**Parallel Programming Exercise 4 – 9**

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(If you and your team member contribute equally, you can use (co-first author), after each name.)

# Problem and Proposed Approach

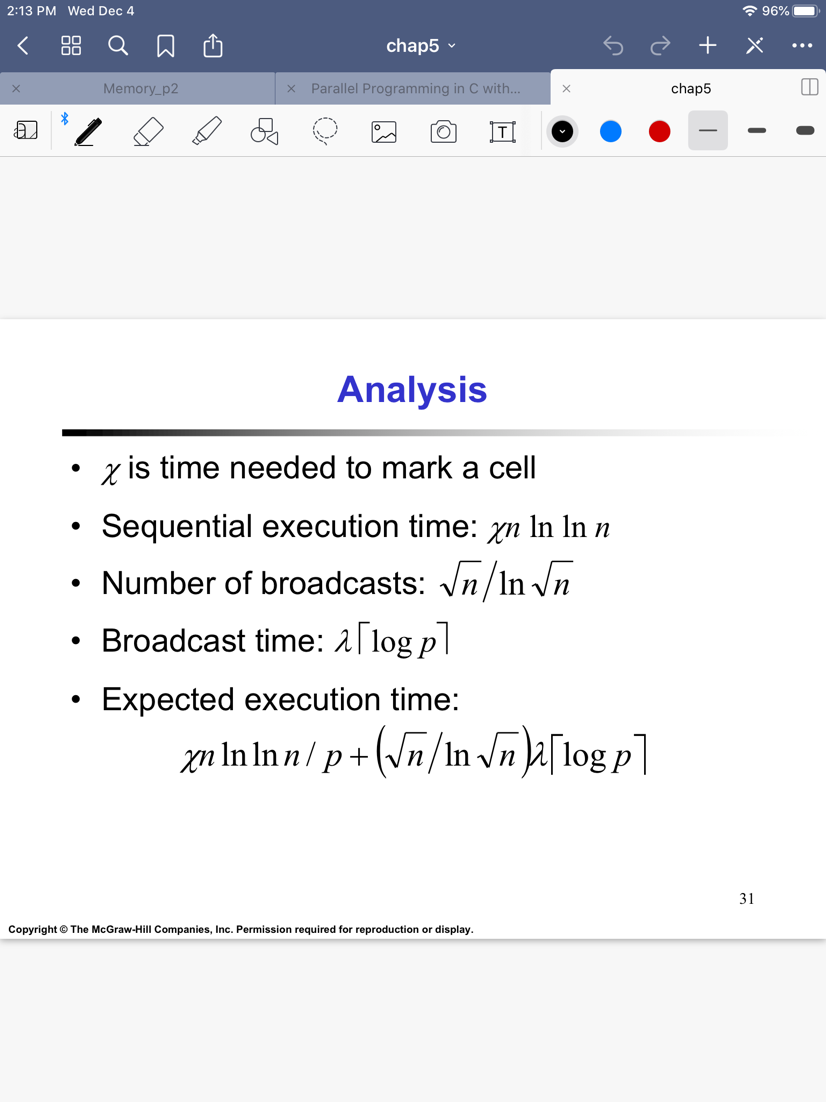
計算1~10^6中，相鄰的質數間最大的gap是多少。

我修改sieve的sample code，讓每個processors計算自己組內的最大gap，但這樣是不對的，因為有可能兩個質數在不同processor，所以我將左界加上一個值(此處用200)，來處理這個情況。

(Brief your problem, and give your idea or concept of how you design your program.)

# Theoretical Analysis Model

Same as sieve version 1



(Try to give the time complexity of the algorithm, and analyze your program with iso-efficiency metrics)

# Performance Benchmark

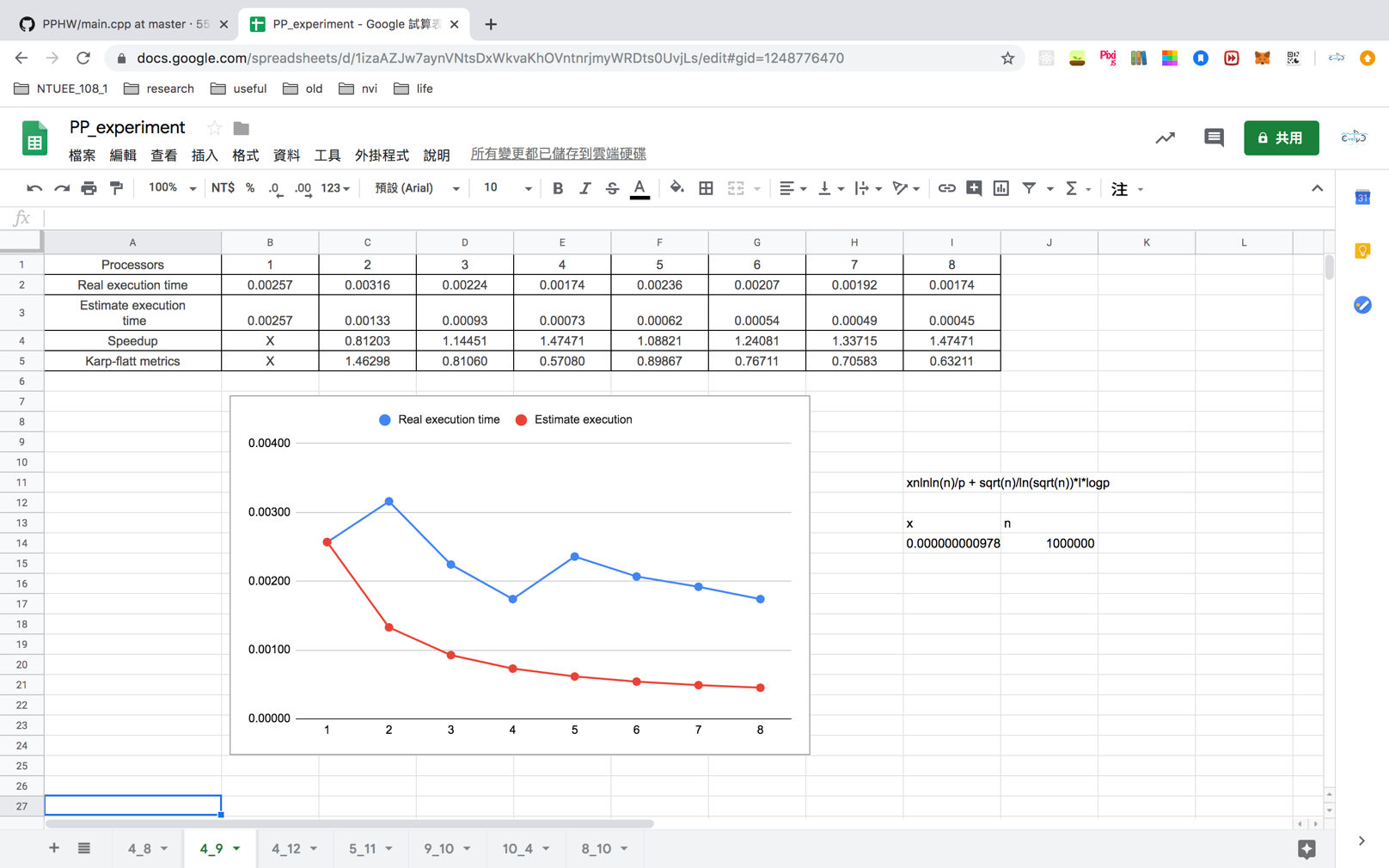


Figure 1. The performance of diagram

(Give your idea or concept of how you design your program.)

# Conclusion and Discussion

1. Speedup未必隨著p增加持續上升
2. 可以套用sieve的improve方法，例如把偶數去掉
3. 由圖中可觀察得知，當p越大時，時間未必越短，因為communication所花的時間也上升了
4. K值上升，告訴我們overhead是影響速度的主因。他有良好的scalability。

(Discuss the following issues of your program

1. What is the speedup respect to the number of processors used?
2. How can you improve your program further more
3. How does the communication and cache affect the performance of your program?
4. How does the Karp-Flatt metrics and Iso-efficiency metrics reveal?

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**Appendix(optional):**

(If something else you want to append in this file, like picture of life game)