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1
2
3 > #Lab2
4 > #Submitted by Linet M Shaji(P191314)
5 >
6 > #Factors
7 >
8 > # Create a vector as input.
9 > data <-
  c("Data","Science","Machine","learning","Deep","Learning","Artifical","Intelligence")
10 > print(data)
11 [1] "Data"          "Science"       "Machine"       "learning"      "Deep"
    "Learning"     "Artifical"    "Intelligence"
12 > print(is.factor(data))
13 [1] FALSE
14 > # Apply the factor function.
15 > factor_data <- factor(data)
16 > print(factor_data)
17 [1] Data          Science        Machine        learning       Deep           Learning
    Artifical     Intelligence
18 Levels: Artifical Data Deep Intelligence learning Learning Machine Science
19 > #To check whether data type is factor or not
20 > print(is.factor(factor_data))
21 [1] TRUE
22 > #To access elements,It will print 3rd element
23 > print(factor_data[3])
24 [1] Machine
25 Levels: Artifical Data Deep Intelligence learning Learning Machine Science
26 > #To access elements,It will print elements except 3rd element
27 > print(factor_data[-3])
28 [1] Data          Science        learning       Deep           Learning       Artifical
    Intelligence
29 Levels: Artifical Data Deep Intelligence learning Learning Machine Science
30 > #To add new level
31 > levels(factor_data) <- c(levels(factor_data), "Analystics")
32 > print(factor_data)
33 [1] Data          Science        Machine        learning       Deep           Learning
    Artifical     Intelligence
34 Levels: Artifical Data Deep Intelligence learning Learning Machine Science Analystics
35 >
36 > #list
37 > list_data <-
  list("Data","Science","Machine","learning","Deep","Learning","Artifical","Intelligence")
38 > print(list_data)
39 [[1]]
40 [1] "Data"
41
42 [[2]]
43 [1] "Science"
44
45 [[3]]
46 [1] "Machine"
47
48 [[4]]
49 [1] "learning"
50
51 [[5]]
52 [1] "Deep"
53
54 [[6]]
55 [1] "Learning"
56
57 [[7]]
58 [1] "Artifical"
59
60 [[8]]
61 [1] "Intelligence"
62
63 > #To access first element

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64 > print(list_data[1])
65 [[1]]
66 [1] "Data"
67
68 > #To modify 2nd element
69 > list_data[2] <- "Analystics"
70 > print(list_data)
71 [[1]]
72 [1] "Data"
73
74 [[2]]
75 [1] "Analystics"
76
77 [[3]]
78 [1] "Machine"
79
80 [[4]]
81 [1] "learning"
82
83 [[5]]
84 [1] "Deep"
85
86 [[6]]
87 [1] "Learning"
88
89 [[7]]
90 [1] "Artifical"
91
92 [[8]]
93 [1] "Intelligence"
94
95 > #To remove 4th Element
96 > list_data[4] <- NULL
97 > print(list_data)
98 [[1]]
99 [1] "Data"
100
101 [[2]]
102 [1] "Analystics"
103
104 [[3]]
105 [1] "Machine"
106
107 [[4]]
108 [1] "Deep"
109
110 [[5]]
111 [1] "Learning"
112
113 [[6]]
114 [1] "Artifical"
115
116 [[7]]
117 [1] "Intelligence"
118
119 > #To create list with mixed data types
120 > mixed_list <-list(a=1,b="two",c=FALSE)
121 > #To data types of list elements
122 > print(str(mixed_list))
123 List of 3
124 $ a: num 1
125 $ b: chr "two"
126 $ c: logi FALSE
127 NULL
128 > list_one <-list(5,6,7,8)
129 > print(list_one)
130 [[1]]
131 [1] 5
132

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133  [[2]]
134  [1] 6
135
136  [[3]]
137  [1] 7
138
139  [[4]]
140  [1] 8
141
142  > list_two <- list(1,2,3,4)
143  > print(list_two)
144  [[1]]
145  [1] 1
146
147  [[2]]
148  [1] 2
149
150  [[3]]
151  [1] 3
152
153  [[4]]
154  [1] 4
155
156  > #To merge two list
157  > merged.list <- c(list_one,list_two)
158  > print(merged.list)
159  [[1]]
160  [1] 5
161
162  [[2]]
163  [1] 6
164
165  [[3]]
166  [1] 7
167
168  [[4]]
169  [1] 8
170
171  [[5]]
172  [1] 1
173
174  [[6]]
175  [1] 2
176
177  [[7]]
178  [1] 3
179
180  [[8]]
181  [1] 4
182
183  > #To covert list to vector
184  > vector_data <- unlist(merged.list)
185  > print(vector_data)
186  [1] 5 6 7 8 1 2 3 4
187  >
188  > #Data Frame
189  >
190  > # Create the data frame.
191  > emp.data <- data.frame(
192  +   emp_id = c(1:6),
193  +   emp_name = c("Aleena","Beula","Jesse","Kamil","Linnet","Mounika"),
194  +   salary = c(623.3,515.2,611.0,729.0,843.25,1200),
195  +   start_date = as.Date(c("2020-01-01", "2020-09-23", "2020-11-15",
196  + "2020-05-11","2020-03-27","2020-04-12")),stringsAsFactors = FALSE)
197  > # Print the data frame.
198  > print(emp.data)
199  emp_id emp_name salary start_date
200  1      1 Aleena 623.30 2020-01-01
201  2      2 Beula 515.20 2020-09-23

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201 3      3      Jesse  611.00 2020-11-15
202 4      4      Kamil  729.00 2020-05-11
203 5      5      Linet  843.25 2020-03-27
204 6      6      Mounika 1200.00 2020-04-12
205 > print(str(emp.data))
206 'data.frame': 6 obs. of 4 variables:
207 $ emp_id : int 1 2 3 4 5 6
208 $ emp_name : chr "Aleena" "Beula" "Jesse" "Kamil" ...
209 $ salary : num 623 515 611 729 843 ...
210 $ start_date: Date, format: "2020-01-01" "2020-09-23" "2020-11-15" "2020-05-11" ...
211 NULL
212 > #To print Summary
213 > print(summary(emp.data))
214      emp_id      emp_name      salary      start_date
215 Min. :1.00 Length:6 Min. : 515.2 Min. :2020-01-01
216 1st Qu.:2.25 Class :character 1st Qu.: 614.1 1st Qu.:2020-03-31
217 Median :3.50 Mode :character Median : 676.1 Median :2020-04-26
218 Mean :3.50 Mean : 753.6 Mean :2020-05-30
219 3rd Qu.:4.75 3rd Qu.: 814.7 3rd Qu.:2020-08-20
220 Max. :6.00 Max. :1200.0 Max. :2020-11-15
221 > #TO extract columns emp_name and salary only
222 > result <- data.frame(emp.data$emp_name,emp.data$salary)
223 > print(result)
224 emp.data.emp_name emp.data.salary
225 1 Aleena 623.30
226 2 Beula 515.20
227 3 Jesse 611.00
228 4 Kamil 729.00
229 5 Linet 843.25
230 6 Mounika 1200.00
231 > # Extract first two rows.
232 > result <- emp.data[1:2,]
233 > print(result)
234 emp_id emp_name salary start_date
235 1 Aleena 623.3 2020-01-01
236 2 Beula 515.2 2020-09-23
237 > # Extract first two columns.
238 > result <- emp.data[1:2]
239 > print(result)
240 emp_id emp_name
241 1 Aleena
242 2 Beula
243 3 Jesse
244 4 Kamil
245 5 Linet
246 6 Mounika
247 > # Add the dept column.
248 > emp.data$dept <- c("IT","Operations","IT","HR","Finance","Accounting")
249 > print(emp.data)
250 emp_id emp_name salary start_date dept
251 1 Aleena 623.30 2020-01-01 IT
252 2 Beula 515.20 2020-09-23 Operations
253 3 Jesse 611.00 2020-11-15 IT
254 4 Kamil 729.00 2020-05-11 HR
255 5 Linet 843.25 2020-03-27 Finance
256 6 Mounika 1200.00 2020-04-12 Accounting
257 > # Create the second data frame
258 > emp.newdata <- data.frame(
259 + emp_id = c(7:8),
260 + emp_name = c("Dayanand","Vessesh"),
261 + salary = c(722.5,632.8),
262 + start_date = as.Date(c("2020-07-30","2020-06-17")),
263 + dept = c("Operations","Fianance"),
264 + stringsAsFactors = FALSE)
265 > # Bind the two data frames.
266 > emp.finaldata <- rbind(emp.data,emp.newdata)
267 > print(emp.finaldata)
268 emp_id emp_name salary start_date dept
269 1 Aleena 623.30 2020-01-01 IT

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270	2	2	Beula	515.20	2020-09-23	Operations
271	3	3	Jesse	611.00	2020-11-15	IT
272	4	4	Kamil	729.00	2020-05-11	HR
273	5	5	Linnet	843.25	2020-03-27	Finance
274	6	6	Mounika	1200.00	2020-04-12	Accounting
275	7	7	Dayanand	722.50	2020-07-30	Operations
276	8	8	Vessesh	632.80	2020-06-17	Fianance