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Abstract:

The entirety of the project is going to revolve around encrypting and decrypting a fake banking account. Within the code it will tell how much money is in the account and will also show the monthly interest rate of the account. The date that the account was created or accessed will also be given along with how much money was withdrawn and deposited into the account.

Introduction:

My main goal for this project is to learn how to encrypt and decrypt code. The plan for this project is to create an encryption key that will encrypt the code and to create a decryption key so that only I can access the code and would be the only one who can read it. My plan for the decryption key is to put it on a USB drive so that when I plug the drive in, the file would be able to locate it and would decrypt the code.

Detailed System Description:

MyAccount
- id: int - balance: double - annualInterestRate: double - dateCreated: Date
+ MyAccount() + MyAccount(id: int, balance: double) + getId(): int + setId(id: int): void + getBalance(): double + setBalance(balance: double): void

+ getAnnualInterestRate(): double
+ setAnnualInterestRate(annualInterestRate: double): void
+ getDateCreated(): String
+ getMonthlyInterestRate(): double
+ withdraw(amount: double): void
+ deposit(amount: double): void

The code itself is a fake banking program that outputs the amount of money that is currently in the banking account, the monthly interest rate, and the date that the transaction was created. When a specific amount of money is either deposited or withdrawn from the account, the overall total of the account will either increase or decrease depending on how much the user puts into the account or takes out. The user will be able to write in how much money they have in their account, how much they want to withdraw from their account, and finally, how much they want to deposit into their account.

Requirements:

All this this piece of code is doing is allowing the user to withdraw and deposit money into their banking account. It will also show the total amount that is in their banking account, the monthly interest rate of the account, and the date that the transaction was made. In order to protect this file, I am going to encrypt it and on a USB drive will be the decryption key that will allow the file to unlock and become readable. At this point all I have to do is make both an encryption and decryption key and to obtain a USB drive.

Literature Survey:

Well banking accounts have already been made and millions of banking transactions happen on a daily basis. The idea for a banking system has been used, however, I am using this kind of system for my project because this is a vital piece of information in a person's life that needs to be protected and locked away from others. So by making this fake banking system, my goal is to encrypt the file so that only I can access and read the information within the file. That is how it works in the real world. A person is given a pin that allows them to only access their banking account. Yes, this is not a secure as encrypting a file, but it's very similar.

User Manual:

The steps to this final project are simple.

1. Plug in the USB drive with the decryption key on it.
2. Access the file that contains the encryption key.
3. Once the file is accessible, the decryption key will decrypt the code and make it readable.
4. Once the file is readable, you will enter the amount of money that you want in your fake banking account.
5. Then, you will enter the amount of money that you would like to withdraw from your banking account.
6. Finally, you will enter the amount of money that you would like to deposit into your banking account.
7. Once you have entered the amounts, the information on how much money is in your banking account will be shown, along with the monthly interest rate and the date of the transaction.

Conclusion:

By the end of this project, I not only would have learned to create a fake banking account, but my goal of learning how to encrypt and decrypt will have been completed. Yes, the project does not seem like much of a learning experience, however, learning how to encrypt and decrypt files will become very useful for my future.

The Final Product:

So as stated above, my original intent was to create a fake banking system that would require the user to plug in the amount of money within the account and the amount of money that would be withdrawn and deposited into the account. After those amounts were plugged into the account, the new account total would be displayed along with the average monthly interest rate and the day and time in which the transaction was created. This fake banking system runs very similarly to a regular banking system that a person would use on a daily basis.

My original intent was to encrypt both files that go along with the fake banking system, however, I ran into a problem and I had to do something a little less difficult. Instead of encrypting both files entirely, I encrypted a section of the output file that displays the banking information that the user plugged into the code. I was struggling with finding information on how to encrypt entire files, so instead I found some information on how to encrypt a portion of a file and honestly it was so much easier to do that.

With decrypting the files, I was originally going to put the decryption key onto a USB drive, but again I ran into many problems and difficulties with that so instead I used an algorithm within the output file that would decrypt the code right after the code was encrypted. After the the banking information is plugged into the code, the new account balance, the monthly interest rate, and the date that the transaction was made will be encrypted and then immediately after will be decrypted and will present the information.

The goal for my project was shifted into a different direction, however, even though that may be true, I was still able to learn how to encrypt specific pieces of code and I was still able to create the fake banking system. Eventually I would like to learn how to encrypt entire files, but for the time being that task became to difficult. I understand how encrypting and decrypting works, but I've come to realize that both of these tasks are not as easy as I thought when I first chose this topic. This project may not be long or even very impressive, but from the moment I started researching cryptography, I began to understand what it is, why it is used, and how secure it can be if done properly. Cryptography is not an easy subject to learn let alone do, but I feel as if it is very important to understand and in my own opinion I would someday like to be able to encrypt and decrypt not only files, but entire systems.