UE18CS553– Advanced Algorithms (M.Tech 2nd Sem Core) **8th Mar 2019**

Assignment 1 : (20 Marks)

Guidelines:

a) Code has to be developed in **PYTHON (Open Source compiler IDEs)**

b) ***Assignment will have to be carried out in teams of size TWO.***

c) Submission (Code, Readme files, Test Data etc , Snapshot of results) will have to be done, on, or before deadline, in to the Google Drive shared folder

d) Summary report of the assignment will have to be handed over in ***hard copy after the Demo***

e) Approx ***4 Weeks*** of time will be available before submission. Actual dates will be broadcast. Hence look out !!

f) Follow fair code of ethics and , **develop your version** of code. You can discuss/consult with anyone, but write your version of the code. Plagiarism will get you zero marks !!

g) You will be called upon to Demo the assignment, to match with submission data you have provided in the Google Drive /Hard Copy .

Problem Definition, Data Generation, Testing and Logging Stats

Problem:

a) Implement Rabin-Karp string matcher for Text search with alphabet {a-z, A-Z, 0-9}

b) Implement RSA-Encryption with 32-bit Primes for encoding consisting of a 19-digit number , composed from 16-digit Credit card number + 3-digit CVV.

Data :

a) Any Text File with atleast Size n = 100,000 character from the specified alphabet

b) Use any 19 digit number !!!

Interface Support

a) >>> RK -t TxtFile -o OutPutFile

b) >>> RSA -i inputFile -o OutPutFile

Demo:

a) Your program should take a Pattern (may be up to 1000Char long) entered from the keyboard and write out the VALID Shifts to the specified output file. You should be able to confirm your result either with Naive String Matcher or a Python Lib function

b) Your Program Should take the input file consisting of 19-digit numbers and produce an encrypted number file
You should be able to confirm your Encryption with Decryption to produce the Input file (This means you should produce the Public and Private Keys First and store them !!)

Report:

– Should contain your design and implementation details

– Timings for various size Patterns and Timings for Encryption and Decryption

Last para of your report should contain your observations on the Learning Outcomes of this project.