#include <iostream>

#include <string>

#include <cstdlib>

#include <ctime>

using namespace std;

class Account {

protected:

string name;

int accountNumber;

double balance;

public:

Account(string n = "", int acc = 0, double bal = 0.0)

: name(n), accountNumber(acc), balance(bal) {}

virtual void displayBalance() {

cout << "Your current balance is $" << balance << endl;

}

int getAccountNumber() const { return accountNumber; }

string getName() const { return name; }

double getBalance() const { return balance; }

virtual void deposit(double amount) {

balance += amount;

}

virtual bool withdraw(double amount) {

if (amount <= balance) {

balance -= amount;

return true;

}

return false;

}

};

class BankAccount : public Account {

public:

BankAccount(string n, int acc, double bal) : Account(n, acc, bal) {}

void displayBalance() override {

cout << name << ", your current balance in account #"

<< accountNumber << " is $" << balance << endl;

}

};

const int MAX\_ACCOUNTS = 100;

BankAccount\* accounts[MAX\_ACCOUNTS];

int accountCount = 0;

BankAccount\* findAccount(int accNum) {

for (int i = 0; i < accountCount; i++) {

if (accounts[i]->getAccountNumber() == accNum) {

return accounts[i];

}

}

return nullptr;

}

int main() {

srand(time(0));

int choice;

do {

cout << "\n\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Welcome to Chase \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\n";

cout << "Please choose one of the following operations\n";

cout << "1- Create a new bank account with an initial balance\n";

cout << "2- Deposit Money to an Account\n";

cout << "3- Withdraw Money from an Account\n";

cout << "4- Display Current Balance of an Account\n";

cout << "5- Exit\n";

cout << "Enter choice: ";

cin >> choice;

if (choice == 1) {

string name;

double initialBalance;

cout << "Enter your name: ";

cin >> name;

cout << "Enter your initial balance: ";

cin >> initialBalance;

int accNum = rand() % 90000 + 10000;

accounts[accountCount++] = new BankAccount(name, accNum, initialBalance);

cout << "\nCongratulations " << name

<< "! You have successfully opened your new bank account.\n";

cout << "Initial Balance: $" << initialBalance

<< " | Account Number: " << accNum << endl;

}

else if (choice == 2) {

int accNum;

cout << "Enter the account number: ";

cin >> accNum;

BankAccount\* acc = findAccount(accNum);

if (acc) {

double amount;

cout << "Enter the amount to deposit: ";

cin >> amount;

acc->deposit(amount);

cout << "\nCongratulations " << acc->getName()

<< "! You deposited $" << amount

<< " into account #" << accNum

<< ". Current Balance: $" << acc->getBalance() << endl;

}

else {

cout << "No account number exists!\n";

}

}

else if (choice == 3) {

int accNum;

cout << "Enter the account number: ";

cin >> accNum;

BankAccount\* acc = findAccount(accNum);

if (acc) {

double amount;

cout << "Enter the amount to withdraw: ";

cin >> amount;

if (acc->withdraw(amount)) {

cout << "\nCongratulations " << acc->getName()

<< "! You withdrew $" << amount

<< " from account #" << accNum

<< ". Current Balance: $" << acc->getBalance() << endl;

}

else {

cout << "Insufficient balance!\n";

}

}

else {

cout << "No account number exists!\n";

}

}

else if (choice == 4) {

int accNum;

cout << "Enter the account number: ";

cin >> accNum;

BankAccount\* acc = findAccount(accNum);

if (acc) {

acc->displayBalance();

}

else {

cout << "No account number exists!\n";

}

}

else if (choice != 5) {

cout << "Invalid choice, try again.\n";

}

if (choice != 5) {

cout << "\nPress any key then Enter to return to Main Menu...";

string pause;

cin >> pause;

}

} while (choice != 5);

cout << "Thank you for using Chase Bank System. Goodbye!\n";

return 0;

}