**Assignment 3**

“I confirm that I will keep the content of this assignment confidential. I confirm that I have not received any unauthorized assistance in preparing for or writing this assignment. I acknowledge that a mark of 0 may be assigned for copied work.”

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**Program 1:**

A close up of text on a black background

Description automatically generated

With program 1, using less points meant the computer was able to compute the approximate value of pi a lot quicker, but it was less accurate. As you increased the number of points, the value of pi gets more accurate but run time increases.

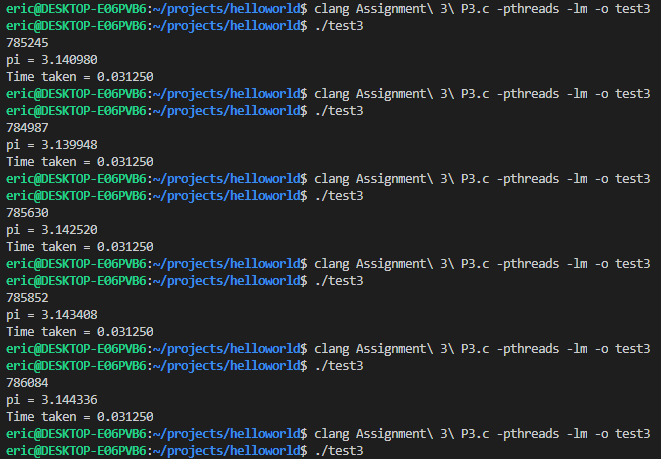
**Program 2:**

A screenshot of a cell phone

Description automatically generated

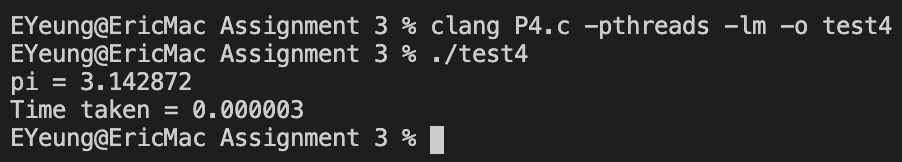
Since program 2 uses a multithreaded approach, the run time did not matter as it computed the value of pi very quickly. As we increased the number of points, the value of pi got more and more accurate.

**Program 3:**

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With program 3, the speed of the program did not matter as the computer was able to execute the code quickly enough. Even with the increased number of points that needed to be checked, the computer had no problem doing it. The value of pi was close to program 1 as they had the same number of points to be checked at the end.

**Program 4:**



Since this is done in parallel time, it is a lot faster than any of the other programs even with 1000000 points to be checked.