STAT361 Laboratory for Advanced R for Data Science

Lab 6

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OOP: S3
(Recursive Partitioning Algorithm)

Objective

- Define “Constructor”, “Validator” and “Helper” functions for S3 object of class ‘region’.

- Simplified constructor (note: we are not checking the base object inside the constructor, will check in the validator)

```
new_region <- function(R){
  structure(R,class="region")
}
```

Write a Validator for class ‘region’

- Input: a list ‘R’ with elements ‘coords’, ‘x’ and ‘y’
- Verify
  - whether ‘coords’ is a matrix - **is.matrix()**
  - ‘coords’ has two rows and as many columns as there are columns of x - **ncol()** and **nrow()**
  - ‘x’ is a data frame or not - **is.data.frame()**
  - Whether ‘y’ is of type double - **is.double()**
  - Return region ‘R’
  - Follow the naming convention when defining validator

Write a Helper fucntion

- Input: ‘coords’ (default value NULL), ‘x’ and ‘y’
- Include
  - the code for handling the case where the ‘coords’ argument is NULL from the original constructor - if NULL calculate the co-ordinate matrix
  - coerces ‘y’ to a double - **as.double()**
  - create a list with coords, x and y
  - calls the validator
  - calls the constructor to return a ‘region’ object