SAS_BITS
Secured Authentication System

Birla Institute of technology and Science, Pilani

technical documentation overview

This white paper seeks to provide an overview of technical documentation for SAS_BITS. It also highlights the tools and technologies used in technical documentation as well as challenges

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Abstract

This white paper seeks to provide an overview of technical documentation for SAS_BITS. It also highlights the technology used as well as the challenges while developing SAS_BITS.

Technical documentation is an integral part of the introduction of a product r service to the market. It must always provide the most accurate information about the product (i.e., User manuals and Troubleshooting guides)

Overview

Technical documentation spreads across the entire life cycle from the design phase to the disposal phase across the industries. Typical technical documents used across the product include specific documents, operating manuals, servicing instruction, installation manuals, Maintenance manuals and User manuals.

SAS_BITS is an application to authenticate the legitimate users of a financial organization, which further provides some features to the valid users. Such as enquiry of account balance, transfer balance and update the balance.

This documentation describes, how this authentication system works and is built. It explains the flow of program, discuss the positive and negative test cases with proper explanations, challenges while creating the system, technologies used and at last the future scope of the application.

Challenges

Writing correct and applicable content with supporting illustrations is real challenge as this not only requires effective technical writing skills but also product/domain knowledge, skills to illustrate the application with proper diagrams, and also an end user point of view to visualize the application.

The main challenge faced by us was, we are addicted to new programming languages which provide us more flexible environment than **c** a traditional programming language, which has no flexibility as other popular programming languages. Even after all the concept was clear to us how this system is to be designed, it took us around 2 days to learn about C way of pointers and string data type, which is actually not even applicable in c.

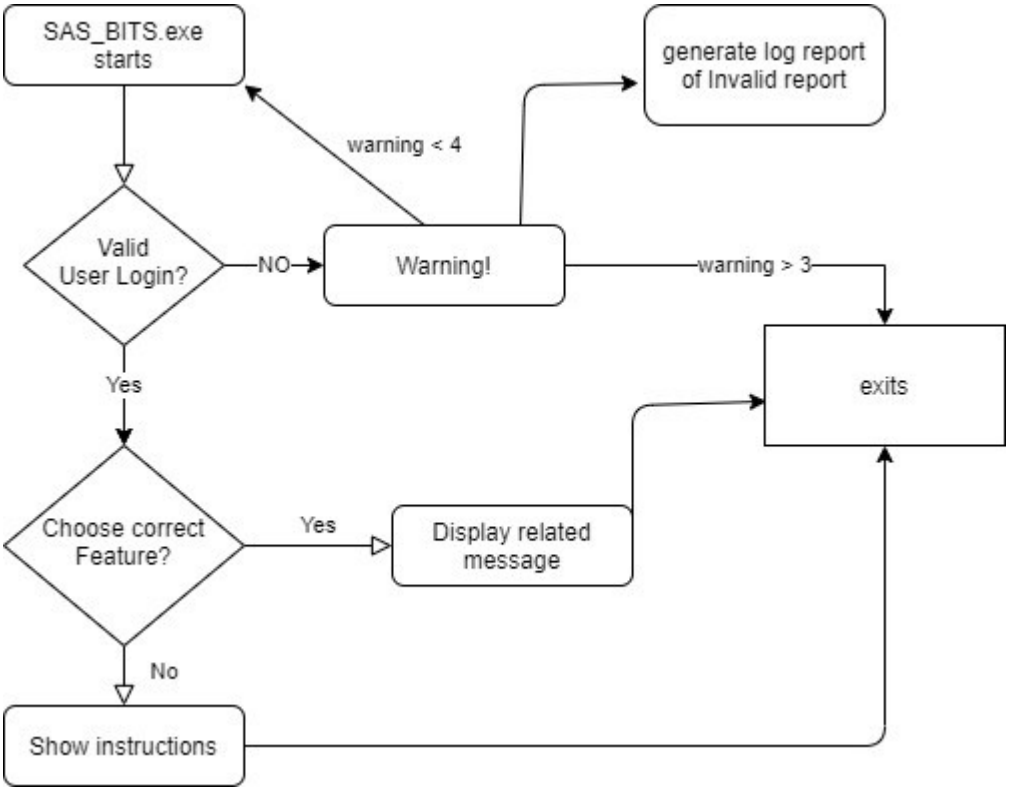
Work Flow and Documentation

Technical documentation generally follows a typical workflow as outlined under:

Requirement Analysis: Requirement Analysis is an important step in the technical documentation life cycle.

Lot of effort was required for this process as information was taken from various inputs provide buy the assignment. The information was discussed with team and then certain break point were proposed for SAS_BITS

Designing: In this phase workflow templates were designed. As c has very strict rule related to function declaration and calling, it was tough to execute this program at first but, by properly preparing the work flow it was finally done.



Technology used

SAS_BITS is fully coded in C programming language.

C is a powerful general-purpose programming language. It can be used to develop software like operating systems, databases, compilers, and so on. C programming is an excellent language to learn to program for beginners.

Requirements

Any System loaded with C language; compiler can run **SAS_BITS**.

Minimum Hardwar Requirements:

a. Processor with Pentium core 2.5ghz or more
b. Hard Disk: 10MB free space
c. Ram: 512MB

Software Requirements:

a. Operating System: Window 7,8,10 or Linux
b. IDE: Turbo C++/VS Code/ Sublime/ Visual Studio/Code Blocks

Source code

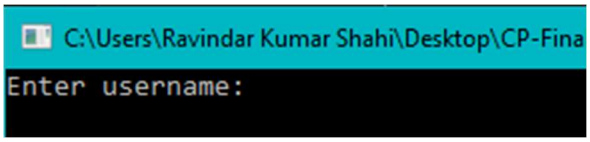
```
#include <stdio.h>
#include <conio.h>
#include <string.h>
#include <unistd.h>
#include<time.h>
//global_variables
//get_time_log
time_t tm;
//is_validate(0=false,1=true)
int i;
int is_validate;
int user_choice;
int invalid_try = 0;
//current_working_directory
char cwd[256];
//legitimate_users_data
char bits_user[5][20] = {"dev_ravi", "frn_raghu", "ods_tarun", "pbt_roshan", "grl
_ritika"};
char bits_pass[5][20] = {"hey", "hi", "not", "hola", "adios"};
//user_credentials
char input_username[1][20];
char input_pass[1][20];
//total_numer_of_data
int total_user;
int total_pass;
//log_path
char path[256];
//create_log
void generate_log()
{
    time(&tm);
    FILE *fptr;
    fptr =fopen(strcat(cwd,"\\sas_bits_log.txt"),"a");
    if(fptr ==NULL)
    {
        printf("Log Doesn't exist!");
    }
    //printing_log
    fprintf(fptr,"Invalid attempt on: %s",ctime(&tm));
    fprintf(fptr,"Username: %s, Password: %s\n",input_username[0],input_pass[0]);
    fclose(fptr);

}
```

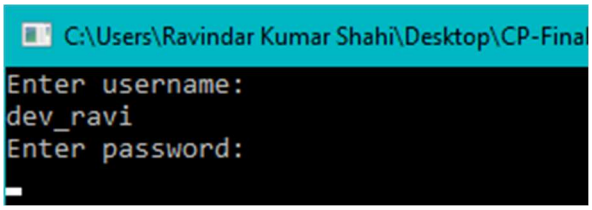
```
//user_facility
void user_facility()
{
    printf("Welcome! \n");
    printf("You would like to: \n 1. Check Account Balance \n 2. Transfer Fund \n
 3. Update Balance \n");
    printf("Enter your Choice:\n");
    //User_
    scanf("%d", &user_choice);
    switch (user_choice)
    {
    case 1:
        printf("You don't have any balance. Please start Earning.");
        break;
    case 2:
        printf("Told you no money. No Transfer Possible.");
        break;
    case 3:
        printf("Thanks for using Our System. Update of Balance will be done short
ly.");
        break;
    default:
        printf("Thank you for your response.Please click \n 1 for Balance Enquiry
 \n 2 for Transfer Fund \n 3 for Balance Update.");
    }
}
//User_Authentication ----- Checking legitimate username and password.
void validate_cred()
{
    for (i = 0; i < 5; i++)
    {
        if (strcmp(bits_user[i], input_username[0]) == 0 && strcmp(bits_pass[i],
input_pass[0]) == 0)
        {
            user_facility();
            is_validate = 1;
            invalid_try = 3;
            break;
        }
        else
        {
            is_validate = 0;
        }
    }
    if (is_validate != 1)
```

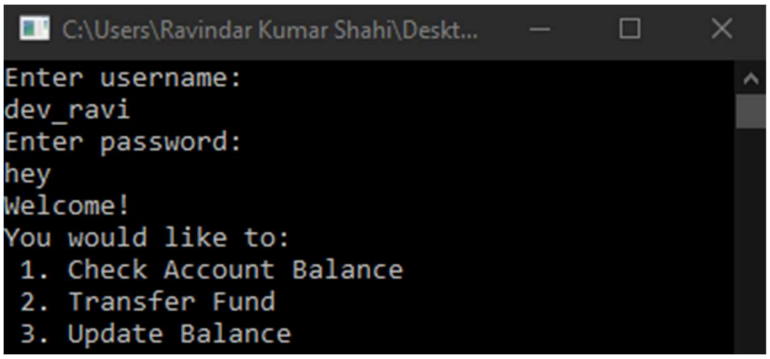
```
    {
        printf("Invalid Credentials! Please try Again.\n\n");

        if (getcwd(cwd, sizeof(cwd)) != NULL)
        {
           generate_log();
        }
    }
}
//user_input
void get_cred()
{
    //user_input_credentials
    if (total_user == total_pass && invalid_try < 3)
    {
        printf("Enter username:\n");
        scanf("%s", input_username[0]);
        printf("Enter password:\n");
        scanf("%s", input_pass[0]);
        invalid_try++;
        validate_cred();
    }
}
//verify_user
void verify_user()
{
    while (invalid_try != 4)
    {
        if (invalid_try < 3)
        {
            get_cred();
        }
        else
        {
            if(is_validate!=1)
            {
                printf("Account locked. Maximum attempt reached!\nPlease contact
your admin.");
            }

            invalid_try++;
        }
    }
}
```

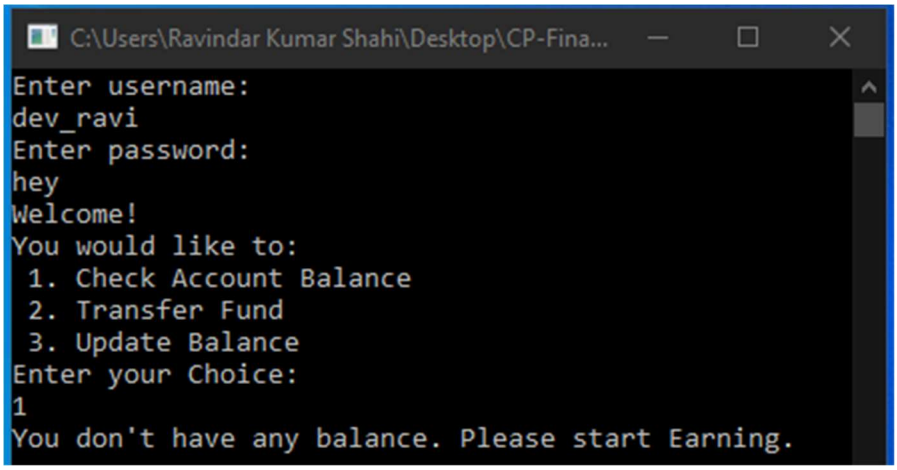
```
//main_function
void main()
{
    total_user = sizeof(bits_user) / sizeof(bits_user[0]);
    total_pass = sizeof(bits_pass) / sizeof(bits_user[0]);
    verify_user();
    getch();
<<<<<<< HEAD
}
=======
}
>>>>>>> 10ee2772611d60cd411c59853ce1442164399b07
```

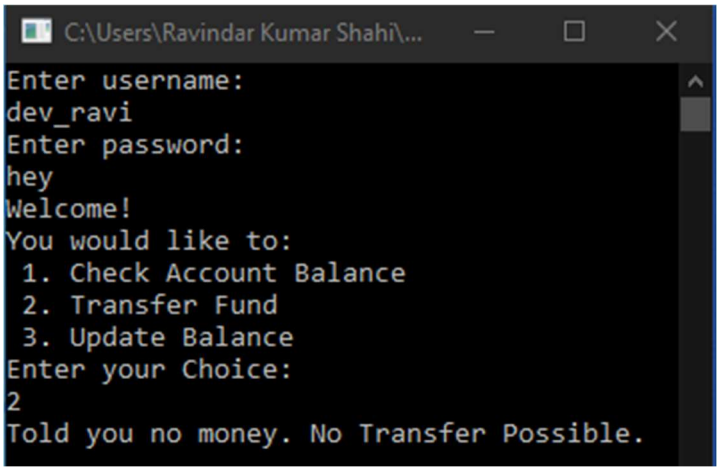
Screen Shots

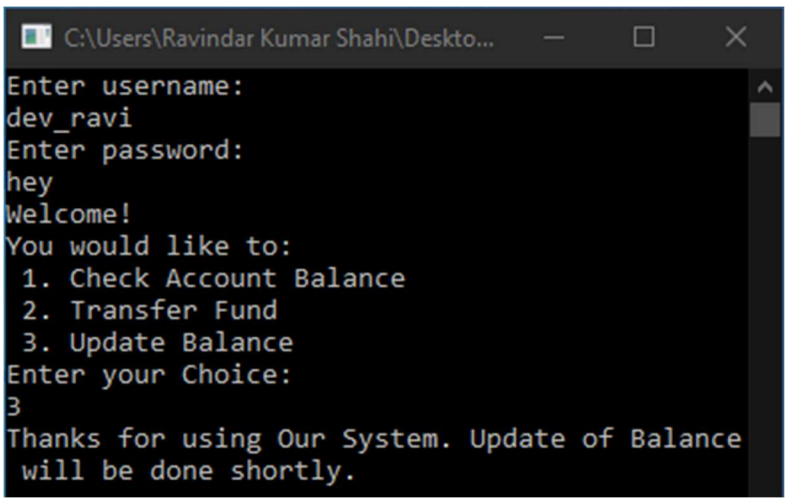


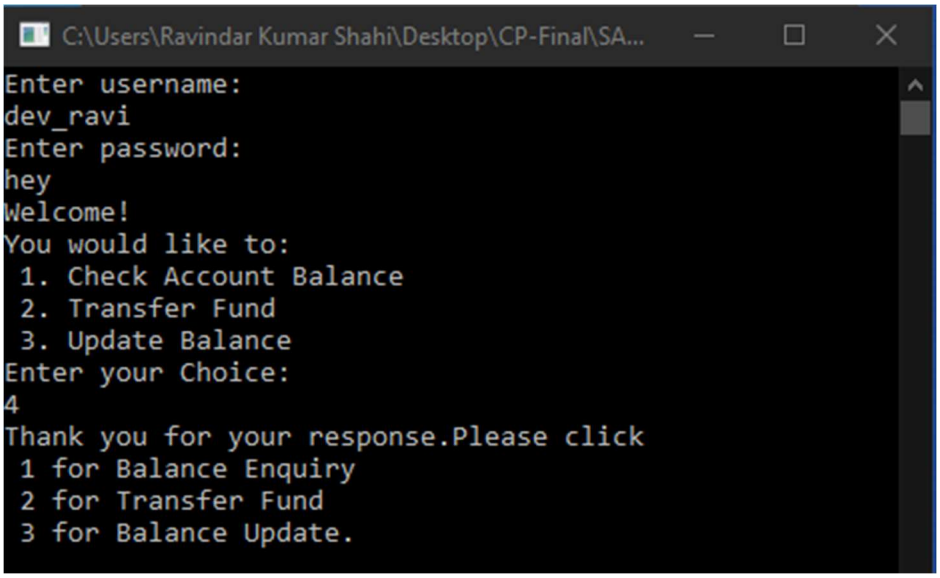


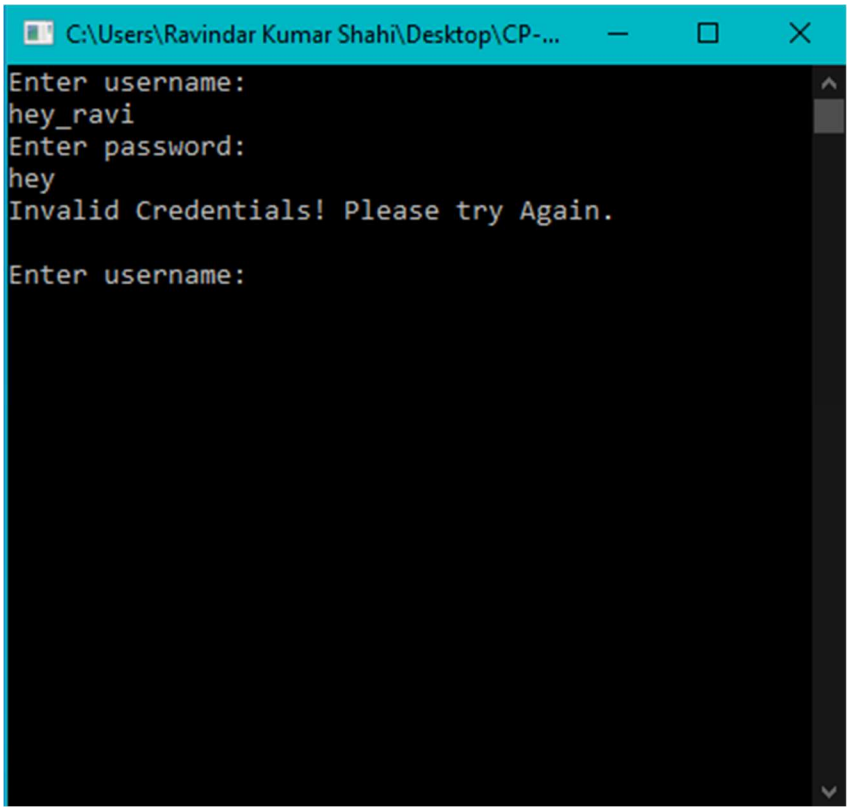


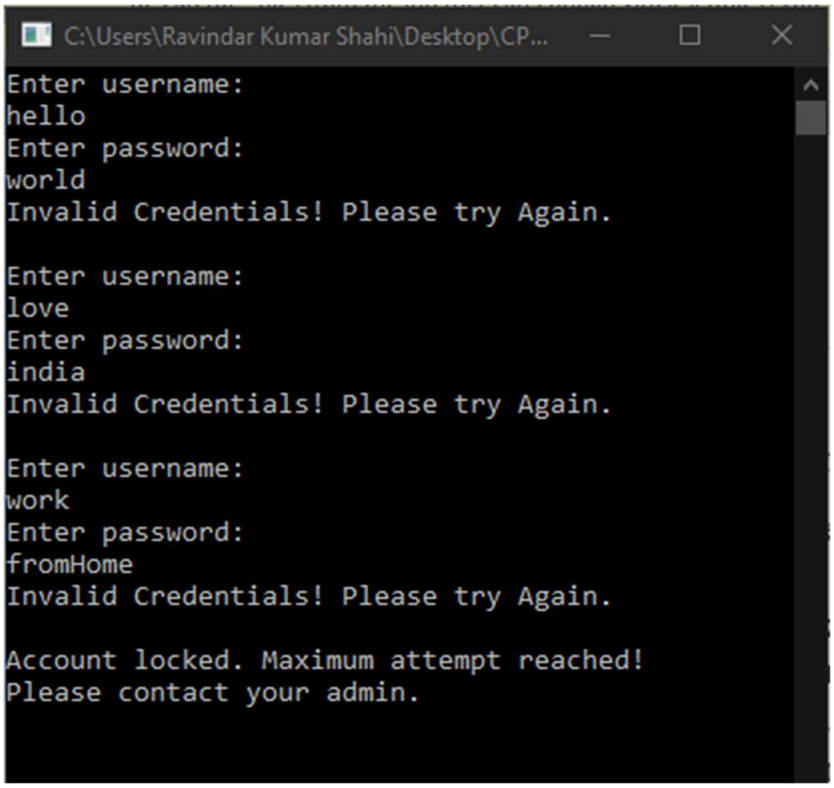

C:\Users\Ravindar Kumar Shahi\Desktop\CP-Fina...
Enter username:
dev_ravi
Enter password:
hey
Welcome!
You would like to:
1. Check Account Balance
2. Transfer Fund
3. Update Balance
Enter your Choice:
1
You don't have any balance. Please start Earning.

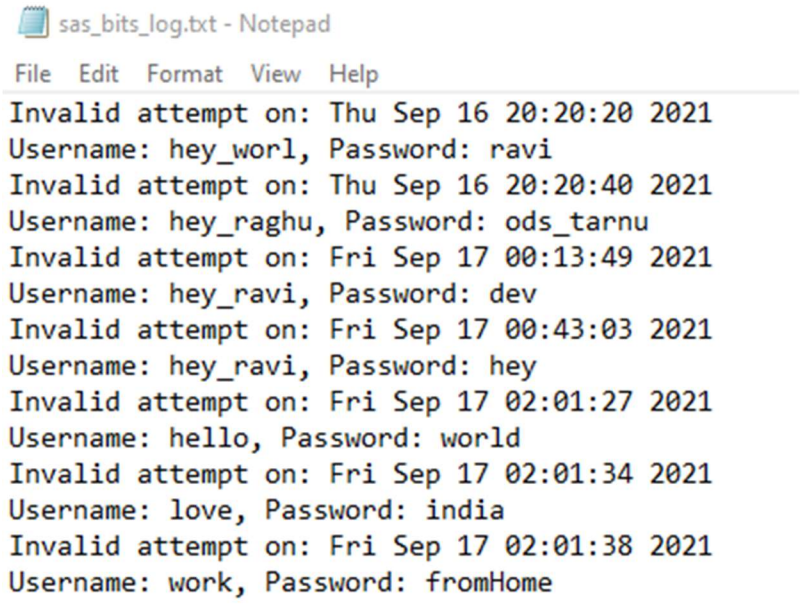

C:\Users\Ravindar Kumar Shahi\...
Enter username:
dev_ravi
Enter password:
hey
Welcome!
You would like to:
1. Check Account Balance
2. Transfer Fund
3. Update Balance
Enter your Choice:
2
Told you no money. No Transfer Possible.


C:\Users\Ravindar Kumar Shahi\Deskto...
Enter username:
dev_ravi
Enter password:
hey
Welcome!
You would like to:
1. Check Account Balance
2. Transfer Fund
3. Update Balance
Enter your Choice:
3
Thanks for using Our System. Update of Balance
will be done shortly.


C:\Users\Ravindar Kumar Shahi\Desktop\CP-Final\SA...
Enter username:
dev_ravi
Enter password:
hey
Welcome!
You would like to:
1. Check Account Balance
2. Transfer Fund
3. Update Balance
Enter your Choice:
4
Thank you for your response.Please click
1 for Balance Enquiry
2 for Transfer Fund
3 for Balance Update.


C:\Users\Ravindar Kumar Shahi\Desktop\CP-...
Enter username:
hey_ravi
Enter password:
hey
Invalid Credentials! Please try Again.
Enter username:


C:\Users\Ravindar Kumar Shahi\Desktop\CP...
Enter username:
hello
Enter password:
world
Invalid Credentials! Please try Again.
Enter username:
love
Enter password:
india
Invalid Credentials! Please try Again.
Enter username:
work
Enter password:
fromHome
Invalid Credentials! Please try Again.
Account locked. Maximum attempt reached!
Please contact your admin.


sas_bits_log.txt - Notepad
File Edit Format View Help
Invalid attempt on: Thu Sep 16 20:20:20 2021
Username: hey_worl, Password: ravi
Invalid attempt on: Thu Sep 16 20:20:40 2021
Username: hey_raghu, Password: ods_tarnu
Invalid attempt on: Fri Sep 17 00:13:49 2021
Username: hey_ravi, Password: dev
Invalid attempt on: Fri Sep 17 00:43:03 2021
Username: hey_ravi, Password: hey
Invalid attempt on: Fri Sep 17 02:01:27 2021
Username: hello, Password: world
Invalid attempt on: Fri Sep 17 02:01:34 2021
Username: love, Password: india
Invalid attempt on: Fri Sep 17 02:01:38 2021
Username: work, Password: fromHome

Future Scope

SAS_BITS.exe, currently is totally static application, which has static data stored in array.

It also lacks proper GUI, which makes it little difficult for non-technical users to operate.

As SAS_BITS.exe is built in C it is little unsecure as C totally focuses on function rather than data.

Area of Improvement

SAS_BITS.exe can be connected with database and the user credential or data can be made more flexible and dynamic.

Better GUI can be built, so that even a non-technical person could use this application easily.

We can build the same program using any OOPs related Programming language and secure the users data from breach.

Conclusion

The purpose of the project was to create a Secured authentication system for a financial organization.

We tried our best to include all the necessary points that are required related to the given topic. We do hope that our project will be interesting and may be even knowledgeable.”