Check-in 4

Code

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Remember, **follow the instructions below and use R Markdown to create a pdf document with your code and answers to the following questions on Gradescope.** You may find a template file by clicking "Code" in the top right corner of this page.

1. The hard-threshold function is defined as

$$f_\lambda(x) = \begin{cases} x & |x| \geq \lambda \\ 0 & |x| < \lambda \end{cases}$$

Write an R function that takes two arguments as input: a numeric input `x` and a threshold `lambda`. Your function should return the value of $f_\lambda(x)$ and work for vector input `x` of any length.

2. For $\lambda = 4$, demonstrate your function on the vector c(-5, -3, 0, 3, 5).

(Hint: the output should be the vector `-5, 0, 0, 0, 5`)

3. For $\lambda = 2$, demonstrate your function on the vector c(-7, -5, -3, 0, 3, 5, 7).

```
#1
sick_function <- function(x, lambda) {

  return (x * (abs(x) >= lambda))
}

#2
sick_function(c(-5, -3, 0, 3, 5), 4)
```

```
[1] -5  0  0  0  5
```

```
#3
sick_function(c(-7, -5, -3, 0, 3, 5, 7), 2)
```

```
[1] -7 -5 -3  0  3  5  7
```