Lab 5-6-2023

1. In the first task you need to calculate and verify the hash of a file named "Lab5-6-2023.pdf" on LMS.
   a. upload the file to an online hash calculator service and calculate its hash using the SHA-256 hash function.

   Write a program yourself which does the following:
   b. accepts the online hash calculated in (1.a) as input and stores it
   c. imports the above-mentioned file in your code and calculate the hash (using SHA-256 hash function of hashlib python library)
   d. compare both hashes from (b) and (c) and print out a message indicating whether they match or not.

2. Create a text file containing random content of your own choice. Write a program that calculates SHA-256 hash of this file. Demonstrate the avalanche effect using this program, by making changes in the content.

3. Download the files named message1.bin and message2.bin from the following links:
   Message1.bin:
   https://drive.google.com/file/d/14KwmJ-cD-bOrGz65Nh7jpJTEyoac3tpq/view?usp=drive_link
   Message2.bin:
   https://drive.google.com/file/d/1U2K4cOks8Nb78kcJe6u4n8JP0HD2AhWk/view?usp=drive_link
   a. Import these files.
   b. Write a program that calculates the MD5 and SHA-1 hashes of the downloaded files and prints out the results on the screen.
   c. What results do you get? Describe your findings.

   [Hint: Why wasn't MD5 given a driving license?]