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> #Lab2
> #Submitted by Linet M Shaji(P191314)
>
> #Factors
>
> # Create a vector as input.
> data <-
c("Data","Science","Machine","learning","Deep","Learning","Artifical","Intelligence")
> print(data)
[1] "Data"         "Science"      "Machine"      "learning"     "Deep"
"Learning"     "Artifical"    "Intelligence"
> print(is.factor(data))
[1] FALSE
> # Apply the factor function.
> factor_data <- factor(data)
> print(factor_data)
[1] Data         Science      Machine      learning     Deep         Learning
Artifical    Intelligence
Levels: Artifical Data Deep Intelligence learning Learning Machine Science
> #To check whether data type is factor or not
> print(is.factor(factor_data))
[1] TRUE
> #To access elements,It will print 3rd element
> print(factor_data[3])
[1] Machine
Levels: Artifical Data Deep Intelligence learning Learning Machine Science
> #To access elements,It will print elements except 3rd element
> print(factor_data[-3])
[1] Data         Science      learning     Deep         Learning     Artifical
Intelligence
Levels: Artifical Data Deep Intelligence learning Learning Machine Science
> #To add new level
> levels(factor_data) <- c(levels(factor_data), "Analystics")
> print(factor_data)
[1] Data         Science      Machine      learning     Deep         Learning
Artifical    Intelligence
Levels: Artifical Data Deep Intelligence learning Learning Machine Science Analystics
>
> #list
> list_data <-
list("Data","Science","Machine","learning","Deep","Learning","Artifical","Intelligence")
> print(list_data)
[[1]]
[1] "Data"

[[2]]
[1] "Science"

[[3]]
[1] "Machine"

[[4]]
[1] "learning"

[[5]]
[1] "Deep"

[[6]]
[1] "Learning"

[[7]]
[1] "Artifical"

[[8]]
[1] "Intelligence"

> #To access first element
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> print(list_data[1])
[[1]]
[1] "Data"

> #To modify 2nd element
> list_data[2] <- "Analystics"
> print(list_data)
[[1]]
[1] "Data"

[[2]]
[1] "Analystics"

[[3]]
[1] "Machine"

[[4]]
[1] "learning"

[[5]]
[1] "Deep"

[[6]]
[1] "Learning"

[[7]]
[1] "Artifical"

[[8]]
[1] "Intelligence"

> #To remove 4th Element
> list_data[4] <- NULL
> print(list_data)
[[1]]
[1] "Data"

[[2]]
[1] "Analystics"

[[3]]
[1] "Machine"

[[4]]
[1] "Deep"

[[5]]
[1] "Learning"

[[6]]
[1] "Artifical"

[[7]]
[1] "Intelligence"

> #To create list with mixed data types
> mixed_list <-list(a=1,b="two",c=FALSE)
> #To data types of list elements
> print(str(mixed_list))
List of 3
 $ a: num 1
 $ b: chr "two"
 $ c: logi FALSE
NULL
> list_one <-list(5,6,7,8)
> print(list_one)
[[1]]
[1] 5
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[[2]]
[1] 6

[[3]]
[1] 7

[[4]]
[1] 8

> list_two <- list(1,2,3,4)
> print(list_two)
[[1]]
[1] 1

[[2]]
[1] 2

[[3]]
[1] 3

[[4]]
[1] 4

> #To merge two list
> merged.list <- c(list_one,list_two)
> print(merged.list)
[[1]]
[1] 5

[[2]]
[1] 6

[[3]]
[1] 7

[[4]]
[1] 8

[[5]]
[1] 1

[[6]]
[1] 2

[[7]]
[1] 3

[[8]]
[1] 4

> #To covert list to vector
> vector_data <- unlist(merged.list)
> print(vector_data)
[1] 5 6 7 8 1 2 3 4
>
> #Data Frame
>
> # Create the data frame.
> emp.data <- data.frame(
+   emp_id = c (1:6),
+   emp_name = c("Aleena","Beula","Jesse","Kamil","Linet","Mounika"),
+   salary = c(623.3,515.2,611.0,729.0,843.25,1200),
+   start_date = as.Date(c("2020-01-01", "2020-09-23", "2020-11-15",
"2020-05-11","2020-03-27","2020-04-12")),stringsAsFactors = FALSE)
> # Print the data frame.
> print(emp.data)
  emp_id emp_name  salary start_date
1      1   Aleena  623.30 2020-01-01
2      2    Beula  515.20 2020-09-23
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3      3    Jesse  611.00 2020-11-15
4      4    Kamil  729.00 2020-05-11
5      5    Linet  843.25 2020-03-27
6      6  Mounika 1200.00 2020-04-12
> print(str(emp.data))
'data.frame':   6 obs. of  4 variables:
 $ emp_id    : int  1 2 3 4 5 6
 $ emp_name  : chr  "Aleena" "Beula" "Jesse" "Kamil" ...
 $ salary    : num  623 515 611 729 843 ...
 $ start_date: Date, format: "2020-01-01" "2020-09-23" "2020-11-15" "2020-05-11" ...
NULL
> #To print Summary
> print(summary(emp.data))
     emp_id       emp_name            salary         start_date
 Min.   :1.00   Length:6           Min.   : 515.2   Min.   :2020-01-01
 1st Qu.:2.25   Class :character   1st Qu.: 614.1   1st Qu.:2020-03-31
 Median :3.50   Mode  :character   Median : 676.1   Median :2020-04-26
 Mean   :3.50                      Mean   : 753.6   Mean   :2020-05-30
 3rd Qu.:4.75                      3rd Qu.: 814.7   3rd Qu.:2020-08-20
 Max.   :6.00                      Max.   :1200.0   Max.   :2020-11-15
> #TO extract columns emp_name and salary only
> result <- data.frame(emp.data$emp_name,emp.data$salary)
> print(result)
  emp.data.emp_name emp.data.salary
1            Aleena          623.30
2             Beula          515.20
3             Jesse          611.00
4             Kamil          729.00
5             Linet          843.25
6           Mounika         1200.00
> # Extract first two rows.
> result <- emp.data[1:2,]
> print(result)
  emp_id emp_name salary start_date
1      1   Aleena  623.3 2020-01-01
2      2    Beula  515.2 2020-09-23
> # Extract first two columns.
> result <- emp.data[1:2]
> print(result)
  emp_id emp_name
1      1   Aleena
2      2    Beula
3      3    Jesse
4      4    Kamil
5      5    Linet
6      6  Mounika
> # Add the dep coulmn.
> emp.data$dept <- c("IT","Operations","IT","HR","Finance","Accounting")
> print(emp.data)
  emp_id emp_name  salary start_date       dept
1      1   Aleena  623.30 2020-01-01         IT
2      2    Beula  515.20 2020-09-23 Operations
3      3    Jesse  611.00 2020-11-15         IT
4      4    Kamil  729.00 2020-05-11         HR
5      5    Linet  843.25 2020-03-27    Finance
6      6  Mounika 1200.00 2020-04-12 Accounting
> # Create the second data frame
> emp.newdata <-    data.frame(
+   emp_id = c (7:8),
+   emp_name = c("Dayanand","Vessesh"),
+   salary = c(722.5,632.8),
+   start_date = as.Date(c("2020-07-30","2020-06-17")),
+   dept = c("Operations","Fianance"),
+   stringsAsFactors = FALSE)
> # Bind the two data frames.
> emp.finaldata <- rbind(emp.data,emp.newdata)
> print(emp.finaldata)
  emp_id emp_name  salary start_date       dept
1      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	Linet	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