CSE102 – Computer Programming (Spring 2018)
Homework #10
Handed out: 2:00 pm Saturday May 09, 2018.
Due: 11:30 pm Friday, May 18, 2018.
Hand-in Policy: Via Moodle. No late submissions will be accepted.
Collaboration Policy: No collaboration is permitted.
Grading: This homework will be graded on the scale of 100.

Question (100 points):

You have *date.txt* input file which includes from 1 to 1.000.000 integers.

1) (10 points) Write a C programming function which read each line from "data.txt" file.

2) (60 points) Write a C programming function which finds prime numbers in data.txt file:

   a) (25 points) Record all these numbers (*data.txt*) into Linked-List, find and show all prime numbers.
   b) (25 points) Record all these numbers (*data.txt)* into an array and use dynamic memory allocation principle, find and show all prime numbers.

3) (30 points- each 10 points) Compare the calculation time of question 2.**a** and question 2.**b** according to values of data.txt:

   1) Between 1 and 500.000
   2) Between 1 and 750.000
   3) Between 1 and 1.000.000.

   Note: the calculation time is the running time of the program to find all results and then finish.

   Write your calculation time results of questions 3.1, 3.2 and 3.3 of question 2.**a** and question 2.**b** into **output_prime_LiknedList.txt and output_prime_dynamic_array.txt, respectively**.

   Note: Three results should be for each line in both of the output files (questions 3.1, 3.2 and 3.3).
   Show your **all results** and screenshots of your running programs **in HW10.pdf.**

4) (10 points) Calculate the file written time for both of output_prime_LiknedList.txt and output_prime_dynamic_array.txt files for data between 1 and 1.000.000. Show your **all results** and screenshots of your running programs **in HW10.pdf.**

   For any questions: Mrs Altan Akin, tualtan@gtu.edu.tr   Good Luck!
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Your submission (studentnumber_hw10.zip) should include the following files **and**
date.txt, screenshots of your running programs step by step with explanations as a **HW10.pdf**
file, **output_even_LiknedList.txt and output_even_dynamicarray.txt,**
HW10_<student_name>_<studentSurname>_<student number>_answer.c
"//" you put comment line before each question in your source code (It can be English or Turkish but not both of languages!)