PROGRAMMING FOR PROBLEM SOLVING

PROJECT REPORT

Trapezium Bank & Management System

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Objective:

The Trapezium Bank & Management System is an application for keeping a singulars' record in a bank. In this venture, we have shown the working of a Bank's administration framework by covering the fundamental usefulness which:

- Withdraws money
- Deposits money
- Views Account Details

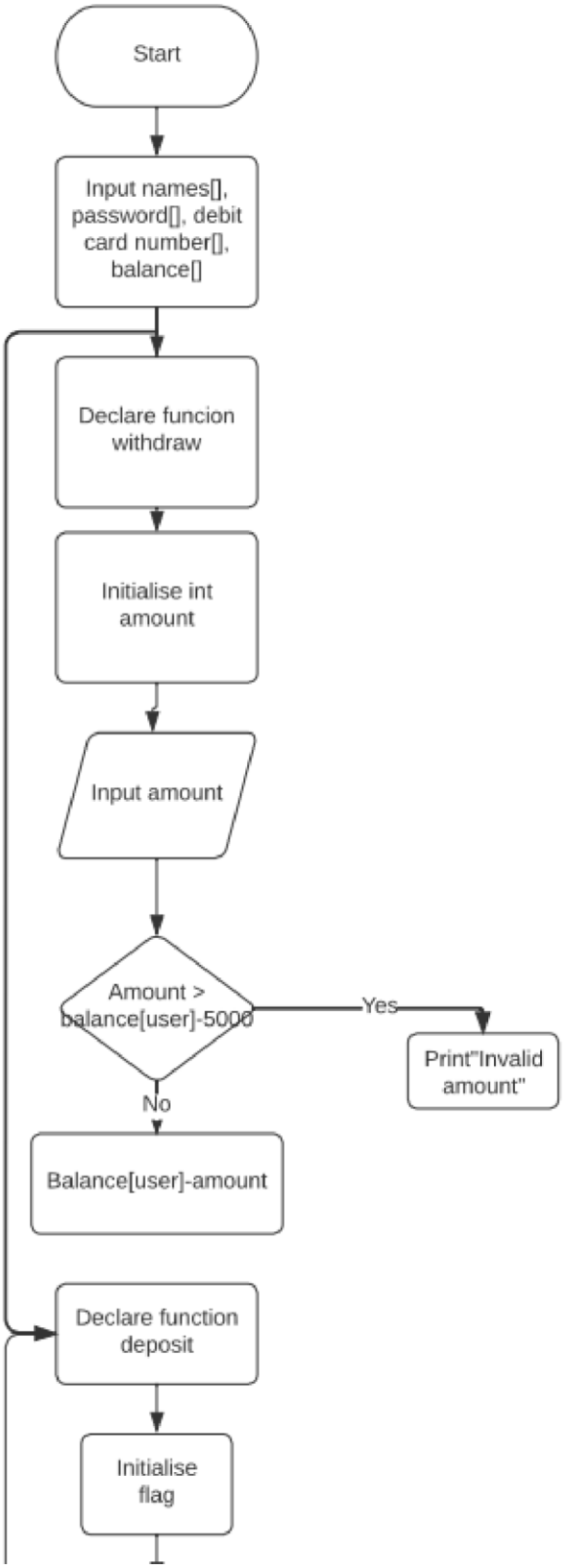
The project uses the C language for complete functionality.

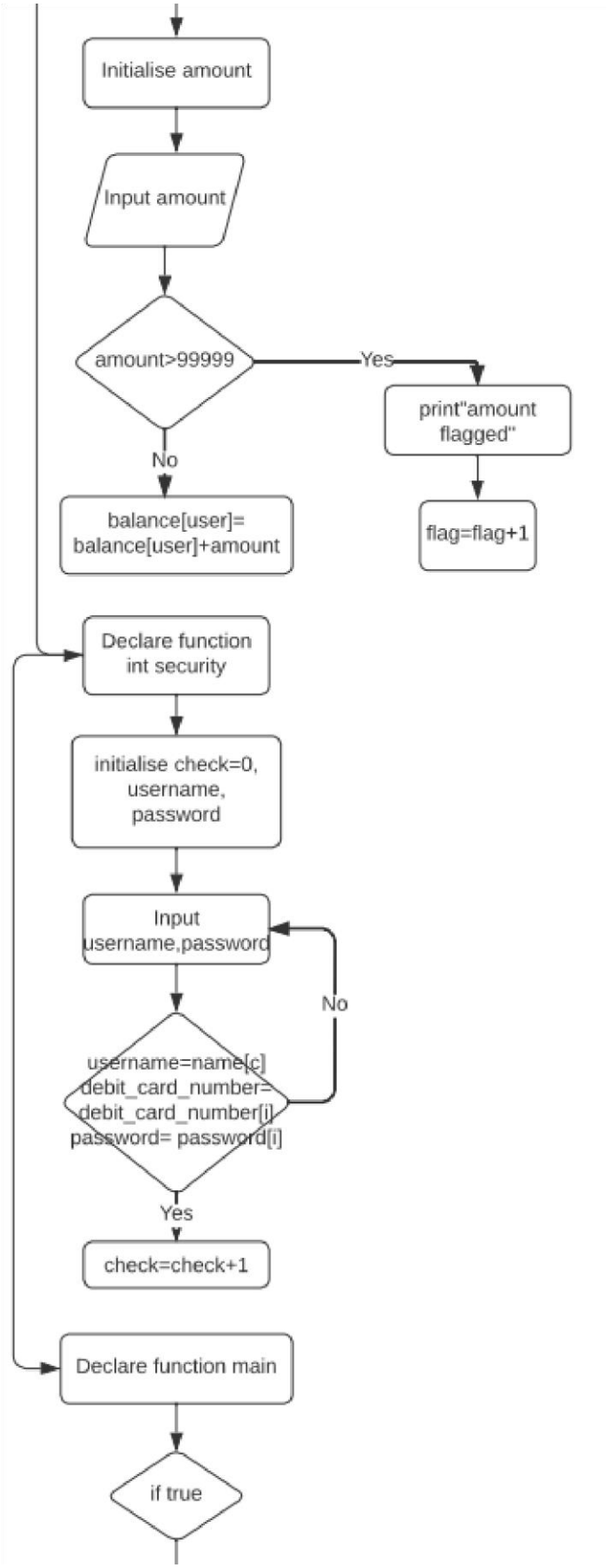
Problem Definition:

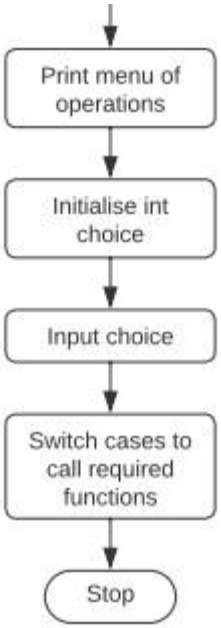
The given program helps the user with their day-to-day basic banking needs and manages their bank account to withdraw, deposit, and check cash in the account. Basic banking can be performed with ease when username, password, and debit card pin is entered and the user passes the security check.

First a user is asked to enter credentials, then they login to a menu to perform the desired transaction out of the given options and to exit when done. Security features are also added to the program for safe and trustworthy experience.

Flowchart:


Start
Input names[], password[], debit card number[], balance[]
Declare funcion withdraw
Initialise int amount
Input amount
Amount > balance[user]-5000
Yes
Print"Invalid amount"
No
Balance[user]-amount
Declare function deposit
Initialise flag


Initialise amount
Input amount
amount>99999
Yes
print"amount flagged"
flag=flag+1
No
balance[user]= balance[user]+amount
Declare function int security
initialise check=0, username, password
Input username,password
No
username=name[c]
debit_card_number= debit_card_number[i]
password= password[i]
Yes
check=check+1
Declare function main
if true


Print menu of operations
Initialise int choice
Input choice
Switch cases to call required functions
Stop

Algorithm:

Step 1 - Start

Step 2 - Initialize names[ ], passwords[ ], debit_card_numbers[ ], and balance[ ]

Step 3 - Declare a function void withdraw

Step 3.1 - If flag of User is greater than 3, print Credit transactions unavailable

Step 3.2 - Else i) Initialize and input amount

ii) If amount is greater thanbalance[user]-5000, then print "invalid amount"

iii) Else decrement balance[user] by amount

Step 4 - Declare a function void deposit

Step 4.1 - If flag of User is greater than 3, print Debit transactions unavailable

Step 4.2 - Else i) Initialize and input amount ii) If amount is greater than 99999, then print "The amount you are trying to deposit is higher than the usual amount." and "The debit transaction has been flagged.", then increment flag by 1

iii) If flag of User is greater than 3, print "The Debit transaction was unsuccessful" iv) Else Increment balance[user] by amount

Step 5 - Declare a function void view_details

Step 5.1 - Print name[user], debit_card_numbers[user], and balance[user]

Step 6 - Declare a function int security

Step 6.1 - Declare check = 0, username, debit_card_number and password

Step 6.2 - Input username, debit_card_number and password

Step 6.3 - Use For Loop

i) If username = names[i], debit_card_number = debit_card_numbers[i] and password = passwords[i], increment check by 1 ii) If check is equal to 3, break the loop

Step 6.4 - If Check is less than 3, print “Invalid Username/Password/Debit Card Number"

Step 6.5 - Return -1

Step 6.6 - Else print “Successfully logged in” and Return i

Step 7 - Declare a function void main

Step 7.1 - Initialize cont

Step 7.2 - Call the function Security and assign the returned value to cont

Step 7.3 - If cont equals -1, exit(0)

Step 7.4 - Else run an infinite while loop

i) Print a menu for operations using print statements, with one value for ending the program

ii) Initialize and input int choice from the user

iii) Use switch case to call required function depending upon the value of choice iv) If the default value is called, then print “invalid choice!”

Step 8 – Stop

Program:

```
#include <stdio.h>
#include <string.h>
#include <stdlib.h>
char names[10][100] =
 { "Malhar Brahmbhatt", "Maharth Uprit", "Vatsal Srivastava",
"Pranav Khattar", "Maheep Sharma", "Yadhu Krishna", "Sahil Srivastava", "Yash Kumar",
"Saksham Singh", "Aaditya Pardeshi" };
int passwords[10] =
 { 5915, 3744, 6489, 3816, 1895, 9889, 4826, 4826, 1568, 1235 }, flag[10];
long int debit_card_numbers[10] =
 { 687942415726, 50100459015152, 710573661154, 971998449229, 792087236336,
984068812506, 175584159453, 959305088852, 959305088852, 744717302642 }, balance[10] =
{
894418, 8948, 4589, 489544, 898489, 89489, 561598, 589815, 4898516, 5918945};

void
withdraw (int user)
{
 if (flag[user] > 3)
   printf ("Debit transactions unavailable\n\n");
 else
   {
     int amount;
     printf ("Input the amount to be withdrawn: ");
     scanf ("%d", &amount);
     if (amount > balance[user] - 5000)
printf ("Invalid amount\n\n");
     else
{
 balance[user] = balance[user] - amount;
 printf ("Rs. %d debited.\nNew balance: %ld\n\n", amount,
    balance[user]);
}
   }
}

void
deposit (int user)
{
 if (flag[user] > 3)
   printf ("Credit transactions unavailable\n\n");
```

```
  else
    {
      int amount;
      printf ("Input the amount to be deposited: ");
      scanf ("%d", &amount);
      if (amount > 99999)
{
  printf
    ("The amount you are trying to deposit is higher than the usual amount.\n");
  printf ("The debit transaction has been flagged.\n\n");
  flag[user]++;
}
      if (flag[user] > 3)
printf ("The Credit transaction was unsuccessful");
      else
{
  balance[user] = balance[user] + amount;
  printf ("Rs. %d Credited.\nNew balance: %ld\n\n", amount,
  balance[user]);
}
    }
}

void
view_details (int user)
{
  long i;
  printf ("Printing details...\n\n");
  for (i = 0; i <= 100000000; i++);
  for (i = 0; i <= 100000000; i++);
  printf ("%s\n", names[user]);
  printf ("%ld\n", debit_card_numbers[user]);
  printf ("%ld\n\n", balance[user]);
}

int
security ()
{
  int check = 0, i;
  char username[100];
  long int debit_card_number;
  int password;
  printf ("Welcome to Trapezium bank\n");
```

```
  printf ("Input Username: ");
  scanf ("%[^\n]s", username);
  printf ("Input Debit Card Number: ");
  scanf ("%ld", &debit_card_number);
  printf ("Input Password: ");
  scanf ("%d", &password);
  for (i = 0; i < 10; i++)
    {
      if (strcmp (username, names[i]) == 0)
check++;
      if (password == passwords[i])
check++;
       if (debit_card_number == debit_card_numbers[i])
check++;
      if (check == 3)
break;
      else
check = 0;
    }
  if (check < 3)
    {
      printf ("Invalid Username/Password/Debit Card Number");
      return -1;
    }
  else
    {
      printf ("Successfully logged in\n\n");
      return i;
    }
}

void
main ()
{
  int cont = security ();
  if (cont == -1)
    exit (0);
  else
    while (1)
      {
printf ("----------Menu----------\n");
printf ("1. Withdraw Amount\n");
printf ("2. Deposit Amount\n");
```

```
printf ("3. Check Details\n");
printf ("4. Log out and Exit\n");
printf ("------------------------\n");
printf ("\nEnter your choice: ");
int choice;
scanf ("%d", &choice);
switch (choice)
 {
 case 1:
   withdraw (cont);
   break;
 case 2:
   deposit (cont);
   break;
 case 3:
   view_details (cont);
   break;
 case 4:
   printf ("Thank You, Hope to see you again next time!");
   exit (0);
   break;
 default:
   printf ("Invalid Choice!\n\n");
   int i;
   for (i = 0; i <= 100000000; i++);
   for (i = 0; i <= 100000000; i++);
   break;
 }
    }
}
```

Output:

```
Welcome to Trapezium bank
Input Username: Malhar Brahmbhatt
Input Debit Card Number: 687942415726
Input Password: 5915
Successfully logged in

----------Menu----------
1. Withdraw Amount
2. Deposit Amount
3. Check Details
4. Log out and Exit
------------------------

Enter your choice: 1
Input the amount to be withdrawn: 6900
Rs. 6900 debited.
New balance: 887518

----------Menu----------
1. Withdraw Amount
2. Deposit Amount
3. Check Details
4. Log out and Exit
------------------------

Enter your choice: 2
Input the amount to be deposited: 6500
Rs. 6500 Credited.
New balance: 894018
```

```
----------Menu----------
1. Withdraw Amount
2. Deposit Amount
3. Check Details
4. Log out and Exit
------------------------

Enter your choice: 3
Printing details...

Malhar Brahmbhatt
687942415726
894018

----------Menu----------
1. Withdraw Amount
2. Deposit Amount
3. Check Details
4. Log out and Exit
------------------------

Enter your choice: 4
Thank You, Hope to see you again next time!
```