**The log - THIS IS THE CURRENT LOG**

Github Rep Link: <https://github.com/no26829/Lab_2>

**Week 1:** We discussed the Lab and developed an understanding of what we needed to do. We discussed many ideas but, unfortunately we did not come to an agreement on what problem we would attempt to paralellise. Some of the problems we considered included approximating pi numerically, character/string analysis within texts, concatenation of large matrix multiplications and the travelling salesman problem.

**Week 2:** We organised a system of communication between the group members and Naima set up the Git account for us to upload to. After much deliberation we decided to attempt to paralellise the Gauss-Seidel method to solve systems of linear equations

**Week 3:** We divided the tasks between the group members. George completed some of Task 4. Alicja wrote the first part of the code.

**Week 4:** We continued with our tasks. George finished the write-up for Task 4. Alicja finished the code and described it.

**Notes:**

#include <stdio.h>

#include <stdlib.h>

#include <time.h>

int main() {

// Define the size of the matrix

int n = 100;

// Seed the random number generator

srand(time(NULL));

// Allocate memory for the matrix

double \*\*matrix = (double \*\*)malloc(n \* sizeof(double \*));

for (int i = 0; i < n; i++) {

matrix[i] = (double \*)malloc(n \* sizeof(double));

}

// Generate a random 100x100 diagonally dominant matrix

for (int i = 0; i < n; i++) {

double diagonal\_sum = 0.0;

for (int j = 0; j < n; j++) {

if (i != j) {

matrix[i][j] = (double)rand() / RAND\_MAX; // Random values

diagonal\_sum += abs(matrix[i][j]);

}

}

// Set the diagonal element to ensure diagonal dominance

matrix[i][i] = diagonal\_sum + 1.0;

}

// Print the matrix in array format

for (int i = 0; i < n; i++) {

printf("[ ");

for (int j = 0; j < n; j++) {

printf("%f", matrix[i][j]);

if (j < n - 1) {

printf(", ");

}

}

printf(" ]\n");

}

// Clean up memory

for (int i = 0; i < n; i++) {

free(matrix[i]);

}

free(matrix);

return 0;

}