・プログラミング言語の経験
C 5years calculation for study, used at a course
C++ 0.5years only used at a course
R 0.5years only used at a course
・Tarai ベンチマーク(Mac OS Catalina 10.15.6, 1.8 GHz デュアルコア Intel Core i5)
C: 0.186540 秒
Python: 7.620864 秒
Ruby: 5.551839 秒

・tarai.c

```
#include <stdio.h>
#include <stdlib.h>
#include <time.h>

static long tarai(long, long, long);
int
main(int argc, char **argv)
{
	clock_t start, end;
	start = clock();
	printf("%ld¥n", tarai(13, 5, 0));
	end = clock();
	printf("Tarai 関数(13,5,0)の実行時間: %f 秒¥n", (double)(end-start) /
CLOCKS_PER_SEC);

	exit(0);
}

static long
tarai(long x, long y, long z)
{
	if (x<=y) {
		return y;
	}
	else {
		return tarai(tarai(x-1, y, z),
```

```
                                        tarai(y-1, z, x),
                                         tarai(z-1, x, y));
        }
}
```

・tarai.py

```
#!/usr/bin/env python
# -*- coding: utf-8 -*-

import time

def tarai(x, y, z):
    if x <= y: return y
    return tarai(
        tarai(x - 1, y, z),
        tarai(y - 1, z, x),
        tarai(z - 1, x, y))

st_time = time.clock()
print(tarai(13, 5, 0))
print(time.clock() - st_time)
```

・tarai.rb

```
#tarai.rb
#
#たらい回し関数の PureRuby 実装版

require 'benchmark'

puts Benchmark::CAPTION

def tarai(x, y, z)
        if x <= y then
                return y
        else
                return tarai(tarai((x-1), y, z), tarai((y-1), z, x), tarai((z-1), x, y))
```

```
        end
end

###実行
puts tarai(13, 5, 0)
puts Benchmark.measure {
tarai(13, 5, 0)
}
```