



**Strathmore**  
UNIVERSITY

FACULTY OF INFORMATION TECHNOLOGY  
BACHELOR OF BUSINESS IN INFORMATION TECHNOLOGY  
INTRODUCTION TO PROGRAMMING WITH C++  
SEMESTER PROJECT

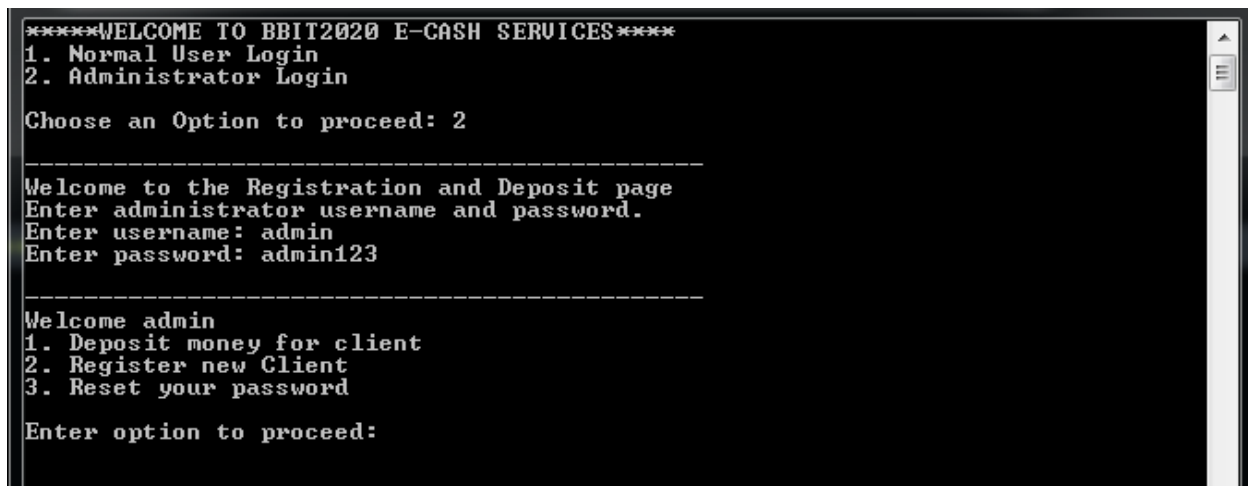
## **Problem Statement**

You are young tech-entrepreneur venturing into the field of Financial technology (fintech) and is concerned about the lack financial savings culture, especially among the youth. You have settled on an idea to come up with your own software that allows users to deposit cash for safe keeping and future planning.

Whenever a **user** wants to withdraw money from their accounts, they can visit any nearby cash ATM (Automated Teller Machine) that your company has setup, and withdraw directly by first keying in their usernames and passwords. They are also given the option of checking their balance and changing their password. In order to make cash deposits, you have settled on the role of an **administrator** who will be stationed near an ATM machine, and users will be approaching this administrator to help them make deposits to their accounts. The administrator will log in to the

system using their admin usernames and passwords. They will then be given an option of making a cash deposit for normal users, create an account for new users and also be able to change their own administrator passwords.

## Below is a screenshot of the minimum user requirements for the System Administrator



```
*****WELCOME TO BBIT2020 E-CASH SERVICES*****
1. Normal User Login
2. Administrator Login

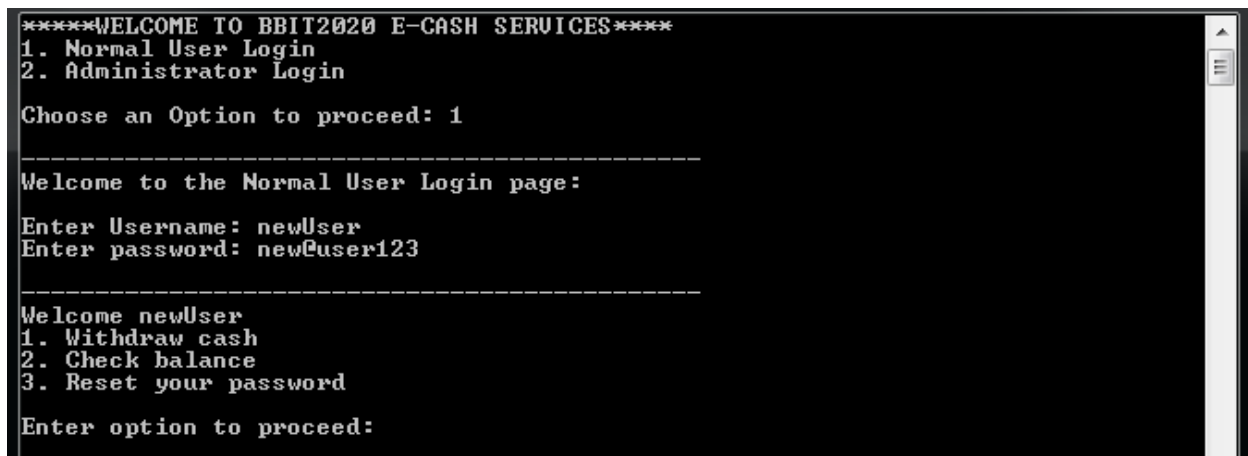
Choose an Option to proceed: 2

-----
Welcome to the Registration and Deposit page
Enter administrator username and password.
Enter username: admin
Enter password: admin123

-----
Welcome admin
1. Deposit money for client
2. Register new Client
3. Reset your password

Enter option to proceed:
```

## Normal User



```
*****WELCOME TO BBIT2020 E-CASH SERVICES*****
1. Normal User Login
2. Administrator Login

Choose an Option to proceed: 1

-----
Welcome to the Normal User Login page:
Enter Username: newUser
Enter password: new@user123

-----
Welcome newUser
1. Withdraw cash
2. Check balance
3. Reset your password

Enter option to proceed:
```

## Provided:

1. One text file, admin.txt which has a default username and password for the administrator.

## Required

1. Administrators should be able to do all the 4 minimum roles stated, which are:
  - a. Login to the system
  - b. Deposit money for client
  - c. Register a new Client
  - d. Change their own admin password from the default **(3 Marks)**
2. Normal users should be able to do all the 4 minimum roles stated, which are:
  - a. Login to the system
  - b. Withdraw cash
  - c. Check their account balance
  - d. Change their own use passwords from the one they were registered with **(3 Marks)**
3. Develop and correctly implement an algorithm that will enable the administrator to store user details in a local database file, **usersDB.txt**. The bare minimum user details required are their usernames, password and account balance. It is this **usersDB.txt** database file that will be updated and

queried whenever either the user or the administrator makes changes to the user data. It must always reflect the current state of data. You are required to work with at least one user. **(8 Marks)**

4. Implement validation checks for usernames and passwords to enhance security and enable user to retype username or password if incorrect. Validation also for account balance such that a user cannot withdraw more than they have in the account **(4 marks)**
5. Include any additional features to your program other than the bare minimum required features, such as adding more than one user, and more options that come with it such as searching for a user in the **usersDB.txt** using their username. Also enabling more user details such as age, gender, national ID number to be input to the system, is an added bonus. **(1 Marks)**
6. Presentable output and generally a well-structured system. **(1 Mark)**

### **Warning:**

Stick to Structured programming concepts when writing your code. You may look at Object Oriented Programming concepts for research purposes and inspiration if you must, but stick to Structured programming paradigm when it comes to implementing your program.