Intro to Labs for Scientific Programming

By Deshawn Sambrano

Pedagogy

Tailoring the Class

All Codes are the Same

MATLAB

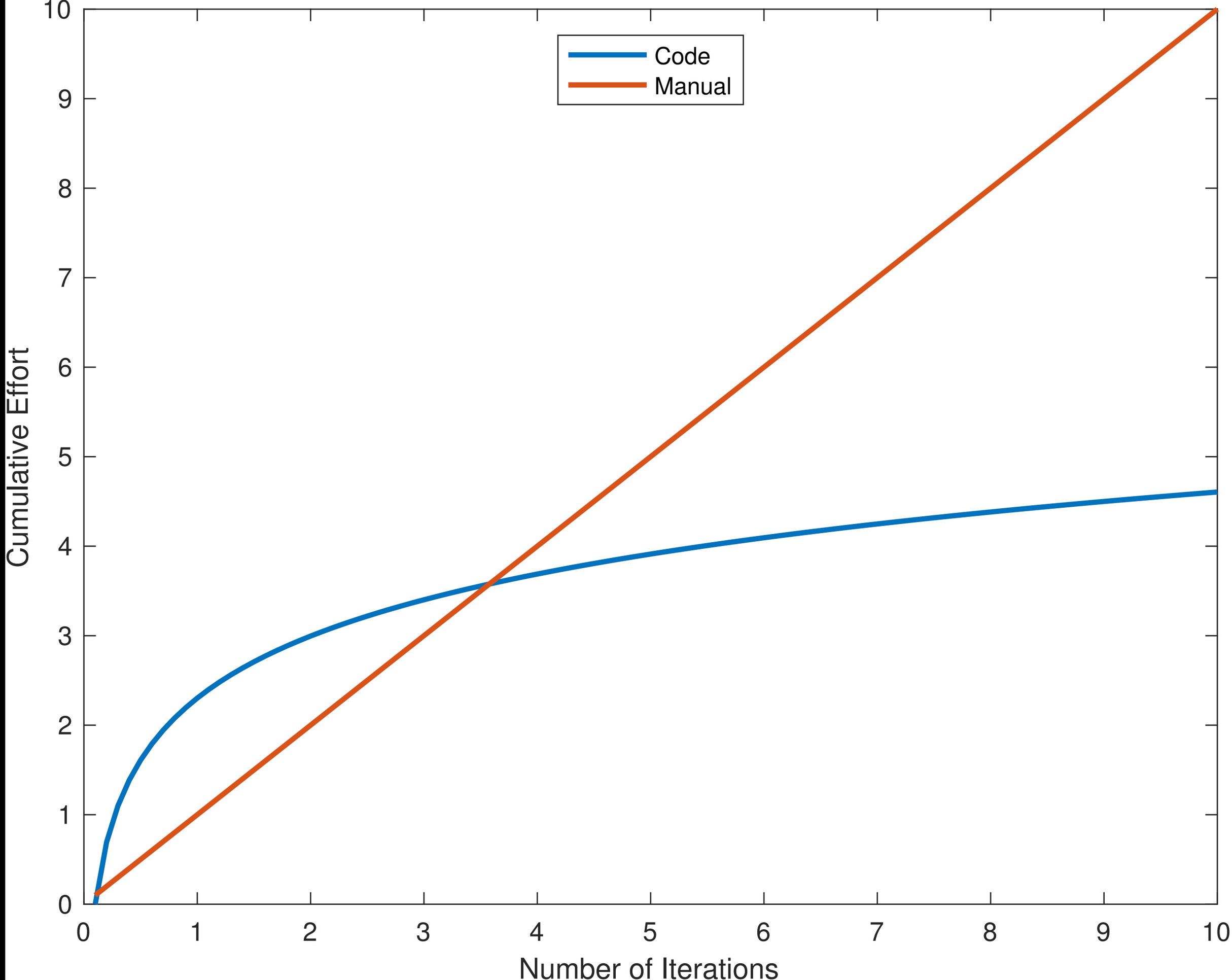
```
y = 0;
for i = 1:10
    y = y + i;
end
y
```

Python

```
1  y = 0
2  for i in range(1,11)
3      y += i
4
5  y
```

R

```
1  y <- 0
2
3  for (i in 1:10) {
4    y <- y + i
5  }
6
7  y
```


Code
Manual
Cumulative Effort
Number of Iterations
0
1
2
3
4
5
6
7
8
9
10

Common Mistakes

Code for People NOT Computers

- A program should not require its readers to hold more than a handful of facts in memory at once
- Make names consistent, distinctive, and meaningful
- Make code style and formatting consistent

Human vs. Computer

- Limited memory
- Error prone over time
- Great at creating things that are larger than the sum of its parts

- Large memory
- Great at repeating things over time
- Very literal and bad a abstraction or error correction