Kyle Edgette
CSC 253
Ruby Extension Assignment

README

Files Included

- **Extension_config.rb** – run to create the Makefile to compile C source code
- **Cfixedarray.c** – C source code that implements a FixedArray class with methods for creating a new ruby array, inserting into that array, iterating over the array using each, and calculating the sum of the array
- **Ruby_fixed_array.rb** – Ruby class that implements an array of fixed size with methods of the same functionality as above
- **Test.rb** – Test class with three test cases:
    - #1 – (Using C extension) Creates fixed array of size 5 filled with 1s, inserts 10 into the array at index 0, prints the contents of the array using the each iterator, sums the array
    - #2 – (Using C extension) Creates fixed array of size 1,000,000 filled with 253 and sums the array
    - #3 – (Using Ruby implementation) Creates fixed array of size 1,000,000 filled with 253 and sums the array

To Run

1. Change directory to "Ruby-C-Extension" in terminal
2. Run extension_config.rb
3. Run Make file
4. Run test.rb

Commands

```
cd /path/to/Ruby-C-Extension
ruby extension_config.rb
make
ruby test.rb
```

Report/Findings

I leveraged Ruby's built-in Time class to measure the time taken (in milliseconds) to create a new fixed array of size 1,000,000 filled with 253s and then to sum the array in both the C and Ruby implementations.

C Extension	Ruby
0.021668	0.183742
0.019188	0.168125
0.022155	0.182258
0.022256	0.180159

Therefore, the average time taken was 0.02131675 milliseconds for the C extension and 0.178571 milliseconds for the Ruby implementation. Overall, the C extension is approximately 8.34 times faster than the Ruby implementation.