

# Working with Shapefiles in R

## Exercises



R has many powerful libraries to handle spatial data, and the things that R can do with maps can only grow. This exercise tries to demonstrate a few basic functionalities of R while dealing with shapefiles.

A shapefile is a simple, nontopological format for storing the geometric location and attribute information of geographic features. Geographic features in a shapefile can be represented by points, lines, or polygons (ESRI). The geographic features are associated with an attribute table which is very similar to an R dataframe.

The `rgdal` package in R provides bindings to the popular Geospatial Data Abstraction Library (GDAL) for reading, writing and converting between spatial formats. We are using a very popular dataset of London sports participation shapefile ([download here](#)). The attributes `Pop_2001` and `Partic_Per` represents the population of London Boroughs in 2001 and the percentage of the population participating in sporting activities.

Answers to the exercises are available [here](#). If you obtained a different (correct) answer than those listed on the solutions page, please feel free to post your answer as a comment on that page.

Please install and load the package `rgdal` before starting the exercises.

### **Exercise 1**

Read the London Sports map from the shapefile `london_sports.shp` .

## **Exercise 2**

Change the coordinate system of the map to WGS 84.

## **Exercise 3**

Find the names of the zones where sports participation rates is more than 25%.

## **Exercise 4**

Plot the london map in Sky Blue, along with a title.

## **Exercise 5**

Plot the zones in London with Sports Participation Rates less than 15% in red. Retain the earlier blue color for other zones.

## **Exercise 6**

Plot the zones in London with Sports Participation Rates more than 25% in green. Retain the earlier color for other zones.

## **Exercise 7**

Place a black circle marker at the centre of each zone. Retain previous maps.

## **Exercise 8**

Put labels for each zone. Place the labels to the right of the black marker.

## **Exercise 9**

Add another categorical attribute sports\_part which has values "low", "medium" and "high" for sports participation rates less than equal to 15%, between 15 to 25% and greater than 25% respectively.

## **Exercise 10**

Save the new map object with modified attribute table as a new shapefile "london\_sport2.shp".