
## 39	2	16	30.88	29.72	NA	NA
## 40	2	17	29.72	41.40	64.00	NA
## 41	2	18	0.00	43.55	48.16	NA
## 42	2	19	0.00	0.00	NA	NA
## 43	2	20	8.76	60.00	NA	NA