Report Template

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1 Introduction

This is where you describe the problems / goals of this report.

2 Method

Describe what you did. Did you have to innovate? Describe any hurdles.

2.1 Method 1

Describe the numerical methods you employ. If necessary, algorithms can be presented, for example, Algorithm 1.

Algorithm 1: Euclid's algorithm

Data: Two nonnegative integers a and b
Result: Their greatest common divisor $d = \gcd(a, b)$
while $b \neq 0$ **do**
    $r \leftarrow a \bmod b$;
    $a \leftarrow b$;
    $b \leftarrow r$;
end
$d \leftarrow a$;

2.2 Method 2

...

3 Results

Include and describe results obtained in this report. You can make a table to show the accuracy results for your method, e.g. Table 1. You can also make a figure to show the results, e.g. Figure 1 and Figure 2.

Table 1: Error and Order

	10	20	40	80	160
L^∞ error	0.283284	0.0758226	0.0192964	0.00484029	0.00121093
order	-	1.90	1.97	2.00	2.00

4 Conclusion

Summarize your findings and add your comments here.

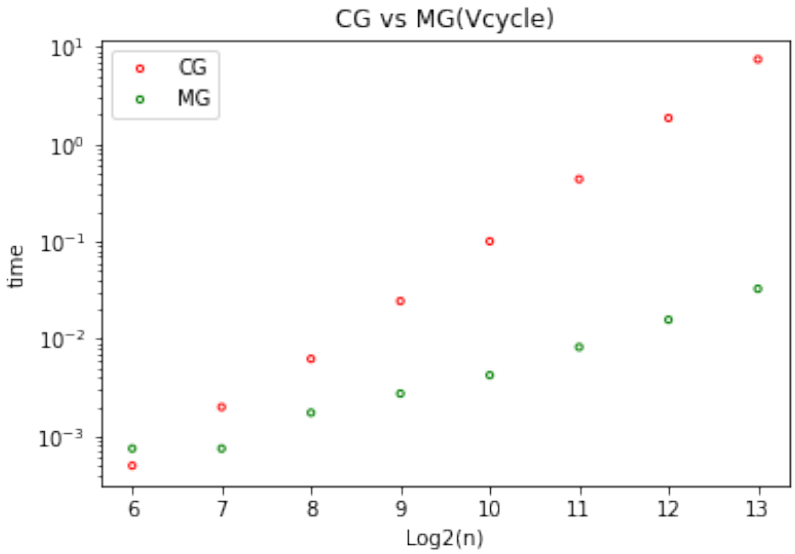
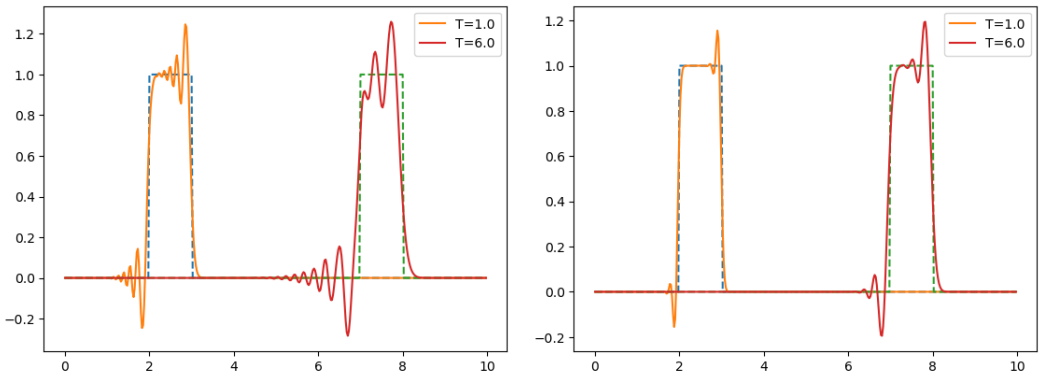


Figure 1: CG vs MG



(a) $R = 0.2$ (b) $R = 0.8$

Figure 2: Demo

A Computer Code

Here we include the computer code.

```
def is_prime(num):
    """Check if a number is prime."""
    if num <= 1:
        return False
    if num <= 3:
        return True
    if num % 2 == 0 or num % 3 == 0:
        return False
    i = 5
    while i * i <= num:
        if num % i == 0 or num % (i + 2) == 0:
            return False
        i += 6
    return True

def generate_prime_numbers(n):
    """Generate the first n prime numbers."""
    count = 0
    current_number = 2
    while count < n:
        if is_prime(current_number):
            print(current_number)
            count += 1
        current_number += 1

# Test the function
generate_prime_numbers(20)
```

Listing 1: Demo