

Advanced R programming: practical 2

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1 S3 objects

- Following the cohort example in the notes, suppose we want to create a mean method.
 - List all S3 methods associated with the mean function.
 - Examine the source code of mean.
 - What are the arguments of mean?
 - Create a function called `mean.cohort` that returns a vector containing the mean weight and mean height.¹
- Let's now make a similar function for the standard deviation
 - Look at the arguments of the `sd` function.
 - Create an function call `sd.cohort` that returns a vector containing the weight and height standard deviation.²
 - Create a default `sd` function. Look at `cor.default` in the notes for a hint.
- Create a `summary` method for the `cohort` class. When the `summary` function is called on a `cohort` object it should call the base `summary` on the `details` element.
 - Use the `body` function to check if the function is already a generic function.
 - Use the `args` function to determine the arguments.
 - Create a `summary.cohort` function
- Create a `hist` method for the `cohort` class. When the `hist` function is called on a `cohort` object, it should produce a single plot showing two histograms - one for height and another for weight.
- Create a `[]` method for the `cohort` class. This method should return a `cohort` object, but with the relevant rows sub setted. For example, if `cc` was a `cohort` object, then

```
cc[1:3,]
```

would return the first three rows of the data frame.

- Create a `[<-` method for the `cohort` class. This method should allow us to replace values in the `details` data frame, i.e.

```
cc[1,1] = 10
```

¹ Ensure that you can pass in the standard mean arguments, i.e. `na.rm`.

² Ensure that you can pass in the standard sd arguments, i.e. `na.rm`.

Solutions

Solutions are contained within the course package

```
library("nclRadvanced")  
vignette("solutions2", package="nclRadvanced")
```