SIDDHI SINGH

17BIT0028

EXP - 1
17BIT0028
SIDDHI SINGH
(A)
18/11/12/12

classmate
Date ____
Page ____

LAB - ②

* Whatever data we have, it should be collected & projected in the correct way.

* We should maintain a database for our data.

DATA FRAME :- A data frame is used for storing data tables. It is a list of vectors of equal length.

Command :-
data.frame(a, b, c, d)

* patientdata [1: 2]
will display only two columns for each data.

* patientdata $age
$ represents age variable in the patient data frame.

* patientdata [c ("diabetes", "status")]
⇓
(combine data)

R LIST DATA TYPE
R list data type refers to an object consisting of an ordered collection of elements. The elements may be of different mode or type.

* The elements of list data type are indexed by numbers.
G: x[[1]]
will display all the values stored in first column.

* The elements of list can also be accessed by their names.

Eg:

>> x $ subtype
>> x [[" subtype"]]

* The statement length() calculate the total element number of a list.

* function c() can be used for concatenating two or more lists.

⇒ list to data frame : as.data.frame()
⇒ list to matrix : as. matrix()

R MERGE FUNCTION

merge (arg 1, arg 2 ----) (----) function merges two data frames by common columns.

COMPUTATION OF TABLES AND GRAPHS -

AIM: To represent the various types of data using tabulation and graphical representation

Creating Vector

```
> empid = c(1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15)
> age = c(30, 37, 45, 32, 50, 60, 35, 32, 34, 43, 32, 3
        43, 50, 60)
> sex = c(0, 1, 0, 1, 1, 1, 0, 0, 1, 0, 0, 1, 1, 0, 0)
> status = c(1, 1, 2, 2, 1, 1, 1, 2, 2, 1, 2, 1, 2, 1, 2)
```

Creating a data frame (combining vectors)

```
>> empinfo = data.frame(empid, age, sex, status)
>> empinfo$sex = factor(empinfo$sex, labels = c("male",
                                            "female"))
>> empinfo$status = factor(empinfo$status, labels = c("staff",
                              "faculty"));
>> sexm = subset(empinfo, empinfo$sex == 'male')
>> sexf = subset(empinfo, empinfo$sex == 'female')

> summary(empinfo)

> summary(sexf)

> summary(sexm)

> summary(empinfo$age)
```

Creating one-way table

(1.) For sex

```
> table1 = table (empinfo$sex)
> table1
```

male	female
8	7

(2.) For status

```
> table2 = table (empinfo$status)
> table2
```

staff	faculty
8	7

Creating two-way table

```
> table3 = table (empinfo$sex, empinfo$status)
> table3
```

	staff	faculty
male	4	4
female	4	3

GRAPHICAL REPRESENTATION IN R

```
> plot (empinfo$age, type = "l", main = "age of subject",
  xlab = "empid", ylab = "age in years", col = "blue")
```

Pie chart

```
> table4 <- table (empinfo$sex)
> pie (table4)
```

```
> #17BIT1028
> #SIDDHI SINGH
> #EXPERIMENT 2
>
> empid=c(1,2,3,4,5,6,7,8,9,10,11,12,13,14,15)
> empid
 [1]  1  2  3  4  5  6  7  8  9 10 11 12 13 14 15
> age=c(30,37,45,32,50,60,35,32,34,43,32,30,43,50,60)
> age
 [1] 30 37 45 32 50 60 35 32 34 43 32 30 43 50 60
> sex=c(0,1,0,1,1,1,0,0,1,0,0,1,1,0,0)
> sex
 [1] 0 1 0 1 1 1 0 0 1 0 0 1 1 0 0
> status=c(1,1,2,2,1,1,1,2,2,1,2,1,2,1,2)
> status
 [1] 1 1 2 2 1 1 1 2 2 1 2 1 2 1 2
> empinfo=data.frame(empid,age,sex,status)
> empinfp
Error: object 'empinfp' not found
> empinfo
   empid age sex status
1      1  30   0      1
2      2  37   1      1
3      3  45   0      2
4      4  32   1      2
5      5  50   1      1
6      6  60   1      1
7      7  35   0      1
8      8  32   0      2
9      9  34   1      2
10    10  43   0      1
11    11  32   0      2
12    12  30   1      1
13    13  43   1      2
14    14  50   0      1
15    15  60   0      2
> empinfo$sex=factor(empinfo$sex,labels=c("male","female"))
> empinfo$status=factor(empinfo$status,labels=c("staff","faculty"))
```

```
> empinfo$sex=factor(empinfo$sex,labels=c("male","female"))
> empinfo$status=factor(empinfo$status,labels=c("staff","faculty"))
> empinfo
   empid age    sex  status
1      1  30   male   staff
2      2  37 female   staff
3      3  45   male faculty
4      4  32 female faculty
5      5  50 female   staff
6      6  60 female   staff
7      7  35   male   staff
8      8  32   male faculty
9      9  34 female faculty
10    10  45   male   staff
11    11  32   male faculty
12    12  30 female   staff
13    13  45 female faculty
14    14  50   male   staff
15    15  40   male faculty
> sexm=subset(empinfo,empinfo$sex=='male')
> sexm
   empid age  sex  status
1      1  30 male   staff
3      3  45 male faculty
7      7  35 male   staff
8      8  32 male faculty
10    10  45 male   staff
11    11  32 male faculty
14    14  50 male   staff
15    15  40 male faculty
> sexf=subset(empinfo,empinfo$sex=='female')
> sexf
   empid age    sex  status
2      2  37 female   staff
4      4  32 female faculty
5      5  50 female   staff
6      6  60 female   staff
9      9  34 female faculty
```

```
> sexf=subset(empinfo,empinfo$sex=='female')
> sexf
   empid age    sex  status
2      2  37 female   staff
4      4  32 female faculty
5      5  50 female   staff
6      6  60 female   staff
9      9  34 female faculty
12    12  30 female   staff
13    13  45 female faculty
> summary(empinfo)
     empid          age            sex         status
 Min.   : 1.0   Min.   :30.00   male  :8   staff  :8
 1st Qu.: 4.5   1st Qu.:32.00   female:7   faculty:7
 Median : 8.0   Median :37.00
 Mean   : 8.0   Mean   :43.87
 3rd Qu.:11.5   3rd Qu.:47.50
 Max.   :15.0   Max.   :60.00
> summary(sexf)
     empid           age            sex         status
 Min.   : 2.000   Min.   :30.00   male  :0   staff  :4
 1st Qu.: 4.500   1st Qu.:33.00   female:7   faculty:3
 Median : 6.000   Median :37.00
 Mean   : 7.286   Mean   :40.86
 3rd Qu.:10.500   3rd Qu.:46.50
 Max.   :13.000   Max.   :60.00
> summary(sexm)
     empid           age            sex          status
 Min.   : 1.000   Min.   :30.00   male  :8   staff  :4
 1st Qu.: 6.000   1st Qu.:32.00   female:0   faculty:4
 Median : 9.000   Median :39.00
 Mean   : 8.625   Mean   :40.88
 3rd Qu.:11.750   3rd Qu.:46.25
 Max.   :15.000   Max.   :50.00
> summary(empinfo$age)
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
  30.00   32.00   37.00   43.87   47.50   60.00
> table1=table(empinfo$sex)
```

Screenshot 1 — R Console:

```
 Median : 9.500   Median :39.00
 Mean  : 8.625   Mean  :40.85
 3rd Qu.:11.750  3rd Qu.:46.25
 Max.  :15.000   Max.  :60.00
> summary(empinfo$age)
   Min. 1st Qu. Median   Mean 3rd Qu.   Max.
  30.00   32.00  37.00  40.87  47.50  60.00
> table1=table(empinfo$sex)
> table1

  male female
     8      7
> table2=table(empinfo$status)
> table2

  staff faculty
     8      7
> table3=table(empinfo$sex,empinfo$status)
> table3

         staff faculty
  male      4      4
  female    4      3
>
> #GRAPHICAL REPRESENTATION
>
> plot(empinfo$age,type="I",main="age of subjects",xlab="empid",ylab="age in ye$
Error in plot.xy(xy, type, ...) : invalid plot type "I"
> plot(empinfo$age,type="l",main="age of subjects",xlab="empid",ylab="age in ye$
Warning messages:
1: unable to open printer
2: opening device failed
> plot(empinfo$age,type="l",main="age of subjects",xlab="empid",ylab="age in ye$
>|
```

R Graphics Device 2 (ACTIVE) — line plot titled "age of subjects", x-axis "empid", y-axis "age in years".

Screenshot 2 — R Console:

```
   Min. 1st Qu. Median   Mean 3rd Qu.   Max.
  30.00   32.00  37.00  40.87  47.50  60.00
> table1=table(empinfo$sex)
> table1

  male female
     8      7
> table2=table(empinfo$status)
> table2

  staff faculty
     8      7
> table3=table(empinfo$sex,empinfo$status)
> table3

         staff faculty
  male      4      4
  female    4      3
>
> #GRAPHICAL REPRESENTATION
>
> plot(empinfo$age,type="I",main="age of subjects",xlab="empid",ylab="age in ye$
Error in plot.xy(xy, type, ...) : invalid plot type "I"
> plot(empinfo$age,type="l",main="age of subjects",xlab="empid",ylab="age in ye$
Warning messages:
1: unable to open printer
2: opening device failed
> plot(empinfo$age,type="l",main="age of subjects",xlab="empid",ylab="age in ye$
>
> #PIE CHART
>
> table4<-table(empinfo$sex)
> pie(table4)
>|
```

R Graphics Device 2 (ACTIVE) — pie chart with slices labelled "male" and "female".