



# LIST

# List

- A list can contain any object like vector, matrix, array, function or list inside it to any level of nesting. It is created in a way similar to data frames with the function `list()`.
- There is no constraint on the objects that can be included.
- `L1 <- list(x,y);`
- `L2<- list(A=x, B=y)`

# LIST NAME

```
>a<-c("Jow","Ana","Sara");  
>b<-c(10,12,15);  
>c<-c(1,2,3);  
> x <- list (Name=a, Marks=b, Rank=c)  
> x  
$Name  
[1] "Jow","Ana","Sara"  
$Marks  
[1] 10,12,15  
$Rank  
[1] 1,2,3
```

What will happen if we add one more name variable in list without allocating value to it?

# Subsetting or Accessing

- There are number of operators that can be used to extract subsets of R objects.
- `[` always returns an object of the same class as the original. It can be used to select more than one element.
- `[[` is used to extract elements of a list or a data frame. It can only be used to extract a single element and the class of the returned object will not necessarily be a list or data frame.
- `$` is used to extract elements of a list or data frame by name; semantics are similar to that of `[[`.

# Accessing Lists

```
>a<-c("Jow","Ana","Sara");  
>b<-c(10,12,15);  
>c<-c(1,2,3);  
> x <- list (Name=a, Marks=b,Rank=c)  
>x[1] or >x["Name"]  
$Name  
[1] "Jow","Ana","Sara"  
>x[[1]] or > x[["Name"]]  
[1] "Jow","Ana","Sara"  
>x$Name  
[1] "Jow","Ana","Sara"  
>x[c(1,3)] ## Please try this command and evaluate your  
answer
```

# Accessing nested elements

- `>x[[1]][1]`
- `[1] "Jow"`
- `>x[[2]][1]`
- `[1] 10`
- In case there is a list inside a list then we should use `x[[1]][[1]]`
- Try to access a matrix in list by this method.

# More on List

Adding an element in list

```
list_data<-
```

```
list(c("Jan","Feb","Mar"),matrix(1:4,2,2))
```

```
names(list_data)<-c("Quarter","Matrix")
```

```
list_data[3]<-"New element"
```

```
list_data[3]<-NULL
```

```
list_data[3]<-list(c(1,2,3,4))
```

# More on List

- Merging two list.
- `List1<-list(1,2,3);`
- `list2<-list("Sun", "Môn");`
- `merge_list<-c(list1,list2)`
- Converting list to vector
- `v1<-unlist(list1);`
- Question: What will be the output of `unlist(x)`
- where `x<-list("Rakhi",matrix(1:4,2,2))`



# Accessing Partial Match

- Partial matching of names is allowed with `[[` and `$`
- `> x<-list(customernum=1:10)`
- `>x$a`
- `[1] 1 2 3 4 5`
- `>x[["a"]]`
- `NULL`
- `>x[["a", exact=FALSE]]`
- `[1] 1 2 3 4 5`



□ Questions??