Foundations of R Software

Lecture 50

Graphics

:::

Sub-Divided Bar Plots and Pie Diagram

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Subdivided or component bar diagram

Subdivided or component bar diagram divides the total magnitude of variables into various parts.

Subdivided or component bar diagram

Example

The data on the number of customers visiting 3 shops during 10-11 AM on 4 consecutive days is as follows:

No. of customers	Shop 1	Shop 2	Shop 3
Day 1	2	20	30
Day 2	26	53	40
Day 3	42	15	25
Day 4	30	75	100

```
cust = matrix(nrow=4, ncol=3, data =c(2,20,
30,26,53,40,42,15,25,30,75,100), byrow = T)

> cust
     [,1] [,2] [,3]
[1,]    2   20   30
[2,]   26   53   40
[3,]   42   15   25
[4,]   30   75  100
```

Subdivided or component bar diagram

Usage

```
barplot(variable in matrix format)
```

will create a subdivided or component bar diagram with columns of matrix as bars.

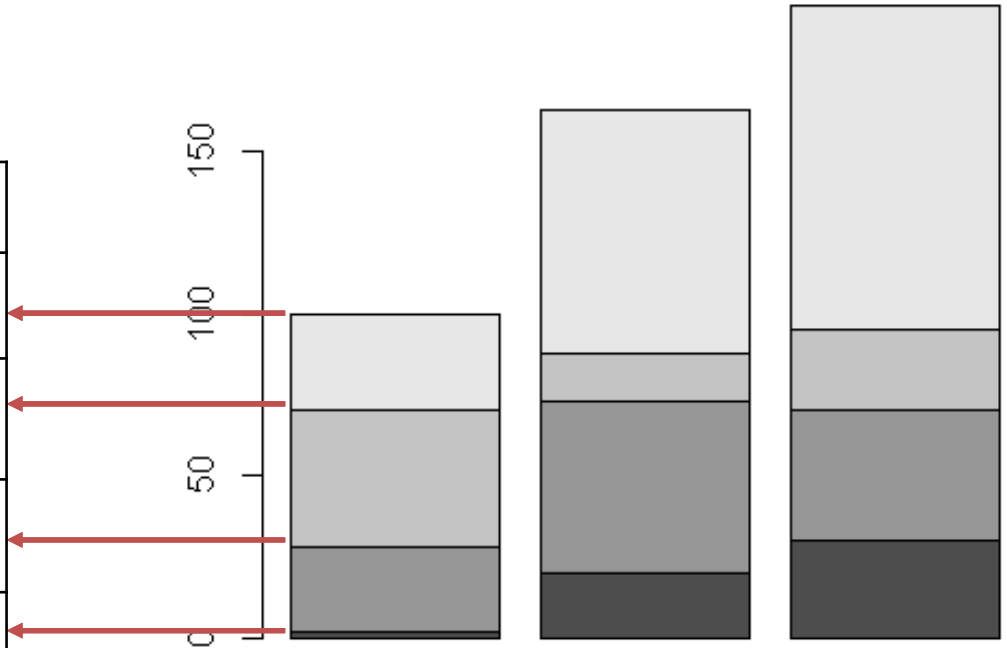
Sections inside bars indicate the values in cumulative form.

Subdivided or component bar diagram

```
> barplot(cust)
```

No. of customers	Shop 1	Shop 2	Shop 3
Day 1	2	20	30
Day 2	26	53	40
Day 3	42	15	25
Day 4	30	75	100

Shop 1
2+26+42+30 = 100
2+26+42 = 70
2+26 = 28
2

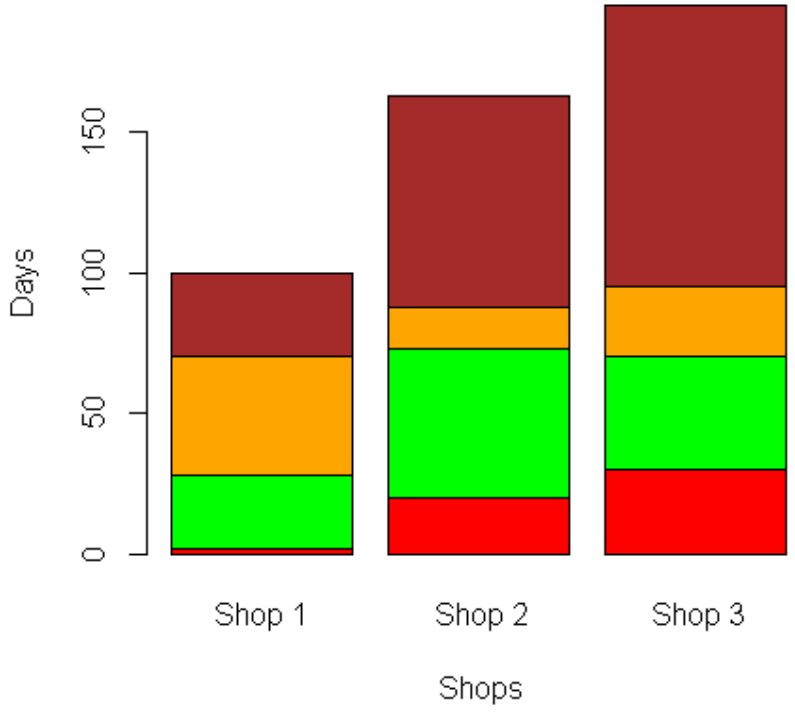


Subdivided or component bar diagram

Adding labels and colours

```
> barplot(cust, names.arg=c("Shop 1", " Shop 2", " Shop 3"), xlab = " Shops", ylab = "Days", col= c("red","green","orange","brown"))
```

No. of customers	Shop 1	Shop 2	Shop 3
Day 1	2	20	30
Day 2	26	53	40
Day 3	42	15	25
Day 4	30	75	100



Pie diagram:

Pie charts visualize the absolute and relative frequencies.

A pie chart is a circle partitioned into segments where each of the segments represents a category.

The size of each segment depends upon the relative frequency and is determined by the angle (frequency X 360^0).

```
pie(x, labels = names(x), …)
```

Pie diagram:

Example:

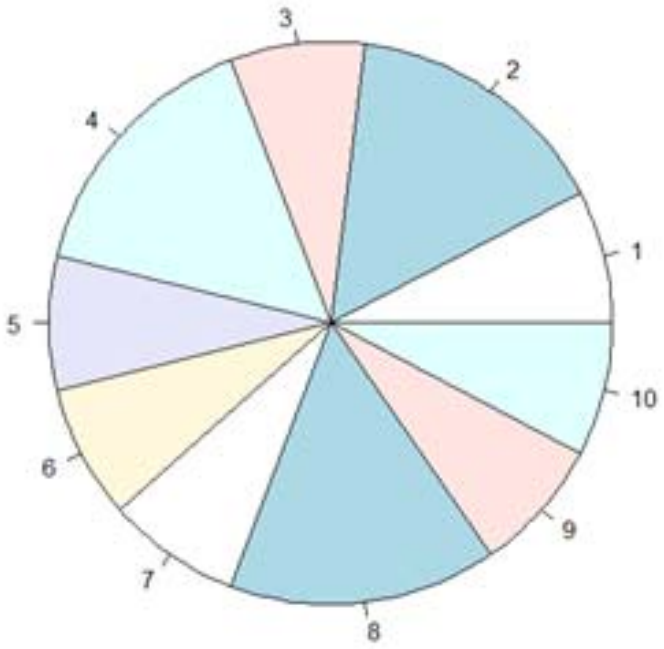
Code the 10 persons by using, say 1 for male (M) and 2 for female (F).

M,	F,	M,	F,	M,	M,	M,	F,	M,	M
1,	2,	1,	2,	1,	1,	1,	2,	1,	1

```
> gender = c(1, 2, 1, 2, 1, 1, 1, 2, 1, 1)

> gender
 [1] 1 2 1 2 1 1 1 2 1 1

> pie(gender)
```

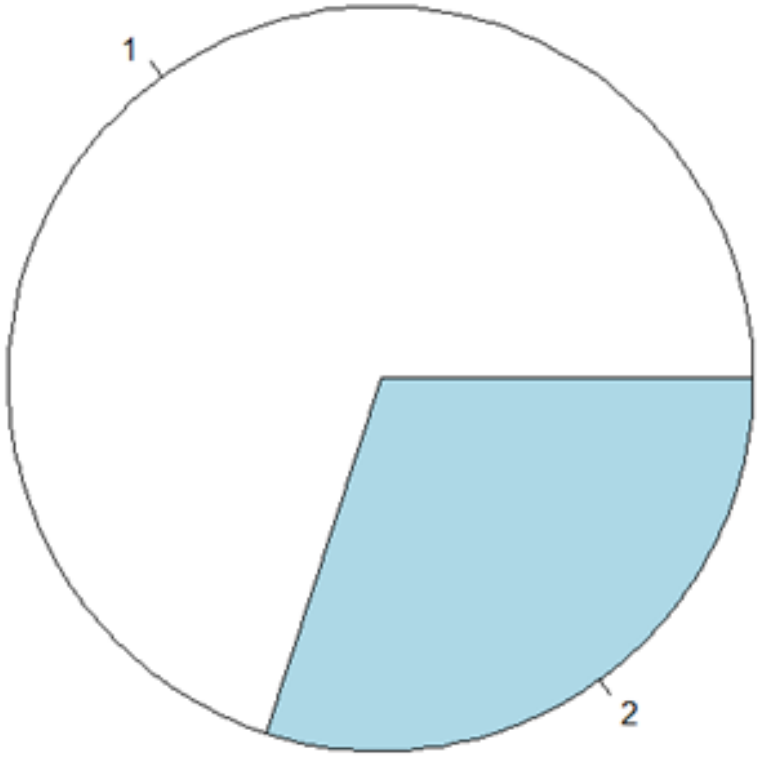


Do you want this?

Pie diagram:

Example

```
pie(table(gender))
```



Pie diagram:

Example:

Consider the following data on pizza home delivery.

- **There are three branches (East - coded as 1, West - coded as 2, Central - coded as 3) of the restaurant.**

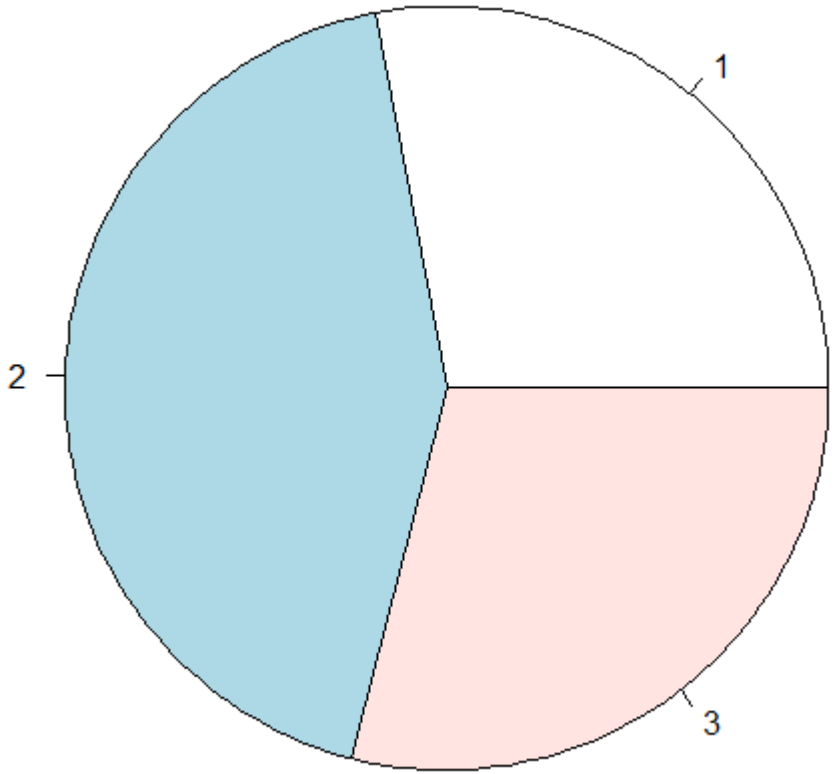
The 100 values from code Directions are as follows:

```
direction =
c(1,1,2,1,2,3,2,2,3,3,3,1,2,3,2,2,3,1,1,3,3,1,2
,1,3,3,3,2,2,2,2,1,2,2,1,1,1,3,2,2,1,2,3,2,2,1,
2,3,3,2,1,2,2,3,1,1,2,1,2,3,2,3,2,2,3,1,2,3,3,3
,2,1,1,1,2,1,1,2,1,2,3,3,1,2,3,3,2,1,2,3,2,1,3,
2,2,2,2,3,2,2)
```

Pie diagram:

Example

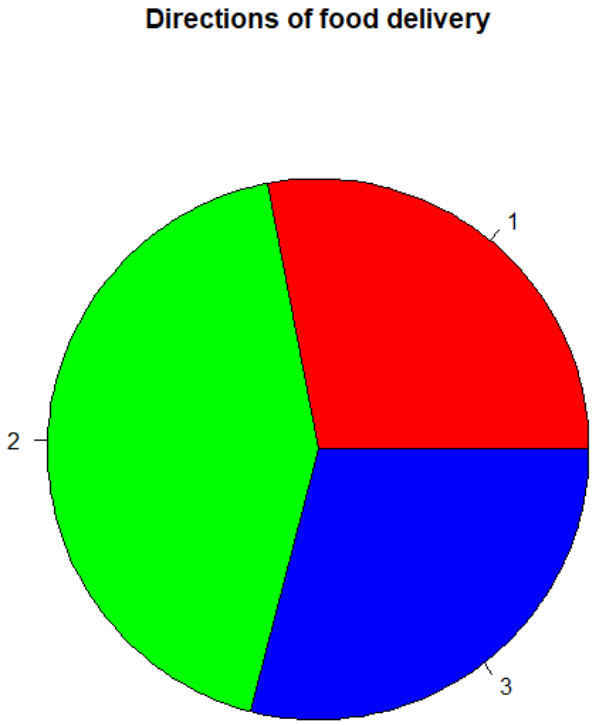
```
pie(table(direction))
```



Pie diagram:

Example: Adding colours and main title

```
pie(table(direction), col=c("red", "green",
"blue"), main="Directions of food delivery")
```



Combining graphics:

Use command `par()` to put multiple graphs in a single plot.

Adjust the graphical parameters with the help of function.

```
par(mfrow=c(p,q))
```
 # set the plotting area into a p*q array

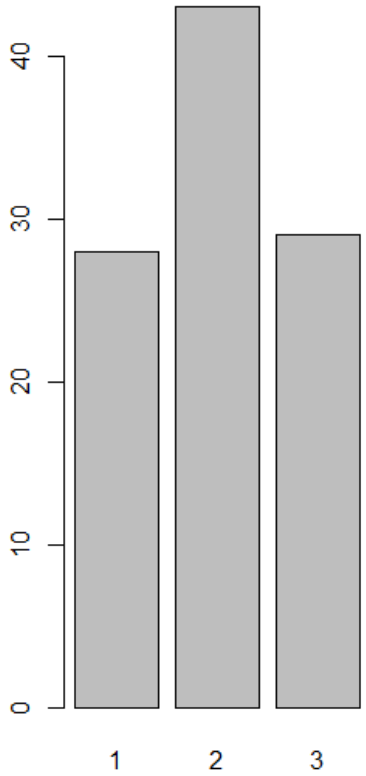
```
direction = c(1,1,2,1,2,3,2,2,3,3,3,1,2,3,2,2,3,1,1,3,3,1,2,
1,3,3,3,2,2,2,2,1,2,2,1,1,1,3,2,2,1,2,3,2,2,1,2,3,3,2,1,2,2,3
,1,1,2,1,2,3,2,3,2,2,3,1,2,3,3,3,2,1,1,1,2,1,1,2,1,2,3,3,1,2,
3,3,2,1,2,3,2,1,3,2,2,2,2,3,2,2)
```

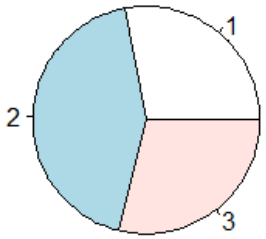
```
par(mfrow=c(1,2))
```
 # set the plotting area into a 1*2 array

```
barplot(table(direction))
```

```
pie(table(direction))
```

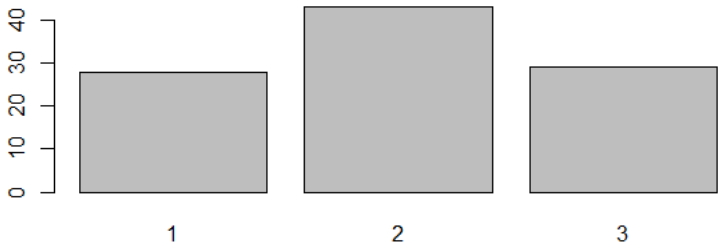
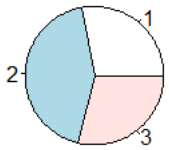
Combining graphics:





Combining graphics:

```
par(mfrow=c(2,1))
```
 # set the plotting area into a 2*1 array

```
barplot(table(direction))
```

```
pie(table(direction))
```