ATMIYA UNIVERSITY

Rajkot

A

Report On

ParaVault

UnderSubject of

Project

B.TECH,Semester– VII
(ComputerEngineering)

Submited by:

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AcademicYear
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CANDIDATE'S DECLARATION

We hereby declare that the work presented in this project entitled "ParaVault" submitted towards completion of project in 7 th Semester of B.Tech. Computer Engineering is an authentic record of our original work carried out under the guidance of "Prof. Nirali Borad".

We have not submitted the matter embodied in this project for the award of any other degree.

Semester:

7 th Place:Rajkot

Signature:

Param Kalaria(201002011)

ATMIYA UNIVERSITY RAJKOT

CERTIFICATE

Date:

This is to certify that the "ParaVault" has been carried out by Param Kalaria under my guidance in fulfillment of the subject Project in COMPUTER ENGINEERING (7thSemester) of Atmiya University, Rajkot during the academic year 2022.

Prof. Nirali Borad   Prof.Tosal M.Bhalodia

(Project Guide)   **(Head of the Department)**

ACKNOWLEDGEMENT

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We are highly indebted to Prof. Nirali Borad for their guidance and constant Supervision as well as for providing necessary information regarding the Mini Project titled "ParaVault". We would like to express our gratitude towards staff members of Computer Engineering Department, Atmiya University for their kind co-operation and encouragement which helped us in completion of this project.

We even thank and appreciate to our colleague in developing the project and people who havewillinglyhelped us out with theirabilities.

Param Kalaria(201002011)

<u>ABSTRACT</u>

ParaVault Software provides the benefits of streamlined operations ,enhanced File Security; Key Management improved profitability This is powerful,flexible,and easy to use and is designed and developed to deliver real conceivable benefits to IT Companys. More importantly it is backed by reliable and developed support. The project 'ParaVault' is based on the File Encryption and Security ,object oriented and cryptography techniques as there are many areas where we keep the records in database for which we are using SQLLite software which is one of the best and easiest software to keep our information. This project uses C# and Python as the front-end and back-end software which is an Object Oriented Programming and has connectivity with SQLLite.

Index

1.Introduction

1.1 Introduction

This Project is a simple File Vault that saves and encrypt the file content.This Project use the C# and Python as 2 main programming language.C# is used for User Interface and front end workloads.

Python is used for Backend workload.ParaVault uses 128 bit AES Encryption method using single key.The Encryption key is portable and can be move any location.

1.2 Purpose

The Main Purpose is to making this kind of project is about the File Security. Encrypting the file content will provide the security. In 21st century the security is a key factor.

1.3 Hardware requirement

The hardware requirement is very basic its only runs on window.All the Windows are supported.All required files will be come with software.The Software will need admin access.To use some feature you need pendrive to run some other feather like portable pendrive.

2.Software Cryptography

2.1 Encryption methods

ParaVault uses AES 128-bit encryption methods to encrypt the file content.AES Encryption method using single key. Encryption is done in the python programming language using fernet library.

First the Main UI will send command to the backend workload and the python script will take over the list of files and start encrypting the file one-by-one.All records are being stored in the Database.

2.2 Dencrytion methods

As ParaVault uses AES 128-bit encryption methods to decrypt the file content using the key it can be done.To decrypt the files its also using the Fernet library to decrypt the files using key.

To decrypt the file it have different UI or section. Select the files first and press on key and select the key and decrypt.

2.3 Key Management

ParaVault have very good feature called portable key. The key can be moved anywhere and when the data is selected the key will generate and store is database the local disk.

3. Main System

3.1 Working UI

The UI is design in Qt and Visual Studio(C#) for faster UI designing.There will be a Login page that ask for username and password that is store in database and its encrypted.If you forgot the password you cannot access the data again. The ParaVault only works in Windows.

3.2 C# and Python

C# programming language is Object oriented programming language that used in all fields in IT world like Web,Windows Applications,Linux Application,Mobile App,System Programming and many more.The C# is used in ParaVault for designing the UI at the front-end workload.

Python is OOP programming language is used in ParaVault for back-end workload like database reading and writing and Encryption and Decryption.
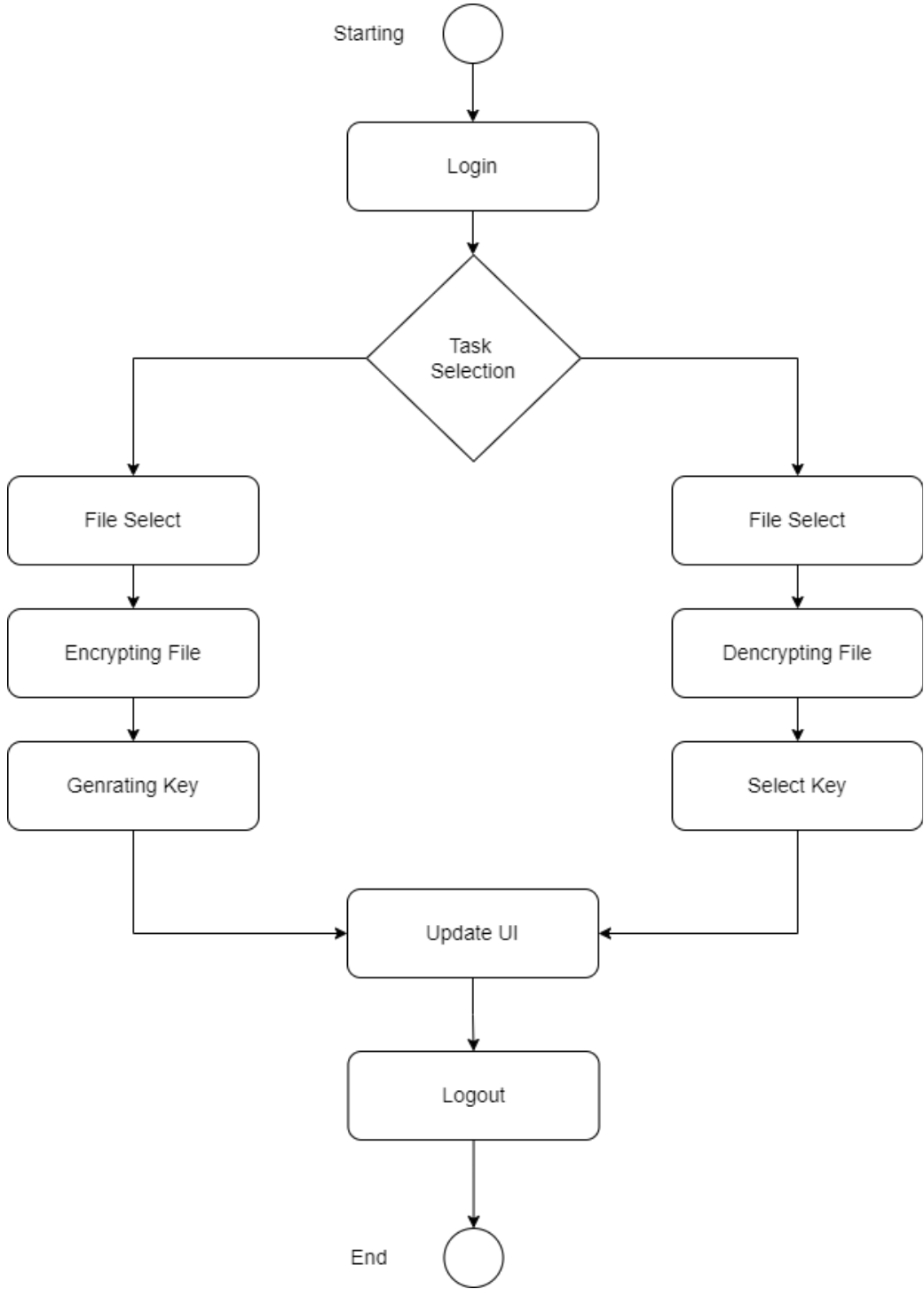
3.3 Work Load

The ParaVault uses more space in the Ram and Storage device, because its encrypt and dencrypt on Memory power and save it on Storage device.Its only Encrypt the single file one by one. All the selected file are stored in Array to manage the Memory space more faster workload.The User have to select the task first to work with.Key management is very easy when the Encryption methods creates the key/password for the encrypted file its save directly to Storage device or Pendrive.
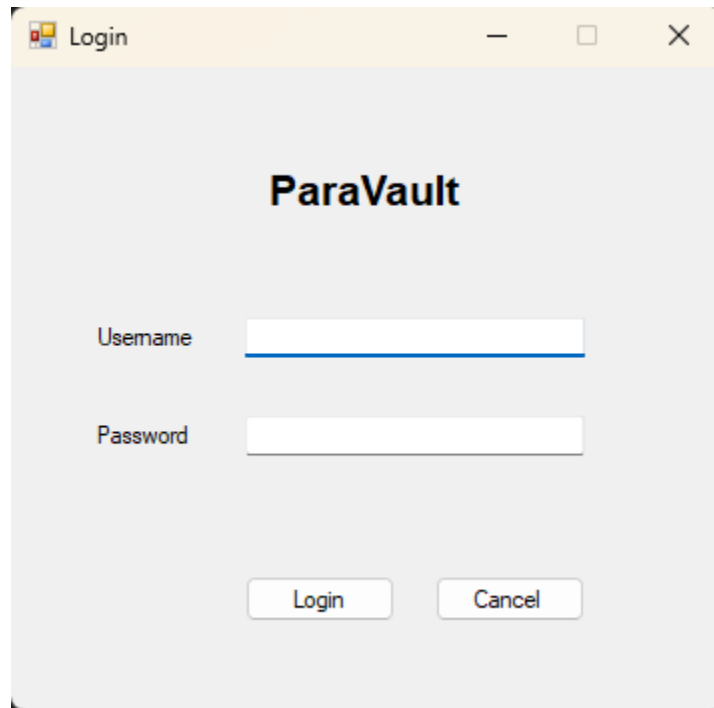
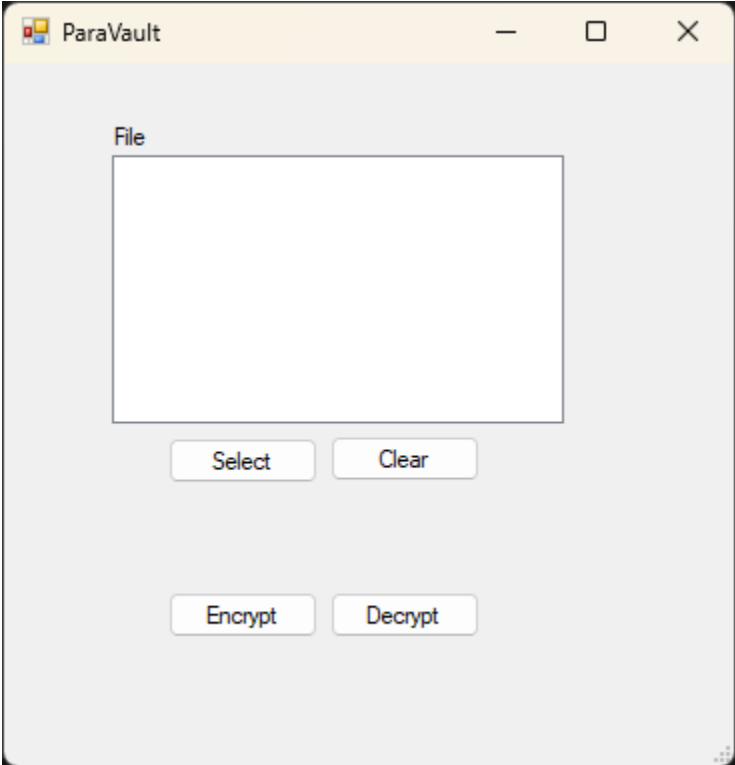# 4.Diagrams

4.1 Usecase Diagram

4.2 Activity Diagram

Starting

Login

Task Selection

File Select

Encrypting File

Genrating Key

File Select

Dencrypting File

Select Key

Update UI

Logout

End
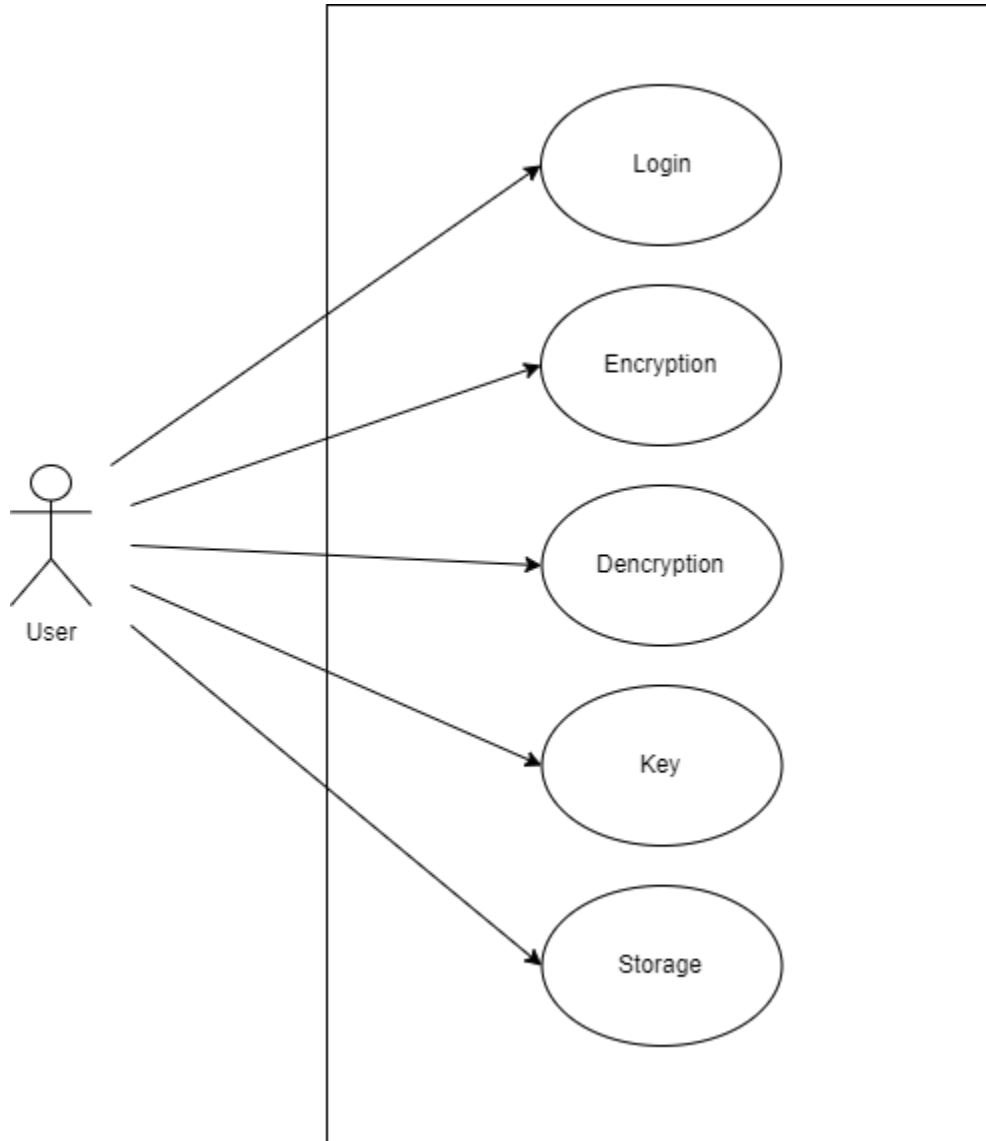
5.Screenshot

5.1 Login Page

5.2 MainVault

Limitations

The main limitations of this software is its only runs on Windows.Its needs 2gb min to run properly.This Project is only for big company.Installing the Software is little hard to be working properly.

<u>Conclusion</u>

The Conclusion on this software is to make file encrypt and safe to be protected.

<u>References</u>

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2. Microsoft docs
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8. Geeks of Geeks