RPS
Analiza podatkov

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Kazalo

Povzetek

Primer analize podatkov

O rasti in velikosti ljudi imamo nekaj mnenj, ki jih lahko izrazimo v obliki raziskovalnih vprašanj. Najprej si zastavimo vprašanja.

Vprašanja

Nekaj vprašanj, na katere bi radi odgovorili je:

- Ali so fantje večji od deklet?
- Ali so fantje težji od deklet?
- Ali sta razpon rok in višina približno enaka?
- Ali drži Galtonovo opažanje glede višine otrok in staršev?
- ...

Zbrali smo nekaj podatkov o študentih, s katerimi si bomo lahko poskusili odgovoriti. Nato zberemo podatke, s katerimi bomo poskusili odgovoriti na vprašanja. Ker predvidevamo, da nas bo zanimalo še kaj, zberemo podatke o še nekaj spremenljivkah.

```
> lfn <- "Podatki2012.txt"
```

Podatki

Podaki so o študentih 3. letnika biologije v letu 2012/13 so v datoteki lfn.

```
> fpath <- file.path("../data", lfn)
> data <- read.table(fpath, header = TRUE, sep = "\t")
> names(data)
 [1] "starost" "mesec"   "spol"    "masa"    "visina"
 [6] "roke"    "cevelj"  "lasje"   "oci"     "mati"
[11] "oce"     "majica"
```

Opisna statistika

```
> summary(data[, 1:6])
    starost          mesec         spol        masa
 Min.   :20.00   Min.   : 0.000   F:33   Min.   :50.00
 1st Qu.:21.00   1st Qu.: 5.000   M:10   1st Qu.:55.50
 Median :21.00   Median : 7.000          Median :61.00
 Mean   :22.07   Mean   : 6.814          Mean   :63.42
 3rd Qu.:22.00   3rd Qu.: 9.500          3rd Qu.:70.00
 Max.   :59.00   Max.   :11.000          Max.   :91.00

     visina           roke
 Min.   :156.0   Min.   :154.0
 1st Qu.:164.0   1st Qu.:163.2
 Median :170.0   Median :167.8
 Mean   :169.9   Mean   :169.3
 3rd Qu.:173.5   3rd Qu.:172.5
 Max.   :189.0   Max.   :193.0
                 NA's   :5
```

Ali kaj opazite?

Nenavadni podatki

Kaj storiti s tistim, ki je napisal, da je rojen v mesecu 0?
Eden pa je star 59 let??

Nadaljevanje opisa

```
> summary(data[, 7:dim(data)[2]])
     cevelj      lasje  oci         mati
 Min.   :36.00   S:19   S:24   Min.   :155.0
 1st Qu.:38.00   T:24   T:19   1st Qu.:160.0
 Median :39.00                 Median :165.0
 Mean   :40.02                 Mean   :165.4
 3rd Qu.:41.50                 3rd Qu.:168.0
 Max.   :48.00                 Max.   :180.0
                               NA's   :5
      oce        majica
 Min.   :170.0   L : 5
 1st Qu.:174.2   M :19
 Median :179.5   S :16
 Mean   :179.1   XL: 1
 3rd Qu.:182.0   XS: 2
 Max.   :190.0
 NA's   :5
```

1 Višina in spol

Primerjajte razpone vrednosti višin študentov in staršev.

Višina po spolu

Povzetek višin glede na spol

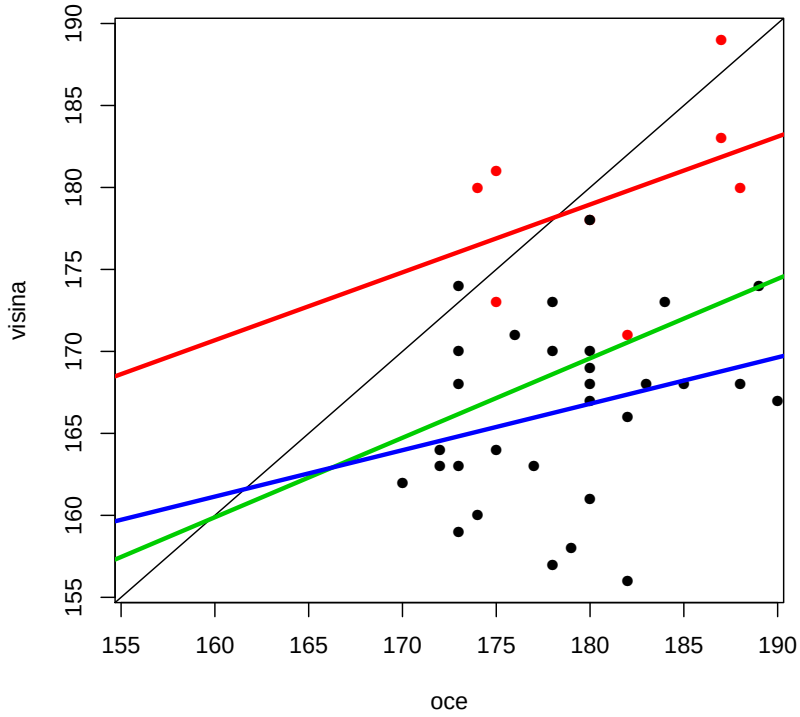
```
> summary(data$mati)
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.    NA's
  155.0   160.0   165.0   165.4   168.0   180.0       5
> by(data$visina, data$spol, summary)
data$spol: F
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
  156.0   163.0   168.0   166.8   170.0   178.0
------------------------------------------------
data$spol: M
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
  171.0   178.5   180.0   180.0   182.5   189.0
> summary(data$oce)
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.    NA's
  170.0   174.2   179.5   179.1   182.0   190.0       5
```

2 Galton in višina otrok in staršev

Moški

```
> with(data, plot(oce, visina, col = spol, pch = 16,
+     xlim = range(visina)))
> abline(c(0, 1))
> abline(lm(visina ~ oce, data = data), col = 3,
+     lwd = 3)
> abline(lm(visina ~ oce, data = data[data$spol ==
+     "M", ]), col = "red", lwd = 3)
> abline(lm(visina ~ oce, data = data[data$spol ==
+     "F", ]), col = "blue", lwd = 3)
```

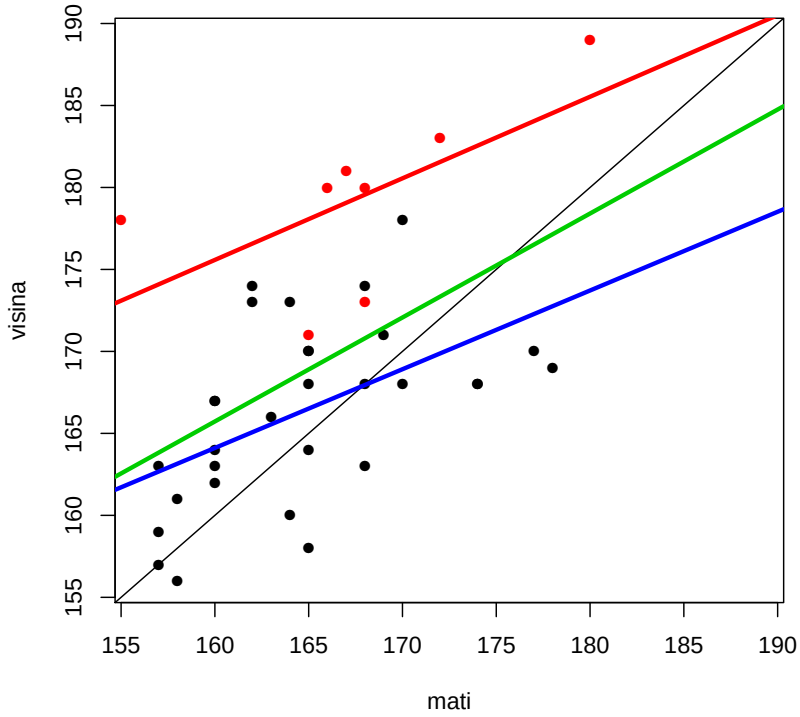
Moški



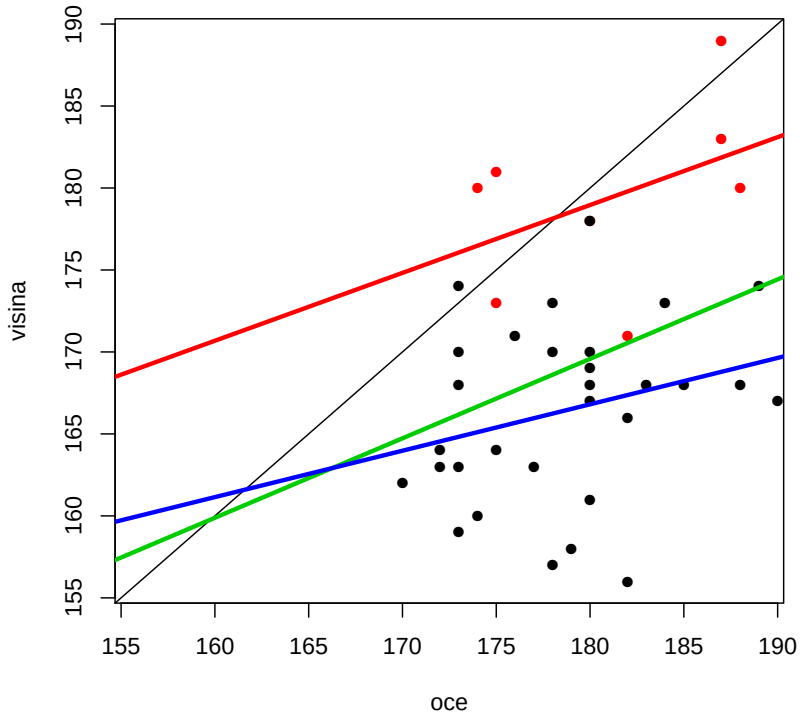
Ženske

```
> with(data, plot(mati, visina, col = spol, pch = 16,
+     xlim = range(visina)))
> abline(c(0, 1))
> abline(lm(visina ~ mati, data = data), col = 3,
+     lwd = 3)
> abline(lm(visina ~ mati, data = data[data$spol ==
+     "M", ]), col = "red", lwd = 3)
> abline(lm(visina ~ mati, data = data[data$spol ==
+     "F", ]), col = "blue", lwd = 3)
```

Ženske


visina
mati
155
160
165
170
175
180
185
190

Moški


visina
oce
155
160
165
170
175
180
185
190

SessionInfo

Windows 7 x64 (build 7601) Service Pack 1

- R version 2.15.1 (2012-06-22), `x86_64-pc-mingw32`
- Locale: `LC_COLLATE=Slovenian_Slovenia.1250`, `LC_CTYPE=Slovenian_Slovenia.1250`, `LC_MONETARY=Slovenian_Slovenia.1250`, `LC_NUMERIC=C`, `LC_TIME=Slovenian_Slovenia.1250`
- Base packages: base, datasets, graphics, grDevices, stats, utils
- Other packages: patchDVI 1.9
- Loaded via a namespace (and not attached): tools 2.15.1

Project path: `D:/_Y/R/rps`
Main file : `../doc/Opisna.Rnw`

View as vignette

Project files can be viewed by pasting this code to R console:

```
> projectName <-"rps";  mainFile <-"Opisna"

> commandArgs()
> library(tkWidgets)
> openPDF(file.path(dirname(getwd()), "doc", paste(mainFile,
+     "PDF", sep = ".")))
> viewVignette("viewVignette", projectName, file.path("../doc",
+     paste(mainFile, "Rnw", sep = ".")))
```