CSN-261
Assignment 2

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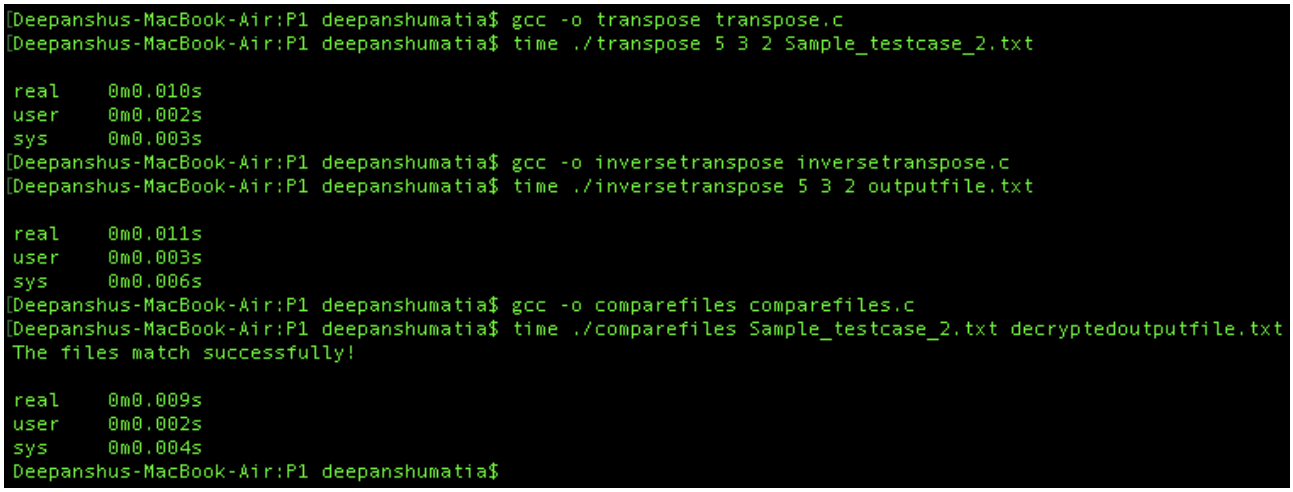
Problem 1:-

Write a program transpose.c that takes n, a, b, inputfile.txt in argv[1], argv[2], argv[3], and argv[4], respectively, applies the above encryption; and writes the result to outputfile.txt. Further, write a program inverseTranspose.c that decrypt the outputfile.txt and result in a new file named decryptedOutputfile.txt. Finally, write a program compareFiles.c to find the equivalence between the inputfile.txt and decryptedOutputfile.txt files.



Algorithms used :-

Arrays have been traversed linearly to access data. Files have also been accessed to take input.

Data Structures used :-

1D array has been used.

Problem 2:-

Write a C program, MAT.c to represent any region (in image array representation), into its quadtree form.

```
Last login: Wed Aug  7 12:43:43 on ttys000
[Deepanshus-MacBook-Air:~ deepanshumatia$ cd /Users/deepanshumatia/Desktop/CSN-261\ L2/P1
 Deepanshus-MacBook-Air:P1 deepanshumatia$ gcc -o MAT MAT.c -lm
[Deepanshus-MacBook-Air:P1 deepanshumatia$ time ./MAT
[1 1 1 1 2 2 3 3
1 1 1 1 2 2 3 3
1 1 1 1 4 4 5 5
1 1 1 1 4 4 5 5
6 6 7 8 13 13 14 14
6 6 9 10 13 13 14 14
11 11 12 12 15 16 19 19
11 11 12 12 17 18 19 19
Leafnode      Bitvalue      Level
1             0              1
2             0              2
3             0              2
4             1              2
5             1              2
6             0              2
7             0              3
8             1              3
9             1              3
10             1              3
11             0              2
12             1              2
13             1              2
14             1              2
15             1              3
16             1              3
17             1              3
18             0              3
19             0              2

real    0m0.010s
user    0m0.003s
sys     0m0.004s
Deepanshus-MacBook-Air:P1 deepanshumatia$
```

Algorithms used:-

Recursion has been used to create the maximal array.

Data Structures used :-

Quadtree and 2D arrays have been used to implement the program.