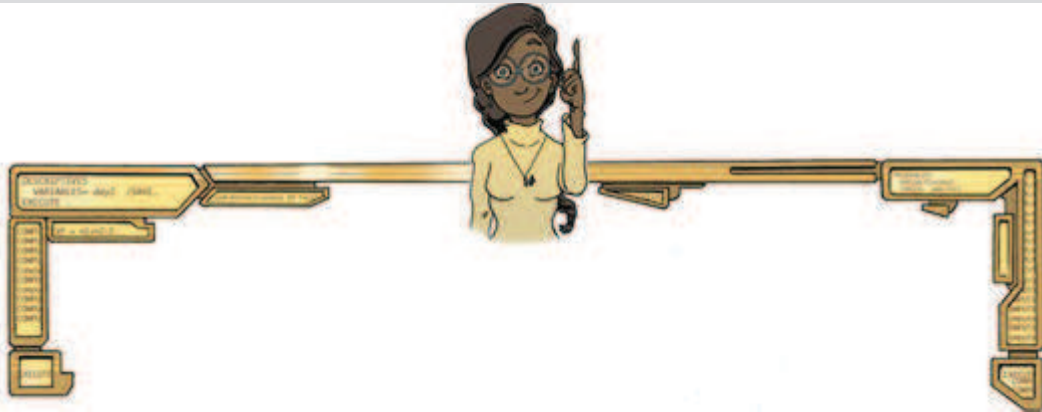


Total sum of squares
 Unstandardized residuals
 Variance inflation factor (VIF)

Smart Alex's tasks



- Task 1: In [Chapter 4](#) (Task 7) we looked at data based on findings that the number of cups of tea drunk was related to cognitive functioning (Feng et al., 2010). Using a linear model that predicts cognitive functioning from tea drinking, what would cognitive functioning be if someone drank 10 cups of tea? Is there a significant effect? (see [Chapter](#)



[8](#), Task 9) (Tea Makes You Brainy 716.sav)

- Task 2: Estimate a linear model for the pubs.sav data in [Jane Superbrain Box 9.1](#) predicting mortality from the number of pubs. Try repeating



the analysis but bootstrapping the confidence intervals.

- Task 3: In [Jane Superbrain Box 2.1](#) we encountered data (HonestyLab.sav) relating to people's ratings of dishonest acts and the likeableness of the perpetrator. Run a linear model with bootstrapping to predict ratings of dishonesty from the likeableness of the perpetrator.



- Task 4: A fashion student was interested in factors that predicted the salaries of catwalk models. She collected data from 231 models (Supermodel.sav). For each model she asked them their salary per day (salary), their age (age), their length of experience as a model (years), and their industry status as a model as their percentile position rated by a panel of experts (beauty). Use a linear model to see which variables

predict a model's salary. How valid is the model?



- Task 5: A study was carried out to explore the relationship between Aggression and several potential predicting factors in 666 children who had an older sibling. Variables measured were Parenting_Style (high score = bad parenting practices), Computer_Games (high score = more time spent playing computer games), Television (high score = more time spent watching television), Diet (high score = the child has a good diet low in harmful additives), and Sibling_Aggression (high score = more aggression seen in their older sibling). Past research indicated that parenting style and sibling aggression were good predictors of the level of aggression in the younger child. All other variables were treated in an exploratory fashion. Analyse them with a linear model (Child



Aggression.sav).

- Task 6: Repeat the analysis in [Labcoat Leni's Real Research 9.1](#) using bootstrapping for the confidence intervals. What are the confidence



intervals for the regression parameters?

- Task 7: Coldwell, Pike, & Dunn (2006) investigated whether household chaos predicted children's problem behaviour over and above parenting. From 118 families they recorded the age and gender of the youngest child (child_age and child_gender). They measured dimensions of the child's perceived relationship with their mum: (1) warmth/enjoyment (child_warmth), and (2) anger/hostility (child_anger). Higher scores indicate more warmth/enjoyment and anger/hostility respectively. They measured the mum's perceived relationship with her child, resulting in dimensions of positivity (mum_pos) and negativity (mum_neg). Household chaos (chaos) was assessed. The outcome variable was the child's adjustment (sdq): the higher the score, the more problem behaviour the child was reported to display. Conduct a hierarchical linear model in three steps: (1) enter child age and gender; (2) add the variables measuring parent-child positivity, parent-child negativity, parent-child warmth, parent-child anger; (3) add chaos. Is household chaos predictive of children's problem behaviour over and above parenting? (Coldwell et



al. (2006).sav).

Answers & additional resources are available on the book's website at