Statistics 360: Advanced R for Data Science

Group Project

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Group projects

- You will do a final project in groups of two or three.
- The project will be worth 20% of your mark.
- For the project you will create an R package that implements a statistical method.
- Same method for all: Multivariate Adaptive Regression Splines (MARS) – mainly for prediction.
- Reference paper for MARS: https://canvas.sfu.ca/courses/74856/files/20688406?wrap=1
- The main fitting function will be developed in the class and lab exercises throughout the first half of the course.
- You will need to add "methods", tests and documentation.
  - A grading rubric will be circulated around reading break.

User interface

- The main fitting function and its output will have a similar interface to the `lm()` and `glm()` functions in R.
- Function arguments include a formulas to specify models, data and parameters that control the fitting.
- Output contains all the user needs to make predictions or inference.
- Write "methods" to do predictions, plots, inference, etc. Will implement as many of those for `lm()` as are relevant and practical.

```
methods(class="lm")
```

```
##  [1] add1           alias          anova          case.names     coerce
##  [6] confint        cooks.distance deviance       dfbeta         dfbetas
## [11] drop1          dummy.coef     effects        extractAIC     family
## [16] formula        hatvalues      influence      initialize     kappa
## [21] labels         logLik         model.frame    model.matrix   nobs
## [26] plot           predict        print          proj           qr
## [31] residuals      rstandard      rstudent       show           simulate
## [36] slotsFromS3    summary        variable.names vcov
## see '?methods' for accessing help and source code
```