

# Lists and its Operations

**Spoken Tutorial Project**

**<https://spoken-tutorial.org>**

**National Mission on Education through ICT**

**<http://sakshat.ac.in/>**

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**IIT Bombay**

**25 March 2019**



# Learning Objectives

**We will learn how to:**



# Learning Objectives

**We will learn how to:**

- ▶ **Create a list in R**



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**We will learn how to:**

- ▶ **Create a list in R**
- ▶ **Access the elements of a list**



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- ▶ **Create a list in R**
- ▶ **Access the elements of a list**
- ▶ **Perform indexing on lists**



# Learning Objectives

## We will learn how to:

- ▶ **Create a list in R**
- ▶ **Access the elements of a list**
- ▶ **Perform indexing on lists**
- ▶ **Combine two lists**

# Pre-requisites



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## ► Data frames in R





# Pre-requisites

- ▶ **Data frames in R**
- ▶ **Matrices and vectors in R**

# Pre-requisites

- ▶ Data frames in R
- ▶ Matrices and vectors in R

Please locate the relevant tutorials on R on <https://spoken-tutorial.org/>



# System Specifications



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- ▶ **Ubuntu Linux OS v 16.04**



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- ▶ **Ubuntu Linux OS v 16.04**
- ▶ **R v 3.4.4**



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- ▶ **RStudio v 1.1.456**



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- ▶ **Ubuntu Linux OS v 16.04**
- ▶ **R v 3.4.4**
- ▶ **RStudio v 1.1.456**

**R version 3.2.0 or higher**



# Download Files

**We will use:**





# Download Files

We will use:

- ▶ A data frame **CaptaincyData.csv**



# Download Files

We will use:

- ▶ A data frame **CaptaincyData.csv**
- ▶ A script file **myList.R**



# Download Files

We will use:

- ▶ A data frame **CaptaincyData.csv**
- ▶ A script file **myList.R**

Download these files from the **Code files** link of this tutorial



# Lists in R

**List is an R object having components of mixed data types like**



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**List is an R object having components of mixed data types like**

- ▶ **Strings**



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**List is an R object having components of mixed data types like**

- ▶ **Strings**
- ▶ **Numbers**



# Lists in R

**List is an R object having components of mixed data types like**

- ▶ **Strings**
- ▶ **Numbers**
- ▶ **Vectors**



# Lists in R

**List is an R object having components of mixed data types like**

- ▶ **Strings**
- ▶ **Numbers**
- ▶ **Vectors**
- ▶ **Some other list inside it**





# Lists in R



# Lists in R

- ▶ **A vector having all elements of the same type is called atomic vector**



# Lists in R

- ▶ A vector having all elements of the same type is called atomic vector
- ▶ A vector having elements of different type is called list



# Summary

## We have learnt how to:

- ▶ **Create a list in R**
- ▶ **Access the elements of a list**
- ▶ **Perform indexing on lists**
- ▶ **Combine two lists**

# Assignment

1. Create a numeric vector `c(1:5)` and a 5 by 3 matrix with elements from 1 to 15



# Assignment

1. Create a numeric vector `c(1:5)` and a 5 by 3 matrix with elements from 1 to 15
2. Create a named list with vector, matrix and `iris` data set



# Assignment

3. Retrieve `iris` data set from the list using dollar operator and indexing method



# Assignment

3. Retrieve `iris` data set from the list using dollar operator and indexing method
4. State the difference between the results obtained by using dollar operator and indexing method of accessing `iris`





# About the Spoken Tutorial Project

- ▶ Watch the video available at [http://spoken-tutorial.org/What\\_is\\_a\\_Spoken\\_Tutorial](http://spoken-tutorial.org/What_is_a_Spoken_Tutorial)
- ▶ It summarises the Spoken Tutorial project



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- ▶ It summarises the Spoken Tutorial project
- ▶ If you do not have good bandwidth, you can download and watch it



# Spoken Tutorial Workshops

## The Spoken Tutorial Project Team

- ▶ Conducts workshops using spoken tutorials
- ▶ Gives certificates to those who pass an online test
- ▶ For more details, please write to [contact@spoken-tutorial.org](mailto:contact@spoken-tutorial.org)



# Forum to answer questions

- ▶ Do you have questions in **THIS Spoken Tutorial?**
- ▶ Choose the minute and second where you have the question
- ▶ Explain your question briefly
- ▶ Someone from the **FOSSEE** team will answer them. Please visit

<http://forums.spoken-tutorial.org/>



# Forum to answer questions

- ▶ Questions not related to the Spoken Tutorial?
- ▶ Do you have general / technical questions on the Software?
- ▶ Please visit the FOSSEE Forum  
<http://forums.fossee.in/>
- ▶ Choose the Software and post your question



# Textbook Companion Project

- ▶ The FOSSEE team coordinates coding of solved examples of popular books
- ▶ We give honorarium and certificates to those who do this

For more details, please visit these sites:

<https://r.fossee.in/>  
<https://fossee.in/>



# Acknowledgements

- ▶ Spoken Tutorial Project is a part of the Talk to a Teacher project
- ▶ It is supported by the National Mission on Education through ICT, MHRD, Government of India
- ▶ More information on this Mission is available at:

<http://spoken-tutorial.org/NMEICT-Intro>



# Thank You

- ▶ The script for this tutorial was contributed by Shaik Sameer (FOSSEE Fellow 2018)
- ▶ The video has been created by Sudhakar Kumar, IIT Bombay

