جامعة الزقازيق
كلية الهندسة
الفرقة الأولى قسم الهندسة الكهربية

Research about

"Bank management system"

أحمد أشرف ذكي ابراهيم	اسم الطالب
3018	رقم الجلوس
Ahmedashrafzaki777@gmail.com	الايميل

Abstract

With c programming I will design a Bank Management System program. In this program the user will be able to do many things such as create new account, modify account, delete account, and make transactions.

In this program I will use struct for storing customer data (ID, name, phone number, address, birthday, type of deposit, and amount of money) and I will use array for storing many customers.
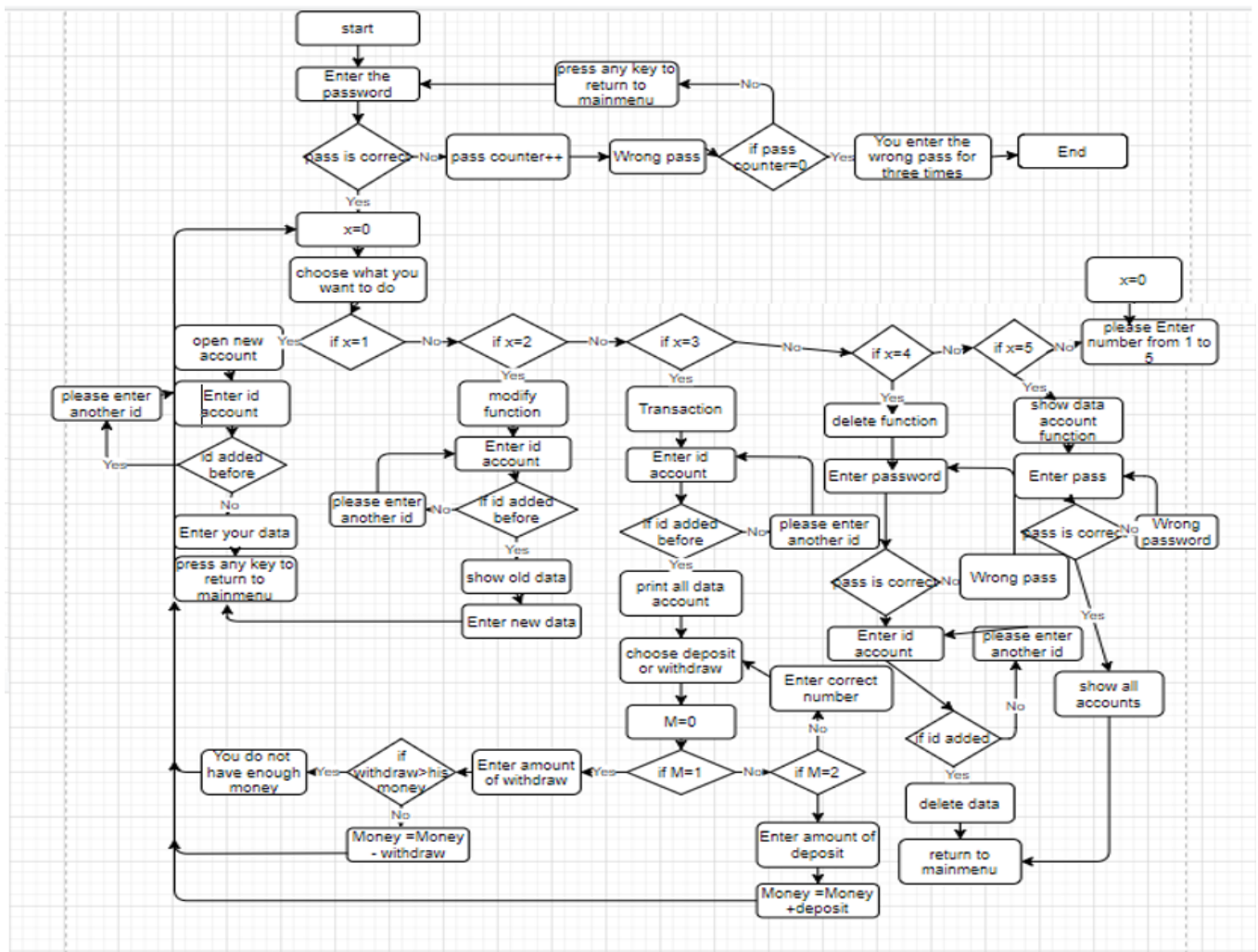
The main function in the program will be (void passwordcheck(), void mainmenu(), void addaccount(), void Updateaccount(), void depositorwithdraw(), void displayrecord(), void removedata(), and void change())

an abstract to purpose of this functions

1- **Add account**: This function creates a new customer account. It asks for some personal and banking details of the customer such as name, date of birth, address and phone number. You can enter the amount to deposit and choose one type of deposit account – saving, current, fixed for 1 year, fixed for 2 years or fixed for 3 years.
2- **Update account:** This function has been used for changing the name and phone number of a particular customer account.
3- **Transaction**: With this function, you can deposit and withdraw money to and from a particular customer account.
4- **Delete account**: This function is for deleting a customer account.

5- **Show all accounts**: this function for show all accounts data (name, phone number, birth, money, and type of deposit)

Introduction

1. Flow chart for the program

2- explain the functions

Functions	Input	Output
Void passwordcheck()	when the program starts the user should enter the password and if he enters the wrong password for three times the program end and exit. Else the program goes to main menu function.	In the middle of screen program title appears when the program opens and some Sentence appears also such as (enter the password:, press any key to try again, you enter the wrong password for three times:)

void mainmenu()	When the program opens some options appear in the screen window. These options have a number. If the user wants to do any prosses he should enter the number of this option. In this program we have seven options.	In this function mane sentences appears to the user. The user should choice one of the options for doing any prosses. These sentences are (BANH MANAGEMENT SYSTEM, [1] open new account, [2] transaction (deposit and withdraw), [3] modify account data, [4] show all accounts data)
void addaccount()	When the user enters number 1 the program goes to this function. In this function the user should enters ID. And if it was added before the program asked the user for another ID. Else the user should enters his data such as (ID, name, phone number, address, type of his deposit, and his amount of money). When the user finishes the program return to main menu.	When this function opens, in the middle of screen the title if this function appears (OPEN NEW ACCOUNT). Some sentences such as (Enter Account number, his account number not available:(, Enter customer name:, Enter customer phone number:)
	When the user enters number 2 the program goes to this function. In the function the user should enter his ID and the program searches for it. if it	In the middle of screen window, the title of this function appears (Update account). And some sentences appears to the user such as (Enter Account

void Updateaccount()	was not added before the program asked the user for another ID else if the ID was added before the program print his data and asked the user for modifying his phone number and address. After finishing the program return to main menu.	number:, SAVING, current, fixed for one year, fixed for two year, Enter customer phone number:, Enter customer address:, your data has been Updated, press any key to return to main menu, this account did not Exist).
void depositorwithdraw()	When the user enters number 3 the program goes to this function. In the function the user should enter his ID and the program searches for it. if it was not added before the program asked the user for another ID else if the ID was added before the program print his data. And asked the for choosing the any transaction (withdraw or deposit). If the user wants to make withdraw, the amount of withdraw should be less than his money. After finishing the program return to main menu.	In the middle of screen window, the title of this function appears (Transaction:) And some sentences appears to the user such as (Enter Account number:, SAVING, current, fixed for one year, fixed for two year, fixed for three year, please enter number from o to 1 only:, enter the amount of withdraw:, you do not have enough money, enter another amount of withdraw:, your money after withdraw is:, enter the amount of deposit:, this account did not Exist).

void displayrecord()	When the user enters number 4 the program goes to this function. In this function the user first should enter the password. If the password was not correct the program returns to main menu. Else the program prints all records of data customers.	In the middle of screen window, the title of this function appears (SHOW ALL RECORDS) And some sentences appears to the user such as (Enter password:, SAVING, fixed for one year, You enter the wrong password, press any key to return to main menu).
void removedata()	User should enter the password to open this function. If the password was incorrect the program returns to main menu. Else the delete record patients open. After that user should enter the number of the patient. the program search for it. If it found the program delete record data of this patient. Else if it was not fount, error message told the user that this patient not added before and the program return to main menu.	When the delete record patient function opens its title appear in the middle of the screen with a font down it. Some sentences appear one by one under each other such as(enter the password:, enter number of patient:, data has been delete successfully, press any key to return to main menu:, his number did not found press any key to go to main menu).
	User should enter the old password. If the password was incorrect the program returns to	When the change password function opens its title appear in the middle of the screen with a font

void change()	main menu. Else if the program teel the user that he should enter the new password to change it. After that, the program returns to main menu.	down it. Some sentences appear one by one under each other such as (enter the old password: enter the new password: password has been changed successfully).

Results

The code
| ```
#include <stdio.h>
#include <stdlib.h>
#include<string.h>
char password[30]="banksystem";
int counter=0,counter1;
/*********To make the functions take time to run*********/
void deltatime(int t){
int t1,t2;
for(t1=0;t1<t;t1++){
   t2=t1;
}
}
/******* structure for customer data*****/
struct customer {
int ID,phonenumber,balance,deposittype;
int day,month,year;
char name[30],address[50];
};struct customer a [1000];
/*** this function for checking the password if it was corrected or
not********/
void passwordcheck(){
system("CLS");
char ps[30];
printf("\n\t\t\t\t\tenter the password:");
scanf("%s",ps);
/*************check if the password is correct or
not******************/
if(strcmp(ps,password)!=0){
/******* counter to check if the pass entered three times or
not*********/
if(counter<2){
counter++;
printf("\n\t\t\t\tyou enter the wrong password!:( ");
printf("(press any key to try again)");
``` |

```c
        getch();
        passwordcheck();
    }
    /** if the user enter the password wrong for three times****/
    system("CLS");
    printf("\n\t\t\t\tyou enter the wrong password for three times:(\n");
    exit(0);
    }
    printf("\nloading");
       for(int t=0;t<=50;t++){
          deltatime(9999999);
          printf("\xCD");
       }
    mainmenu();
    }
    /********** this function for showing the options which user can
    choice one of them****/
    void mainmenu(){
    system("CLS");
    int m;
    do{
    system("CLS");
    /************* draw borders*****/
    for(int x=0;x<=19;x++){
       printf("\n\t\t\t\t");
       for(int y=0;y<=43;y++){
          if(x==0 && y==0)printf("\xD6");
          if(x==0 && y!=43)printf("=");
          if(x==0 & y==42)printf("\xB7");
          if((y==0 || y==43) && x!=0 && x!=19) printf("|");
          if(x==1 && y==1)printf("\t  BANH MANAGEMENT
    SYSTEM\t   ");
          if(x==2 && y==1)printf("\t\t\t\t   ");
          if(x==3 && y==1)printf("\t\t\t\t   ");
          if(x==4 && y==1)printf("\t\t\t\t   ");
          if(x==5 && y==1)printf("   [1] open new account\t\t   ");
          if(x==6 && y==1)printf("\t\t\t\t   ");
          if(x==7 && y==1)printf("   [2] transaction(deposit and
    withdraw)  ");
          if(x==8 && y==1)printf("\t\t\t\t   ");
          if(x==9 && y==1)printf("   [3] modify account data\t\t   ");
          if(x==10 && y==1)printf("\t\t\t\t   ");
          if(x==11 && y==1)printf("   [4] show all accounts data\t\t   ");
          if(x==12 && y==1)printf("\t\t\t\t   ");
          if(x==13 && y==1)printf("   [5] delete account data\t\t   ");
          if(x==14 && y==1)printf("\t\t\t\t   ");
          if(x==15 && y==1)printf("   [6] change password\t\t   ");
          if(x==16 && y==1)printf("\t\t\t\t   ");
          if(x==17 && y==1)printf("   [0] Exit\t\t\t   ");
          if(x==18 && y==1)printf("\t\t\t\t   ");
```

```c
        if(x==19 && (y>0 || y>=42))printf("=");
        if(x==19 && y==0)printf("\xD3");
        if(x==19 & y==43)printf("\xBD");
    }
    }
    printf("\nenter number from (0) to (6):");
    scanf("%d",&m);
    if(m==0)exit(0);
    else if(m==1)addaccount();
    else if(m==2)depositorwithdraw();
    else if(m==3)Updateaccount();
    else if(m==4)displayrecord();
    else if(m==5)removedata();
    else if(m==6)change();
    }while(m>=6);
    }
    /****** this function for adding new account ************/
    void addaccount(){
    system("CLS");
    int accnumber;
    printf("\n\t\t\t\tOPEN NEW ACCOUNT\n\n\n");
    printf("\t\t\tEnter Account number: ");
    scanf("%d",&accnumber);
    /***** check if this number was added before or not*********/
    for(int x=0;x<=counter1;x++){
        if(accnumber==a[x].ID){
        printf("\n\t\t\t\this account number not available:(");
        printf("\n\npress any key to enter another ID");
        getch();
        addaccount();
        }
    }
    /** adding data of account******/
    a[counter1].ID=accnumber;
    printf("\n\t\t\tEnter customer name: ");
    scanf("%s",a[counter1].name);
    printf("\n\t\t\tEnter customer phone number: ");
    scanf("%d",&a[counter1].phonenumber);
    printf("\n\t\t\tEnter customer address: ");
    scanf("%s",a[counter1].address);
    printf("\n\t\t\tenter customer birth date(day/month/year): ");
    scanf("%d %d
    %d",&a[counter1].day,&a[counter1].month,&a[counter1].year);
    printf("\n\t\t\tEnter customer deposit: ");
    scanf("%d",&a[counter1].balance);
    printf("\ntype of deposit\n\t\t\t\t[0] saving\n\t\t\t\t[1]
    current\n\t\t\t\t[2] fixed for one year");
    printf("\n\t\t\t\t[3] fixed for two year\n\t\t\t\t[4] fixed for three
    year\n");
    printf("\n\t\t\t\tEnter the type of deposit: ");
```

```c
            scanf("%d",&a[counter1].deposittype);
            while(a[counter1].deposittype>4){
               printf("\n\t\t\t\tEnter number from 0 to 4 only: ");
               scanf("%d",&a[counter1].deposittype);
            }
            counter1++;
            printf("\nloading");
               for(int t=0;t<=50;t++){
                  deltatime(9999999);
                  printf("\xCD");
               }
            printf("\n\t\t\t\tyour account has been created successfully");
            printf("\n\npress any key to return to main menu");
            getch();
            mainmenu();
            }
            /*************this function for modifying account
            data************/
            void Updateaccount(){
            system("CLS");
            int u;
            printf("\n\t\t\t\tUpdate account\n\n\n");
            printf("\t\t\tEnter Account number: ");
            scanf("%d",&u);
            for(int x=0;x<=counter1;x++){
               if(u==a[x].ID){
                  printf("\n ID\tname\t\tphone number\tAddress\t\tday month
            year\t\tmoney\tdeposit type\n");
                     for(int i=0;i<=116;i++){
                        printf("\xCD");
                     }
                     printf("\n  %d\t%s\t0%d\t%s\t\t%d %d
            %d\t\t%d\t",a[x].ID,a[x].name,a[x].phonenumber,a[x].address,a[x].d
            ay,a[x].month,a[x].year,a[x].balance);
                     /***for printing the type if deposit************/
                     if(a[x].deposittype==0)printf("SAVING");
                     else if(a[x].deposittype==1)printf("current");
                     else if(a[x].deposittype==2)printf("fixed for one year");
                     else if(a[x].deposittype==3)printf("fixed for two year");
                     else printf("fixed for three year");
                     printf("\n");
                     for(int i=0;i<=116;i++){
                        printf("\xCD");
                     }
               /*****enter new data********/
                  printf("\n\n\t\t\tEnter customer phone number: ");
                  scanf("%d",&a[x].phonenumber);
                  printf("\n\t\t\tEnter customer address: ");
                  scanf("%s",a[x].address);
                  printf("\nloading");
```

```c
        for(int t=0;t<=50;t++){
            deltatime(9999999);
            printf("\xCD");
        }
            printf("\n\t\t\tyour data has been Updated");
            printf("\n\npress any key to return to main menu");
            getch();
            mainmenu();
        }
    }
    printf("\n\t\t\tthis account did not Exist");
    printf("\n\npress any key to try again");
    getch();
    Updateaccount();
    }
    /*********this function allow the user to make deposit or withdraw
    by his account***********/
    void depositorwithdraw(){
    system("CLS");
    int number,d,w,z=1;
    printf("\n\t\t\t\tTransaction:\n\n\n");
    printf("\t\t\tEnter Account number: ");
    scanf("%d",&number);
    for(int x=0;x<=counter1;x++){
        if(number==a[x].ID){
            printf("\n ID\tname\t\tphone number\tAddress\t\tday month
    year\t\tmoney\tdeposit type\n");
            for(int i=0;i<=116;i++){
                printf("\xCD");
            }
            printf("\n  %d\t%s\t0%d\t%s\t\t%d %d
    %d\t\t%d\t",a[x].ID,a[x].name,a[x].phonenumber,a[x].address,a[x].d
    ay,a[x].month,a[x].year,a[x].balance);
            /***for printing the type if deposit*************/
            if(a[x].deposittype==0)printf("SAVING");
            else if(a[x].deposittype==1)printf("current");
            else if(a[x].deposittype==2)printf("fixed for one year");
            else if(a[x].deposittype==3)printf("fixed for two year");
            else printf("fixed for three year");
            printf("\n");
            for(int i=0;i<=116;i++){
                printf("\xCD");
            }
            printf("\n\n\n\t\t\twhat is the process which you want to
    do\n\n\t\t\t\t(0) withdraw or(1) deposit:");
            scanf("%d",&d);
            while(d>1){
                printf("\n\t\t\tplease enter number from o to 1 only: ");
                scanf("%d",&d);
            }
```

```c
            if(d==0){
            printf("\n\t\t\tenter the amount of withdraw: ");
            while(z==1){
                scanf("%d",&w);
                if(w>a[x].balance){
                    printf("\n\t\t\tyou do not have enough money");
                    printf("\n\t\t\tenter another amount of withdraw:");

            }
            else{
                a[x].balance=a[x].balance-w;
                z=2;
            }
            }
            printf("\n\t\t\tyour money after withdraw is:
%d",a[x].balance);
            printf("\n\npress any key to return to main menu");
            getch();
            mainmenu();
            }
            else{
                printf("\n\t\t\tenter the amount of deposit: ");
                scanf("%d",&w);
                a[x].balance=a[x].balance+w;
                printf("\n\t\t\tyour money after withdraw is:
%d",a[x].balance);
                printf("\n\npress any key to return to main menu");
                getch();
                mainmenu();
            }
    }
    }
printf("\n\t\t\tthis account did not Exist");
printf("\n\npress any key to try again");
getch();
depositorwithdraw();
}
/************function for showing all records************/
void displayrecord(){
system("CLS");
char ps[30];
printf("\n\t\t\t\tSHOW ALL RECORDS\n\n\n");
printf("\n\t\t\tEnter password: ");
scanf("%s",ps);
if(strcmp(ps,password)==0){
system("CLS");
printf("\n\t\t\t\tSHOW ALL RECORDS\n");
printf("\nloading");
    for(int t=0;t<=50;t++){
        deltatime(9999999);
```

```c
            printf("\xCD");
        }
    printf("\n\n\n ID\tname\t\tphone number\tAddress\t\tday month
    year\t\tmoney\tdeposit type\n");
        for(int i=0;i<=116;i++){
            printf("\xCD");
        }
     for(int x=0;x<counter1;x++){
        printf("\n  %d\t%s\t0%d\t%s\t\t%d %d
%d\t\t%d\t",a[x].ID,a[x].name,a[x].phonenumber,a[x].address,a[x].d
ay,a[x].month,a[x].year,a[x].balance);
        /***for printing the type if deposit*************/
        if(a[x].deposittype==0)printf("SAVING");
        else if(a[x].deposittype==1)printf("current");
        else if(a[x].deposittype==2)printf("fixed for one year");
        else if(a[x].deposittype==3)printf("fixed for two year");
        else printf("fixed for three year");
        printf("\n");
         for(int i=0;i<=116;i++){
            printf("\xCD");
        }
    }
    printf("\n\npress any key to return to main menu");
    getch();
    mainmenu();
}
else {
    printf("\n\t\t\tYou enter the wrong password");
    printf("\n\npress any key to return to main menu");
    getch();
    mainmenu();
}
}
/*********this function for deleting data of
customer**************/
void removedata(){
system("CLS");
int number;
char r[30];
 printf("\n\t\t\t\tDELETE ACCOUNT\n\n\n");
    printf("\t\t\tEnter password: ");
    scanf("%s",r);
    if(strcmp(r,password)!=0){
        printf("\n\t\t\tYou enter the wrong password");
        printf("\n\npress any key to return to main menu");
        getch();
        mainmenu();
    }
    system("CLS");
    printf("\n\t\t\t\tDELETE ACCOUNT\n\n\n");
```

```c
            printf("\t\t\tEnter customer number: ");
            scanf("%d",&number);
            for(int x=0;x<=counter1;x++){
               if(number==a[x].ID){
                 a[x].ID=0;
                  a[x].phonenumber=0;
                  a[x].balance=0;
                  a[x].deposittype=0;
                  a[x].day=0;
                  a[x].month=0;
                  a[x].year=0;
                  printf("\nloading");
            for(int t=0;t<=50;t++){
               deltatime(9999999);
               printf("\xCD");
            }
                  printf("\n\t\t\taccount data has been deleted successfully");
                  printf("\n\npress any key to return to main menu");
                   getch();
                   mainmenu();
               }
            }
      printf("\n\t\t\tthis account number not available:(");
         printf("\n\npress any key to return to main menu");
               getch();
               mainmenu();

}
/************function for changing password************/
void change(){
   system("CLS");
   char ps[30];
   printf("\n\t\t\t\tCHANGE PASSWORD\n\n\n");
   printf("\t\t\tEnter old password: ");
   scanf("%s",ps);
   if(strcmp(ps,password)!=0){
      printf("\n\t\t\tYou enter the wrong password");
      printf("\n\npress any key to return to main menu");
      getch();
      mainmenu();
   }
   printf("\n\t\t\tEnter new password: ");
   scanf("%s",password);
   printf("\nloading");
   for(int t=0;t<=50;t++){
      deltatime(9999999);
      printf("\xCD");
   }
   printf("\n\t\t\tpassword changed successfully:)");
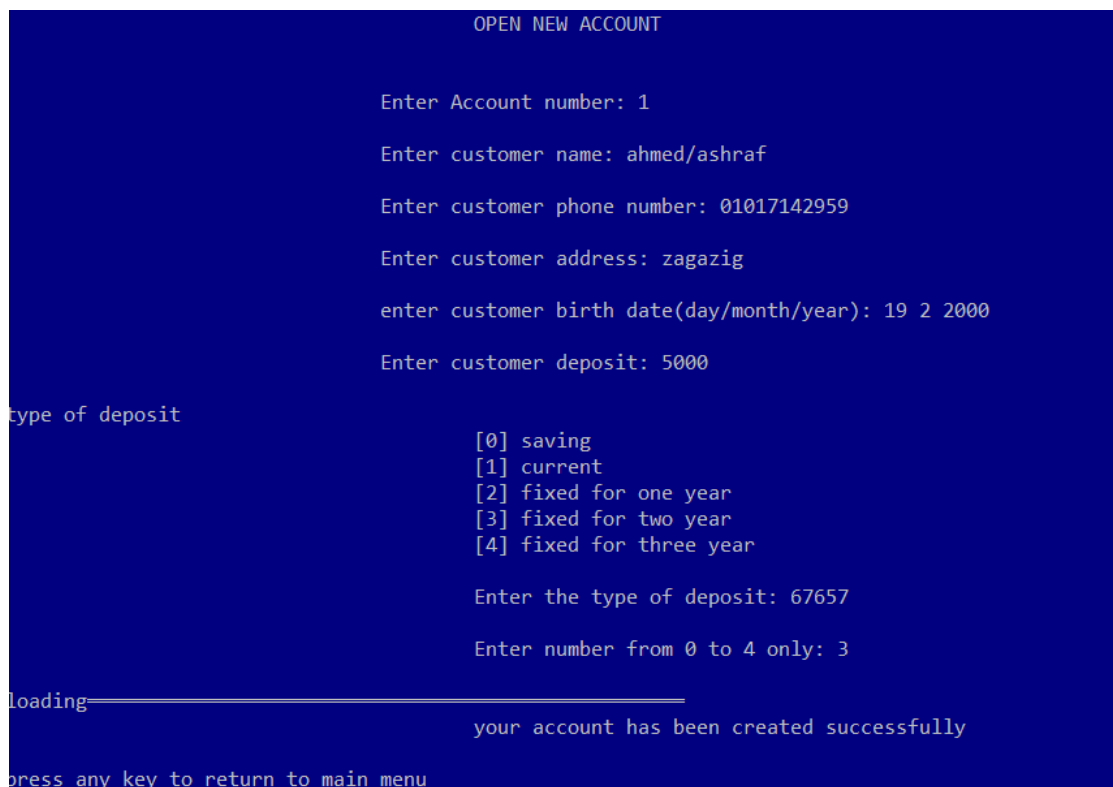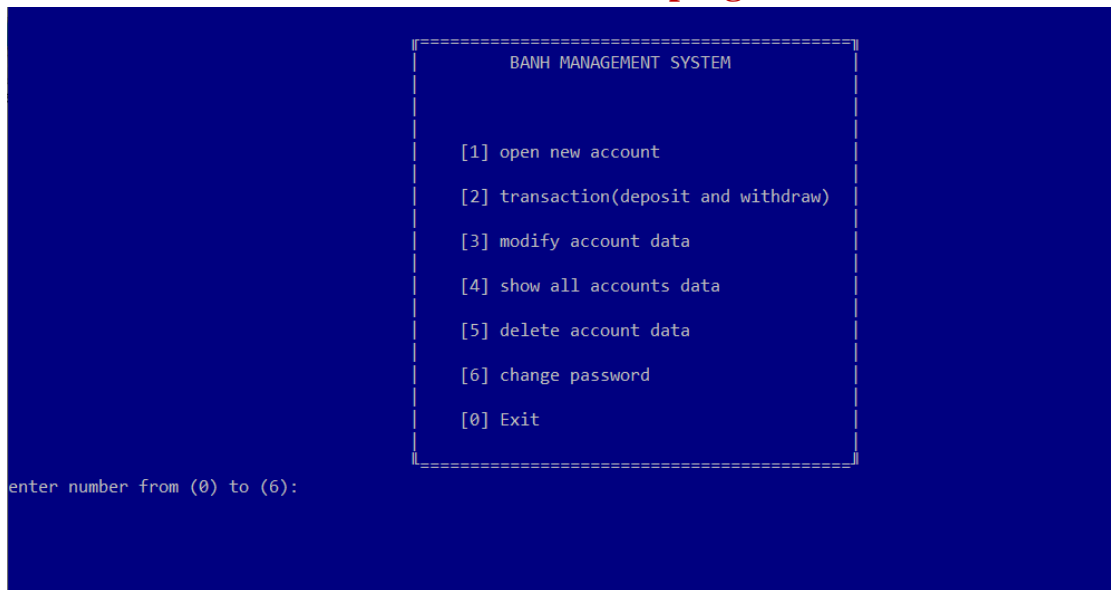   printf("\n\npress any key to return to main menu");
```

```
        getch();
        mainmenu();
    }
    int main()
    {
    system("color 17");
    passwordcheck();

}
```

Screenshot for the program

```
                          Transaction:

                  Enter Account number: 1
ID      name          phone number    Address        day month year        money    deposit type
_____
1     ahmed/ashraf    01017142959     zagazig        19 2 2000              5000     fixed for two year
_____


                  what is the process which you want to do

                      (0) withdraw or(1) deposit:0

                  enter the amount of withdraw: 5001

                  you do not have enough money
                  enter another amount of withdraw:4000

                  your money after withdraw is: 1000

press any key to return to main menu
```

```
                          Update account

                  Enter Account number: 1
ID      name          phone number    Address        day month year        money    deposit type
_____
1     ahmed/ashraf    01017142959     zagazig        19 2 2000              1000     fixed for two year
_____

                  Enter customer phone number: 01017142955

                  Enter customer address: Faqous
loading_____
                  your data has been Updated

press any key to return to main menu
```

```
                          SHOW ALL RECORDS

loading_____


ID      name          phone number    Address        day month year        money    deposit type
_____
1     ahmed/ashraf    01017142955     Faqous         19 2 2000              1000     fixed for two year
_____
2     ahmed/zaki      01016577098     zagazig        2 6 2000               4356     current
_____
```

Discussion

In our program and in the password function, the user inter the password and if it is correct(Equal to the value of the variable defined in the general place which holds the password (the program moves To the main menu, and if it is not correct, an error message is shown to the user in order to try again, and at this moment another general variable increase +1, and when this variable reaches three (i.e. its value is equal to 3) an error message is shown to the user and the program is exited and I have nested if() function for this process.

```
void passwordcheck(){
system("CLS");
char ps[30];
printf("\n\t\t\t\t\tenter the password:");
scanf("%s",ps);
/**************check if the password is correct or not*******************/
if(strcmp(ps,password)!=0){
/******* counter to check if the pass entered three times or not*********/
if(counter<2){
counter++;
printf("\n\t\t\tyou enter the wrong password!:( ");
printf("(press any key to try again)");
getch();
passwordcheck();
}
 /** if the user enter the password wrong for three times****/
system("CLS");
printf("\n\t\t\t\tyou enter the wrong password for three times:(\n");
exit(0);
}
printf("\nloading");
   for(int t=0;t<=50;t++){
      deltatime(9999999);
      printf("\xCD");
   }
mainmenu();
}
```

Conclusion

In the end, this program contains many functions such as create a new account, display all the account, and changing the password. The user can perform any process, deposit funds, or withdraw funds. For security, the program has a password. The user can change it. In this program all data stored in general variables not local, and we used the array to allow the user to enter multiple accounts and not just one account. And we are using struct also. In the end, this program can be run easily without errors.

References

2. I have used this site for flow char
   (https://app.diagrams.net/?fbclid=IwAR3uccRe2yf2uzv_qk2efnl1G1GJW0YGzzBIM4hYIjjGGzogIFctVqt-ZXw)

3. I have used this site for this function [system("color 17");]
   (https://www.programmingsimplified.com/c/graphics.h/colors)