

# HW1 - CSE 6242

mmendiola3

## 1. Get Familiar with R

Having worked with pandas in the past, I'm familiar with Dataframes and the many indexing options. The subset function stands out to me as a more understandable way to lookup data. This also translates well when building applications that require RDBMS queries.

```
> data("iris")
> subset(iris, Sepal.Length < 5 & Species != 'setosa')
>      Sepal.Length Sepal.Width Petal.Length Petal.Width  Species
>      58           4.9         2.4         3.3        1.0 versicolor
>      107          4.9         2.5         4.5        1.7  virginica
```

### 2. Log Gamma (Loop)

See *hw1.r*

### 3. Log Gamma (Recursive)

See *hw1.r*

### 4. Sum of Log Gamma

See *hw1.r*

### 5. Compare Results to Built-In R Function

Figure 1 shows the runtime growth of each sum of lgamma function for increasing values of n. We see that the native R lgamma function remains either constant or linear.

The recursive and loop implementations show what looks like exponential growth, with the recursive function growing faster than the loop version. The recursive function also errors out with higher values of n.

## lgamma implimentation runtimes

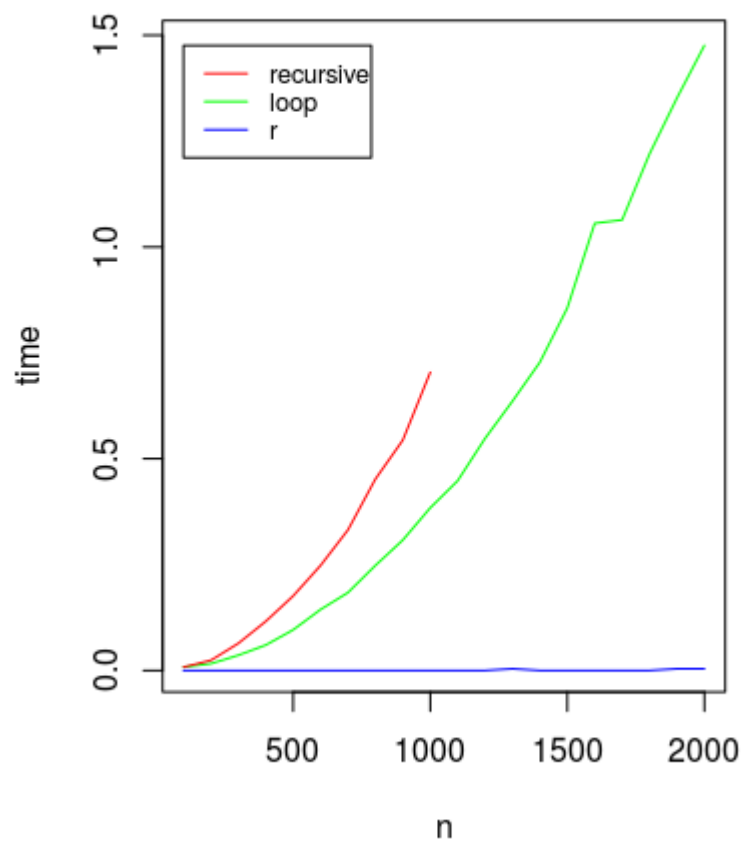


Figure 1: runtimes