Lab 6, Week 9

Sidi Wu

In the recursive partitioning algorithm we had the following constructor for S3 objects of class `region` (see the Lecture 7 exercises):

```
new_region <- function(coords=NULL,x,y){
  if(is.null(coords)) { coords <- sapply(x,range) }
  structure(list(coords=coords,x=x,y=y),class="region")
}
```

For this lab we will define constructor, validator and helper functions following the conventions in the text. To start, we simplify the constructor to take only the "base object" as input:

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

1. Write a validator that takes a list `R` with elements `coords`, `x` and `y` as input and verifies that
   (i) `coords` is a matrix,
   (ii) `coords` has two rows and as many columns as there are columns of `x`,
   (iii) `x` is a data frame, and
   (iv) `y` is of type double. Use the naming convention discussed in class for the validator.
2. Write a helper function that takes arguments `coords`, `x` and `y` as inputs (like the constructor from the Lecture 7 exercises) and
   (i) includes the code for handling the case where the `coords` argument is `NULL` from the original constructor,
   (ii) coerces `y` to a `double`,
   (iii) calls the validator, and
   (iv) calls the constructor to return a `region` object.