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Enhanced Cloud Solution for Sensitive Personal Data Storage and Sharing

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Abstract: ***Sensitive personal data, or sensitive personal information refers to a category of information that is considered more private and requires special protection due to its sensitive nature. An individual's last will and testament holds sensitive personal data, detailing the distribution of assets after their death. This category involves data that, if mishandled or disclosed improperly, could result in potential harm, discrimination, or other adverse consequences for the individual. The cloud emerges as a safe and accessible option for storing such data. With robust security features, including encryption and access controls, the cloud provides a secure repository. The aim of this project is to develop a practical model named AssetPro for safeguarding personal sensitive data, with a focus on enabling the secure delivery of such information to designated recipients after an individual's death.***

I. INTRODUCTION

An antiquated term that refers to the document written by a testator that details what is to happen to property owned by that testator upon death. This term is still frequently used in an interchangeable way to mean a will, though to be precise a last will and testament refers to the most recent version of a will. A will can confer rights or ownership over real property or personal property and can also be used to appoint legal guardians, but only takes effect once the testator dies. When a will only deals with real property, it may be called a devise, and when a will only deals with personal property, it called as testament. If a decedent does not leave a last will and testament, their assets will be administered by a probate court. A will or testament is a legal document that expresses a person's (testator) wishes as to how their property (estate) is to be distributed after their death and as to which person (executor) is to manage the property until its final distribution. For the distribution (devolution) of property not determined by a will, see inheritance and intestacy.

Cloud Computing

Data is one of the most valuable assets that any company can hold. One of the best ways to store these assets is within the cloud. Cloud computing is the on-demand delivery of IT resources over the Internet with pay-as-you-go pricing. Instead of buying, owning, and maintaining physical data centres and servers, you can access technology services, such as computing power, storage, and databases, on an as-needed basis from a cloud provider like Amazon Web Services (AWS).

Types of Cloud Services

Cloud computing is not a single piece of technology like a microchip or a cellphone. Rather, it's a system primarily comprised of three services: software-as-a-service (SaaS), infrastructure-as-a-service (IaaS), and platform-as-a-service (PaaS).

Cloud Deployment Models

Organizations have several choices for deploying a cloud computing models:

- Public Cloud
- Private Cloud
- Hybird Cloud
- Community Cloud

II. SOFTWARE ANALYSIS

Hardware Requirements

- Processors: Intel® Core™ i5 processor 4300M at 2.60 GHz or 2.59 GHz (1 socket, 2 cores, 2 threads per core), 8 GB of DRAM
- Disk space: 320 GB
- Operating systems: Windows® 10, macOS*, and Linux*
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Software Requirements

- Server Side : Python 3.7.4(64-bit) or (32-bit)
- Client Side : HTML, CSS, Bootstrap
- IDE : Flask 1.1.1
- Back end : MySQL 5.
- Server : Wampserver 2i

SOFTWARE DESCRIPTION (PYTHON 3.7.4)

- Python is a general-purpose interpreted, interactive, object-oriented, and high-level programming language. It was created by Guido van Rossum during 1985- 1990. Like Perl, Python source code is also available under the GNU General Public License (GPL).
- Python is a high-level, interpreted, interactive and object-oriented scripting language. Python is designed to be highly readable.

The biggest strength of Python is huge collection of standard library which can be used for the following:

- Machine Learning
- GUI Applications (like Kivy, Tkinter, PyQt etc.)
- Web frameworks like Django (used by YouTube, Instagram, Dropbox)
- Image processing (like OpenCV, Pillow)
- Web scraping (like Scrapy, BeautifulSoup, Selenium)
- Test frameworks
- Multimedia
- Scientific computing
- Text processing and many more.

FRONT END: DESIGN BOOTSTRAP 4

- Bootstrap is a free and open-source tool collection for creating responsive websites and web applications. It is the most popular HTML, CSS, and JavaScript framework for developing responsive, mobile-first websites.

FLASK

- Flask is a web framework. This means flask provides you with tools, libraries and technologies that allow you to build a web application. This web application can be some web pages, a blog, a wiki or go as big as a web-based calendar application or a commercial website.
- Flask is often referred to as a micro framework. It aims to keep the core of an application simple yet extensible. Flask does not have built-in abstraction layer for database handling, nor does it have formed a validation support. Instead, Flask supports the extensions to add such functionality to the application.

BACK END: MYSQL

MySQL tutorial provides basic and advanced concepts of MySQL. Our MySQL tutorial is designed for beginners and professionals. MySQL is a relational database management system based on the Structured Query Language, which is the popular language for accessing and managing the records in the database. MySQL is currently the most popular database management system software used for managing the relational database. It is open-source database software, which is supported by Oracle Company.

WAMPSERVER

WAMPServer is a reliable web development software program that lets you create web apps with MYSQL database and PHP Apache2. With an intuitive interface, the application features numerous functionalities and makes it the preferred choice of developers from around the world. The software is free to use and doesn't require a payment or subscription. WAMPServer is a reliable web development software program that lets you create web apps with MYSQL database and PHP Apache2.

III. EXISTING SYSTEM

- In existing system Reminders applications are used everyday to help people remember to perform a task at an appropriate place or future time.
- Common methods for reminding are carefully placed post-it notes, email, Jo-do lists and electronic calendars.

- Manual Will hide in their house.

Existing Encryption Algorithms

- AES
- DES
- RSA

PROPOSED SYSTEM

- The proposed system is an application for the cloud platform that share the testator asset details after his/her death to the beneficiary in schedule time.
- Beneficiary Access Code-based Encryption and Dynamic Access Control (BACE) is used to secure and store the asset files.
- Reminder will be set in the cloud with the help of the Cloud brain application.

IV. MODULES

1. Cloud Brain Web Interface
2. Asset Management
3. Asset Security Model
    - 4.1. Setup
    - 4.2. KeyGen
    - 4.3. Data Encryption
    - 4.4. Data Decryption
4. Access Remainder
5. Notification Module
6. Data Sharing Model
7. Testator UI
    - 7.1. Register/Login
    - 7.2. Add Alias
    - 7.3. Add/Edit/View/Delete Asset Details
    - 7.4. Customize Relative
    - 7.5. Access Control
8. Beneficiary UI
    - 8.1. Login
    - 8.2. View Asset Details
9. System Security Analysis
10. Performance Analysis

ARCHITECTURE DIAGRAM

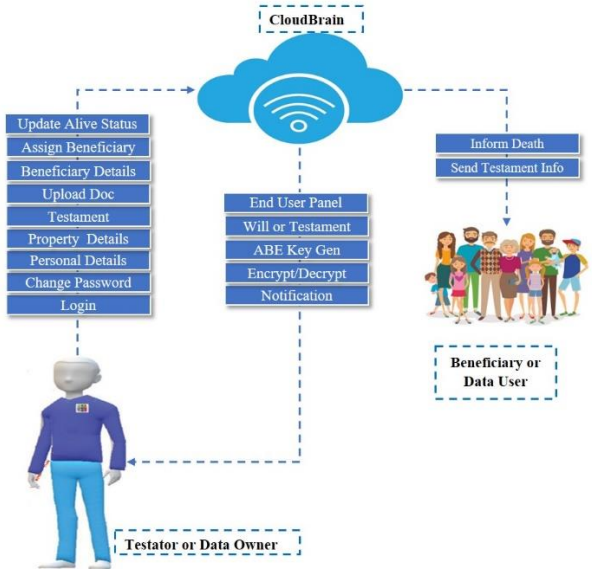

Fig.1. System Architecture

VI. CONCLUSION

This Project entitled is Developing a Cloud Brain to life for the secrets. This project was developed to store the secret information of the testator. Testator can store their Testament or Will information into this site. Then login and view the information and also modify the information. In conclusion, the ABE based secure storing of testament data and distribution system after the death of the testator to the beneficiary in the cloud is an effective solution for ensuring the secure storage and distribution of important data. The system utilizes advanced encryption algorithms to ensure that the data is protected and can only be accessed by authorized users. The authentication and access control mechanisms are also robust, ensuring that only the intended users can access the data. The system is designed to be scalable, reliable, and fault-tolerant, ensuring that it can handle a large number of testaments and beneficiaries, and that it can recover from failures without losing any data. The user interface is user-friendly and intuitive, making it easy for users to manage their accounts and access their testaments. Overall, the ABE based secure storing of testament data and distribution system after the death of the testator to the beneficiary in the cloud provides a secure, efficient, and reliable way to store and distribute testament data to authorized beneficiaries after the death of the testator. It provides peace of mind to both the testator and their beneficiaries, knowing that their important data is safe and can be accessed when needed.

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