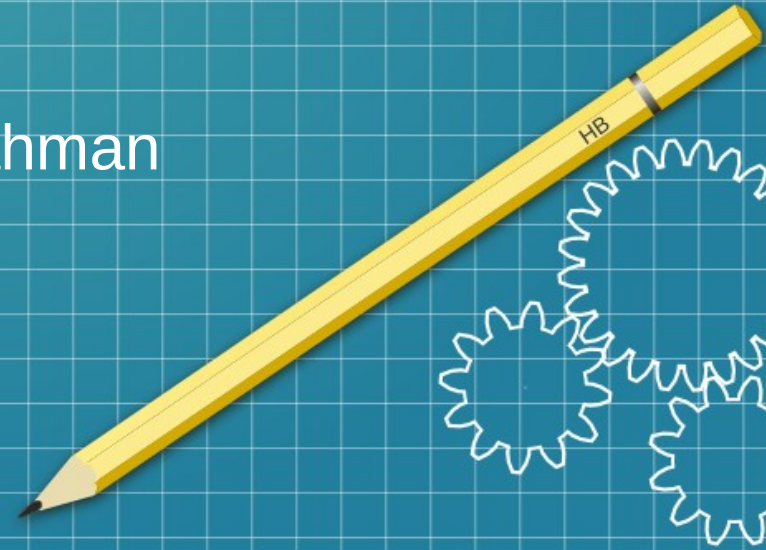
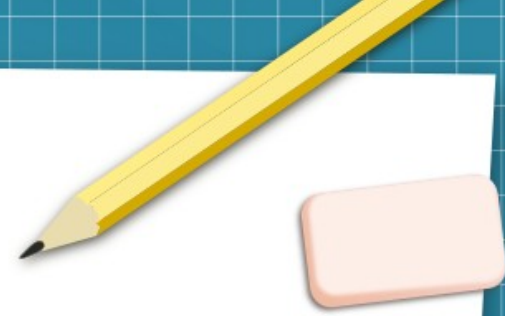


CandyMath

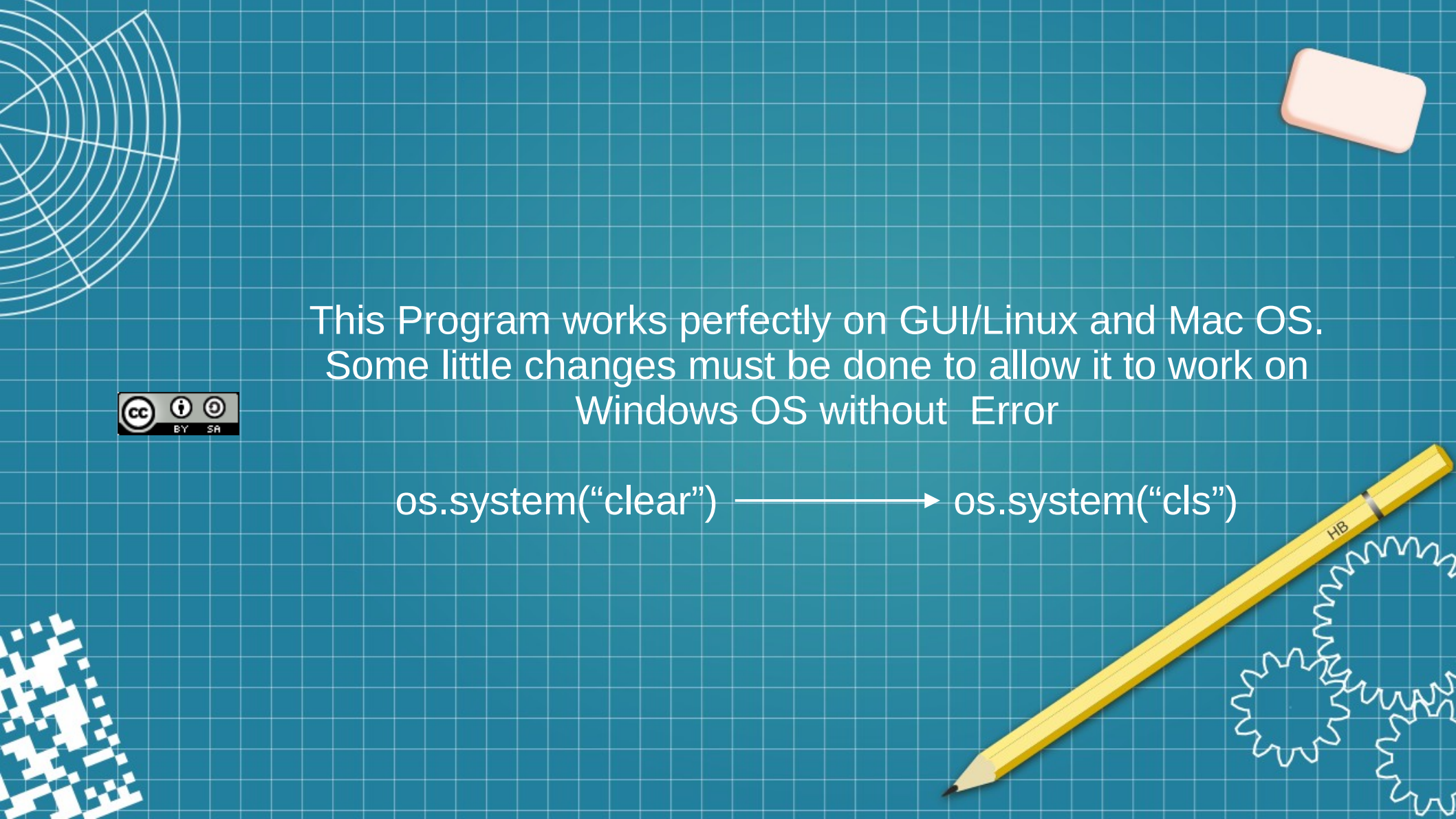
By Oussama Ben Hadj Dahman



What is CandyMath?



- CandyMath is a python program created by cybereagle2001(Oussama Ben Hadj Dahman) in order to help users in some math problems.
- CandyMath written in python 3.9.2. Allows the user to solve math equations and to draw some functions'graphs.
- This is just a simple version of the program. CandyMath can be developed to get into machine learning and AI. so that it will be able to solve all types of equations not only pre-programmed ones.



This Program works perfectly on GUI/Linux and Mac OS.
Some little changes must be done to allow it to work on
Windows OS without Error



`os.system("clear")` —————→ `os.system("cls")`



Requirements

- In CandyMath I used python libraries in many parts of the program, we will see the utility of them one by one: (please make sure they are installed on your computer)

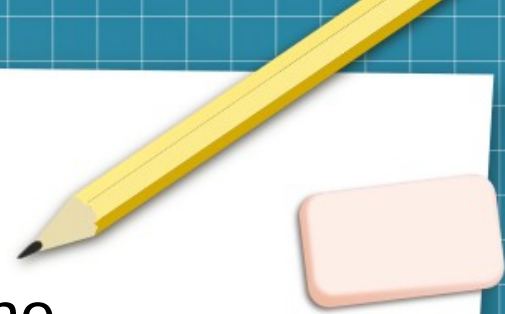


Library Requirements

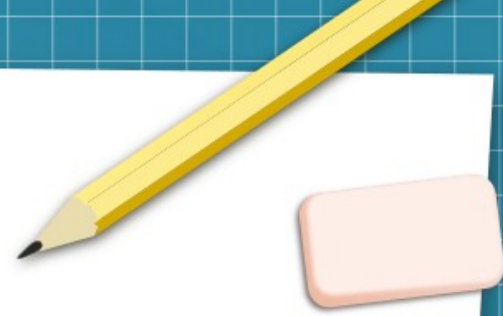
- os
- time
- base64
- pylab
- numpy
- math
- getpass

Library OS

- The OS library (operating system library) allows the programmer to execute commands from the OS scripting language or to access different part of the system.
- I used os library to execute the “clear” command. It allow me to make the program smoother in the transaction from interface to another without confusing the user



Library time



- This module provides various time-related functions.
- I used `time.sleep(time_in_second)` in order to automate some actions like showing Error messages, warnings...

Library base64



- This module provides functions for encoding binary data to printable ASCII characters and decoding such encodings back to binary data. It provides encoding and decoding functions for the encodings specified in RFC 3548, which defines the Base16, Base32, and Base64 algorithms, and for the de-facto standard Ascii85 and Base85 encodings.
- I used base64 Library in order to save users information's like credentials and personal data safely. (this security is not the best. It can be upgraded to better hashing algorithms in the future)
- Library base64 was used in encrypt() and decrypt() functions.

Library pylab



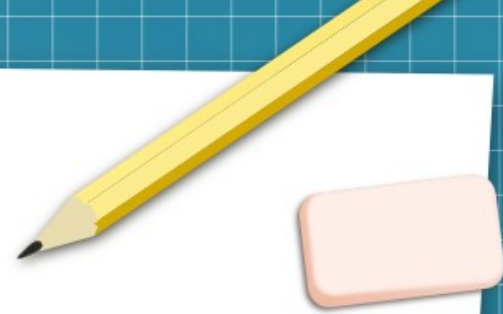
- PyLab is a procedural interface to the Matplotlib object-oriented plotting library. Matplotlib is the whole package; matplotlib.pyplot is a module in Matplotlib; and PyLab is a module that gets installed alongside Matplotlib. PyLab is a convenience module that bulk imports matplotlib.pyplot (for plotting) and NumPy (for Mathematics and working with arrays)
- I used pylab Library in the Function graphs modules of CandyMaths. It allowed me to create specific graphs using specific functions

Library numpy & math



- I used numpy in order to use the root function embedded in this module. It allows the programmer to solve second polynomial equations in the Imaginary groups and Real groups.
- I used math Library in solving equations modules of my program.
- It allowed me to access some essential math functions as like as acos/asin/pow and others..

Library getpass





- Getpass library contains only two functions:
- Getpass: I used this function in order to permit to the user to type the password and the input will not be echoed so that it allows more security to the login or the sign in modules.
- Getuser: allow to return the user login (username) [I did not use this function]

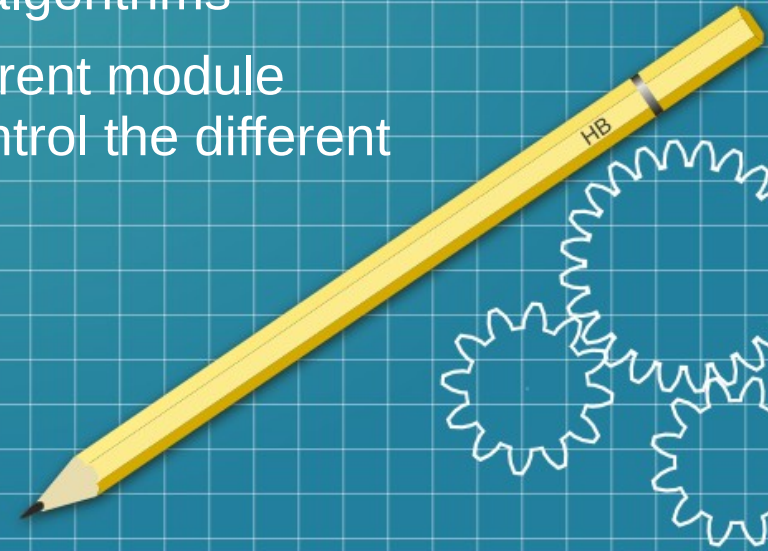
The use of files and lists



- I exploited the files course and lists course on signup(), login(), encrypt() and decrypt() Functions..
- I used lists in order to save information and credentials which allowed me to encrypt the data easier and to use for loops on them.
- The files course was used to save credentials on a file created on the local system. This will allow the program to verify the identity of the user or to give him the ability to retrieve his password if needed.
- (this operation is not secure even if the data was encrypted because the hacker can exploit this data base specially if he gain access on the machine)
- This operation can be also used to save the data on a server which will be more secure



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- In CandyMath I used while loops for input conditioning (verifying passwords).
 - For loops for lists manipulation
 - If .. elif .. else for menu creation and condition verification
 - Output /input functions like (input()/ print()/show())
 - And for sure mathematical operations and algorithms
 - I preferred to create this program using different module because it will allow me to have the best control the different modules and on each part of the program





This was CandyMath readme file

By Oussama Ben Hadj Dahman
Hope you will enjoy it

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