

Introduction to R

Demo session

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1 Import

Save spreadsheet as text file

Download `cars.xls` and open in Excel/OpenOffice

Save as `cars.txt` (tab-separated) and view in editor

Read text file into R

Open R and type:

```
read.table("c:/shop/cars.txt", header=T)
```

```
cars <- read.table("c:/shop/cars.txt", header=T)
```

Check if data look OK

```
cars
```

```
head(cars)
```

2 Explore

Scatterplot

```
plot(cars$speed, cars$dist)
```

Range, median, mean, etc.

```
summary(cars)
```

3 Analyze

Fit linear regression model

```
cars.lm <- lm(dist ~ speed, data=cars)
```

```
abline(cars.lm)
```

4 Export

Paste model summary

```
summary(cars.lm)
```

Copy from R and paste into Word/OpenOffice document

Write plot to PNG file

```
png("c:/shop/cars.png")
```

```
plot(dist ~ speed, data=cars)
```

```
abline(cars.lm)
```

```
dev.off()
```

Insert cars.png into document

Save command history

```
history()
```

Save the command history as cars.R

To make this a proper script, you could:

- delete all unnecessary lines
- add comments
- make sure the whole script runs without errors

5 Philosophy

Repeatable analysis

If you send the input files and script to colleagues, they can repeat the analysis

- foundation of the scientific method

Easy to make changes and redo the entire analysis

- add one year of data
- explore different modelling choices
- respond to a reviewer's comment

Easy to repeat the analysis for many datasets