Islamic University of Gaza

Faculty of Engineering

Computer Engineering Department

Discrete Mathematics

Project

By

Student Name:
Abdullah Muhaisen

Student Num:
120201347

Submitted To:

Eng. Mohammed Osama Al-Habbash

Gaza, Palestine

12-Dec-2022

Discrete Project

Encrypting & Decrypting:

Pseudorandom sequence: Is an algorithm for generating a sequence of numbers whose properties approximate the properties of sequences of random numbers.

Steps:

Using linear congruential method,

First, I used method to generate random key,

then using this function

X = (bytes[i] + key) mod 256, to encrypt chosen file

then reverse this Function to get the original data,

as inverse of X = (bytes[i] – key) mod 256,

Compressing & Decompressing:

[1]LZW Compression: Is a dictionary base compression algorithm encodes data by referencing a dictionary.

Steps:

First, start with standard character set represented by the first 256 ascii code characters

then, by the algorithm it takes the input text for instance along with its starting dictionary

then, store two letters together as new element in dictionary

then, when we find these two letters, we replace him by new asci code created

then, to decompress the file we do reverse logic

we sum all two letters which less than 256 and add it to new dictionary

so, now we have the reverse of dictionary

the advantage of this algorithm you need only a code to compress and decompress the file

without need to create by yourself a dictionary for every file.

Linear Search:

Linear Search: Is An algorithm for finding an element within a list, it sequentially checks each element of the list until a match is found or the whole list has been searched.

A linear search run on worst time as O(n) if the element in last index, and best case is O (1),

Linear search steps are only using for loop and using equals method in java.

References

(@geekific, n.d.)

[1]https://youtu.be/1KzUikIae6k