**CIPHERBYTE TECHNOLOGIES**

**TASK 2**

**BANK ACCOUNT MANAGEMENT**

**Build a program to simulate a bank account management system. Allow users to create accounts, deposit and withdraw funds, check balances, and calculate interest based on different account types.**

**CODE:**

**#include <stdio.h>**

**#include <stdlib.h>**

**#include <string.h>**

**#define MAX\_ACCOUNTS 100**

**#define NAME\_LENGTH 50**

**typedef enum {**

**SAVINGS,**

**CHECKING**

**} AccountType;**

**typedef struct {**

**int accountNumber;**

**char name[NAME\_LENGTH];**

**AccountType accountType;**

**double balance;**

**} Account;**

**void createAccount(Account accounts[], int \*numAccounts) {**

**if (\*numAccounts >= MAX\_ACCOUNTS) {**

**printf("Maximum number of accounts reached.\n");**

**return;**

**}**

**accounts[\*numAccounts].accountNumber = \*numAccounts + 1;**

**printf("Enter the account holder's name: ");**

**scanf("%s", accounts[\*numAccounts].name);**

**printf("Enter account type (0 for SAVINGS, 1 for CHECKING): ");**

**int type;**

**scanf("%d", &type);**

**accounts[\*numAccounts].accountType = (AccountType)type;**

**accounts[\*numAccounts].balance = 0;**

**(\*numAccounts)++;**

**printf("Account created successfully. Account Number: %d\n", accounts[\*numAccounts - 1].accountNumber);**

**}**

**void deposit(Account accounts[], int numAccounts) {**

**int accountNumber;**

**printf("Enter the account number: ");**

**scanf("%d", &accountNumber);**

**for (int i = 0; i < numAccounts; i++) {**

**if (accounts[i].accountNumber == accountNumber) {**

**double amount;**

**printf("Enter the amount to deposit: ");**

**scanf("%lf", &amount);**

**accounts[i].balance += amount;**

**printf("Deposit successful. New balance: $%.2f\n", accounts[i].balance);**

**return;**

**}**

**}**

**printf("Account not found.\n");**

**}**

**void withdraw(Account accounts[], int numAccounts) {**

**int accountNumber;**

**printf("Enter the account number: ");**

**scanf("%d", &accountNumber);**

**for (int i = 0; i < numAccounts; i++) {**

**if (accounts[i].accountNumber == accountNumber) {**

**double amount;**

**printf("Enter the amount to withdraw: ");**

**scanf("%lf", &amount);**

**if (accounts[i].balance >= amount) {**

**accounts[i].balance -= amount;**

**printf("Withdrawal successful. New balance: $%.2f\n", accounts[i].balance);**

**} else {**

**printf("Insufficient funds.\n");**

**}**

**return;**

**}**

**}**

**printf("Account not found.\n");**

**}**

**void checkBalance(Account accounts[], int numAccounts) {**

**int accountNumber;**

**printf("Enter the account number: ");**

**scanf("%d", &accountNumber);**

**for (int i = 0; i < numAccounts; i++) {**

**if (accounts[i].accountNumber == accountNumber) {**

**printf("Account Holder: %s\n", accounts[i].name);**

**printf("Account Type: %s\n", accounts[i].accountType == SAVINGS ? "SAVINGS" : "CHECKING");**

**printf("Current Balance: $%.2f\n", accounts[i].balance);**

**return;**

**}**

**}**

**printf("Account not found.\n");**

**}**

**void calculateInterest(Account accounts[], int numAccounts) {**

**int accountNumber;**

**printf("Enter the account number: ");**

**scanf("%d", &accountNumber);**

**for (int i = 0; i < numAccounts; i++) {**

**if (accounts[i].accountNumber == accountNumber) {**

**double interestRate;**

**if (accounts[i].accountType == SAVINGS) {**

**interestRate = 0.04; // 4% interest rate for savings accounts**

**} else {**

**interestRate = 0.02; // 2% interest rate for checking accounts**

**}**

**double interest = accounts[i].balance \* interestRate;**

**accounts[i].balance += interest;**

**printf("Interest calculated and added. New balance: $%.2f\n", accounts[i].balance);**

**return;**

**}**

**}**

**printf("Account not found.\n");**

**}**

**int main() {**

**Account accounts[MAX\_ACCOUNTS];**

**int numAccounts = 0;**

**int choice;**

**while (1) {**

**printf("1. Create a new account\n");**

**printf("2. Deposit funds\n");**

**printf("3. Withdraw funds\n");**

**printf("4. Check balance\n");**

**printf("5. Calculate interest\n");**

**printf("6. Exit\n");**

**printf("Enter your choice: ");**

**scanf("%d", &choice);**

**switch (choice) {**

**case 1:**

**createAccount(accounts, &numAccounts);**

**break;**

**case 2:**

**deposit(accounts, numAccounts);**

**break;**

**case 3:**

**withdraw(accounts, numAccounts);**

**break;**

**case 4:**

**checkBalance(accounts, numAccounts);**

**break;**

**case 5:**

**calculateInterest(accounts, numAccounts);**

**break;**

**case 6:**

**printf("Exiting the program.\n");**

**exit(0);**

**default:**

**printf("Invalid choice. Please try again.\n");**

**}**

**}**

**return 0;**

**}**

**OUTPUT:**







