

Fundamental of Programming Project

ATM Machine System

Features

1# PIN

- User is prompted to enter his PIN.
- If the input PIN is incorrect, system repeats the function
- If the input PIN is correct, the system will proceed with the next main function command lines.
- The screen resets every time the PIN is incorrect

2# Check Balance

- The Available Balance which is randomly generated in the code is displayed
- The user will be prompted if he wants to continue or not

3# Money Deposit

- User will be asked to enter the amount to deposit.
- And the deposit money is added in the Available Balance
- Next, user is again prompted if he wants to continue or exit

4# Money Withdraw

- User will be asked to withdraw an amount of money from his balance.
- If the amount entered is greater than the available balance then the user will be asked to enter again until the entered amount is less than the available balance.
- Then the withdrawn money will be deducted from the available balance.
- Next, user is again prompted if he wants to continue or exit

5# Money Transfer

- The program will ask the user to enter the receiver's account number.
- If the entered account number is not in the correct format, the user will be asked to enter again until it is in the correct format.
- The user will be asked to enter the amount of transfer.
- Then the transferred amount will be deducted from the user's available balance.
- Next, user is again prompted if he wants to continue or exit

6# Bill Payment


- User will be asked to select the bill options
- If the user has entered an invalid option, program will ask the user again until user enters the valid option
- Then user will be asked to pay the amount
- If the bill is greater than user's available balance then no bill will be paid and function will end
- If user chooses to pay now then the amount of bill will be deducted from user's available balance

Exit

- Exit message will be displayed and the entire code will come to halt.

Code

Included libraries and function prototypes:




```
1 #include <stdio.h>
2 #include <stdbool.h>
3 #include<time.h> // Library used to output random numbers
4 #include <Windows.h> // Library used to add time delay
5
6
7 //Function Prototype
8 void mainMenu();
9 void checkBalance(int);
10 int moneyDeposit(int);
11 int moneyWithdraw(int);
12 int moneyTransfer(int);
13 void menuExit();
14 void errorMessage();
15 int billPayment(int);
16 int atmPin();
```

Main function:

```
1 int main()
2 {
3     srand(time(0));    //using this function for random outputs
4
5     int option,choose;
6     int balance = rand()%(15000 - 5000 +1) + 15000;
7     bool again = true;
8
9     atmPin();
10    sleep(2); //Adding delay
11
12    system("CLS");
13    while (again)
14    {
15        mainMenu();
16
17        printf("=====\\n");
18        printf("Your Selection:\\t");
19        scanf("%d", &option);
20
21        switch (option)
22        {
23            case 1:
24                system("CLS");
25                checkBalance(balance);
26                break;
27            case 2:
28                system("CLS");
29                balance = moneyDeposit(balance);
30                break;
31            case 3:
32                system("CLS");
33                balance = moneyWithdraw(balance);
34                break;
35            case 4:
36                system("CLS");
37                balance=moneyTransfer(balance);
38                break;
39            case 5:
40                system("CLS");
41                balance = billPayment(balance);
42                break;
43            case 6:
44                system("CLS");
45                menuExit();
46                return 0;
47            default:
48                errorMessage();
49                break;
50        }
51
52        printf("=====\\n");
53        printf("Would you like to do another transaction:\\n[1] Yes\\n[2] No\\n");
54        scanf("%d", &choose);
55
56        system("CLS");
57        if (choose == 2)
58        {
59            again = false;
60            menuExit();
61        }
62    }
63    return 0;
64 }
```

PIN:



```
1 int atmPin()  
2 {  
3     char pin[4]= {"0000"};  
4     char pass[50];  
5     int correct=0;  
6     printf("Enter four digit pin:\n");  
7  
8     do  
9     {  
10        scanf("%s",&pass);  
11        for(int i=0; i<4; i++)  
12        {  
13            if(pass[i]==pin[i])  
14            {  
15                correct++;  
16            }  
17        }  
18        if(correct==4 )  
19        {  
20            system("CLS");  
21            printf("Correct Pin!");  
22        }  
23        else  
24        {  
25            system("CLS");  
26            printf("Wrong Pin! Try again:\n");  
27        }  
28    }  
29    while (correct != 4);  
30  
31    return 0;  
32 }
```

Main Menu:

```
1 void mainMenu()  
2 {  
3     printf("*****Welcome to ATM*****\n\n");  
4     printf("****Please choose one of the options below****\n\n");  
5     printf(" [1]  Check Balance\n");  
6     printf(" [2]  Deposit\n");  
7     printf(" [3]  Withdraw\n");  
8     printf(" [4]  Transfer Money\n");  
9     printf(" [5]  Bill Payment\n");  
10    printf(" [6]  Exit\n\n");  
11 }
```

Money Deposit:

```
1 int moneyDeposit(int balance)  
2 {  
3     int deposit;  
4     printf("You choose to Deposit a money\n");  
5     printf("Your Balance is: $%d\n\n", balance);  
6     printf("Enter your amount to Deposit\n");  
7     scanf("%d", &deposit);  
8  
9     balance += deposit;  
10  
11    printf("\nYour New Balance is:  $%d\n\n", balance);  
12    return balance;  
13  
14 }
```

Check Balance:

```
1 void checkBalance(int balance)
2 {
3     printf("You Choose to See your Balance\n");
4     printf("\n\nYour Available Balance is:   $%d\n\n", balance);
5 }
```

Money Withdraw:

```
1 int moneyWithdraw(int balance)
2 {
3     int withdraw;
4     bool back = true;
5
6     printf("You choose to Withdraw a money\n");
7     printf("Your Balance is: $%d\n\n", balance);
8
9     while (back)
10    {
11        printf("Enter your amount to withdraw:\n");
12        scanf("%d", &withdraw);
13
14
15        if (withdraw <= balance)
16        {
17            back = false;
18            balance -= withdraw;
19            printf("\nYour withdrawing money is:  $%d\n", withdraw);
20            printf("Your New Balance is:   $%d\n\n", balance);
21        }
22
23        else
24        {
25            printf("+++You don't have enough money+++\\n");
26            printf("Please contact to your Bank Customer Services\\n");
27            printf("Your Balance is:   $%d\\n\\n", balance);
28        }
29    }
30
31    return balance;
32 }
```

Money Transfer:

```
1 int moneyTransfer(int balance)
2 {
3     int transferAccount;
4     int transferAmount;
5     bool back = true;
6
7     printf("You choose to Transfer money\n");
8     printf("Your Balance is: %d\n\n", balance);
9
10    do
11    {
12        printf("Enter 6 digit Account Number to Transfer Money\n");
13        scanf("%d", &transferAccount);
14        if (transferAccount >999999 || transferAccount <100000)
15        {
16            printf("\nInvalid account number please enter again!\n");
17        }
18    }while(transferAccount >999999 || transferAccount <100000);
19
20    while (back)
21    {
22        printf("\nEnter amount to transfer:\n");
23        scanf("%d", &transferAmount);
24
25        if (transferAmount <= balance)
26        {
27            back = false;
28            balance -= transferAmount;
29            printf("\nYou have transferred: %d\n", transferAmount);
30            printf("Your New Balance is: %d\n\n", balance);
31        }
32
33        else
34        {
35            printf("\n+++You don't have enough money+++");
36            printf("Please contact to your Bank Customer Services\n");
37            printf("****Your Balance is: %d\n\n", balance);
38        }
39    }
40
41    return balance;
42 }
43 }
```

Bill Payment:

```
1 int billPayment(balance)
2 {
3     int electricity,gas,internet,ch,accnum = 1234567890;
4     char ch2;
5
6     electricity = rand()%(1000 - 500 +1) + 500; //generating random bills
7     gas = rand()%(1000 - 500 +1) + 500;
8     internet = rand()%(1000 - 500 +1) + 500;
9
10    printf("+++Bills+++\\n1. Electricity\\n2. Gas\\n3. Internet.\\n\\nEnter the bill number:\\n");
11    do{
12        scanf("%d",&ch);
13        if (ch != 1 && ch != 2 && ch != 3){
14            printf("Invalid choice! Try again:\\n");
15        }
16    }
17    while(ch != 1 && ch != 2 && ch != 3);
18
19    if (ch == 1){
20        printf("\\nBill Details:\\n>>| Account ID: %d | Amount: $%d |<<\\n",accnum,electricity);
21        printf("Current balance = $%d\\n\\n",balance);
22
23        printf("Would you like to pay the bill now? (Y/N)\\n");
24        scanf("%s",&ch2);
25
26        if ( ch2 == 'y' || ch2 == 'Y'){
27            if (balance >= electricity){
28                balance -= electricity;
29                printf("\\n\\nBill Paid\\n");
30                printf("Remaining balance = $%d\\n",balance);
31            }
32            else{
33                printf("Insufficient balance!\\n");
34            }
35        }
36    }
37    else if (ch == 2)
38    {
39        printf("\\nBill Details:\\n>>| Account ID: %d | Amount: $%d |<<\\n",accnum,gas);
40        printf("Current balance = $%d\\n\\n",balance);
41        printf("Would you like to pay the bill now? (Y/N)\\n");
42        scanf("%s",&ch2);
43
44        if ( ch2 == 'y' || ch2 == 'Y'){
45            if (balance >= gas){
46                balance -= gas;
47                printf("\\n\\nBill Paid\\n");
48                printf("Remaining balance = $%d\\n",balance);
49            }
50            else{
51                printf("Insufficient balance!\\n");
52            }
53        }
54    }
55    else if (ch == 3){
56        printf("\\nBill Details:\\n>>| Account ID: %d | Amount: $%d |<<\\n",accnum,internet);
57        printf("Current balance = $%d\\n\\n",balance);
58        printf("Would you like to pay the bill now? (Y/N)\\n");
59        scanf("%s",&ch2);
60
61        if ( ch2 == 'y' || ch2 == 'Y'){
62            if (balance >= internet){
63                balance -= internet;
64                printf("\\n+++Bill Paid+++\\n");
65                printf("Remaining balance = $%d\\n",balance);
66            }
67            else{
68                printf("Insufficient balance!\\n");
69            }
70        }
71    }
72    return balance;}
```


Error Message:



```
1 void errorMessage()  
2 {  
3     printf("\t\tERROR\n!!!You selected an invalid number!!!\n");  
4 }
```

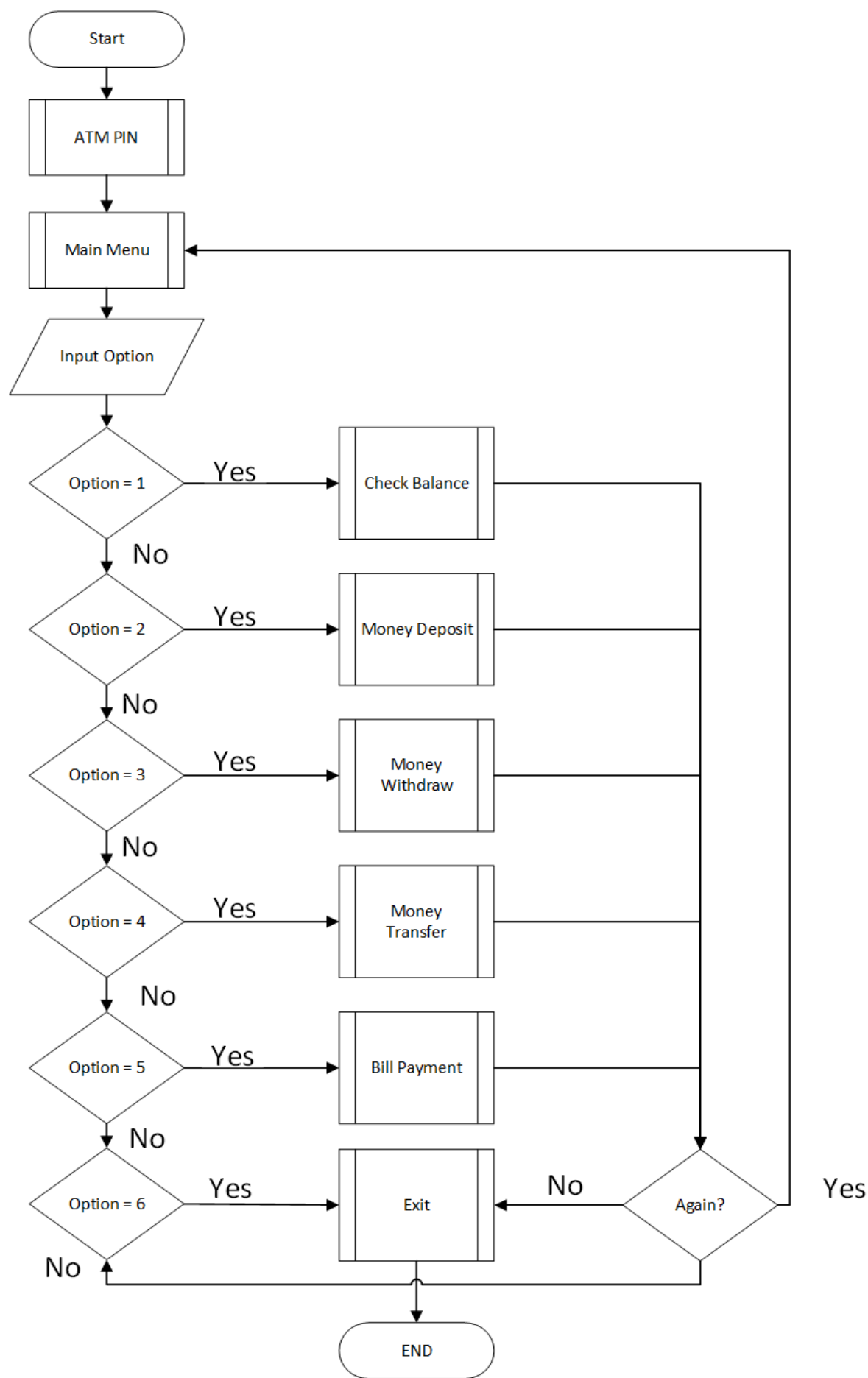
Exit:



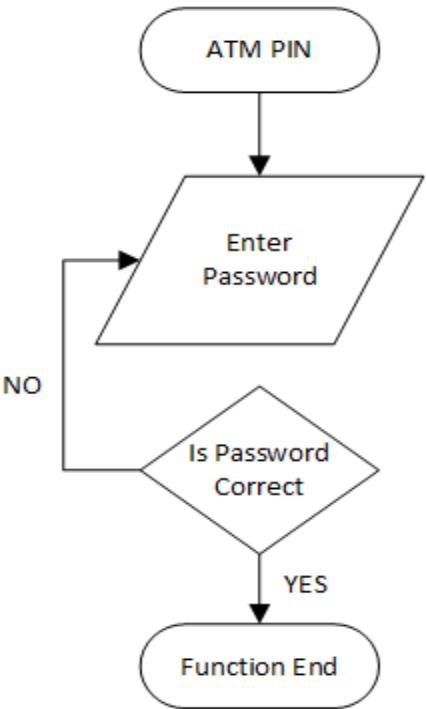
```
1 void menuExit()  
2 {  
3     printf("-----Take your receipt!!!-----\n");  
4     printf("-----Thank you for using ATM Banking Machine!!!-----\n");  
5  
6 }
```

FLOWCHART

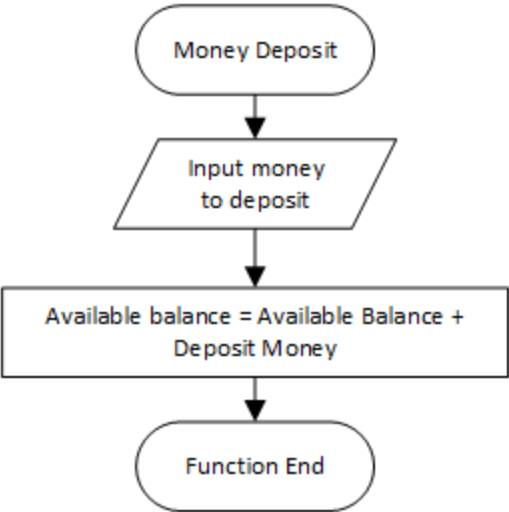
Main Menu:



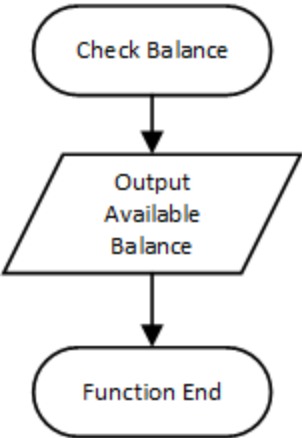
PIN:



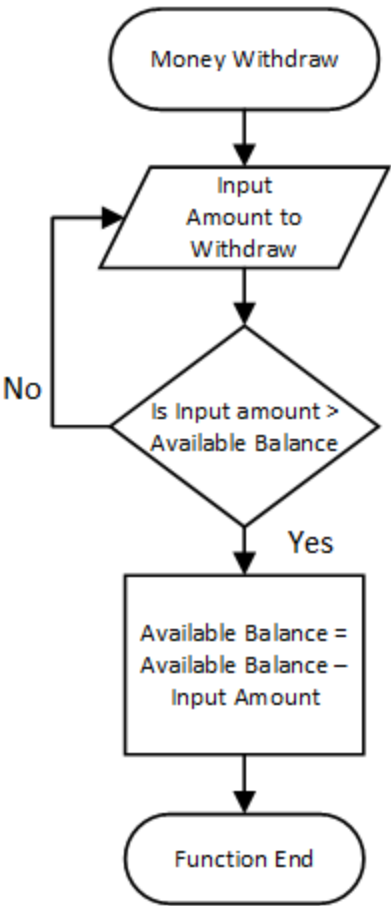
Money Deposit:



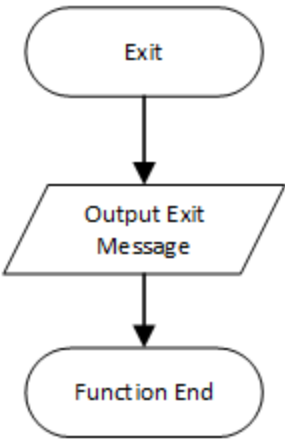
Check Balance:



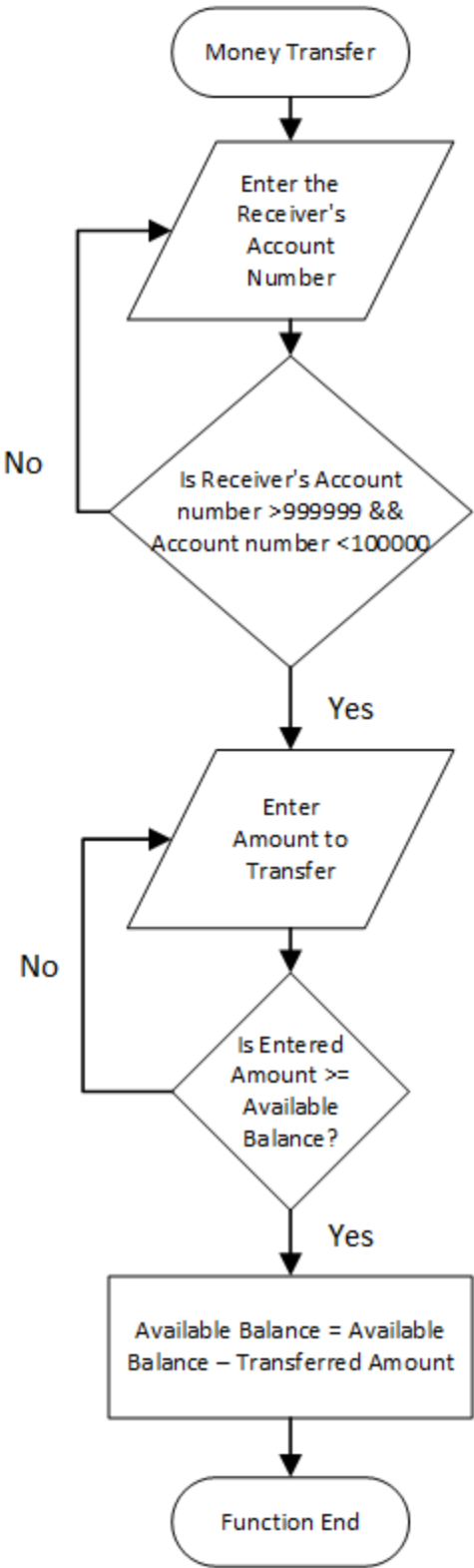
Money Withdraw:



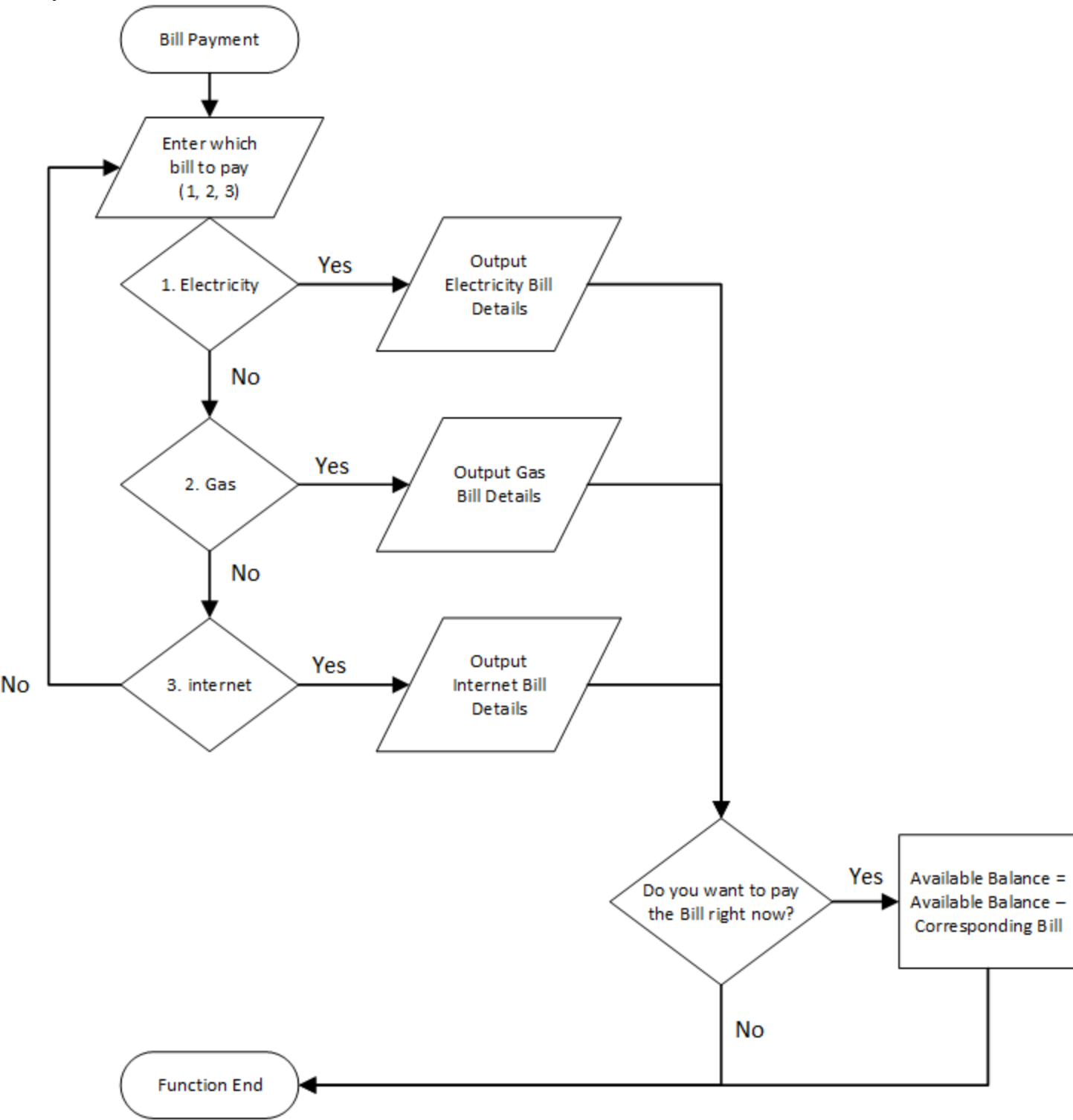
Exit:



Money Transfer:



Bill Payment:



Output

```
Enter four digit pin:  
0000
```

```
*****Welcome to ATM*****
```

```
****Please choose one of the options below****
```

- [1] Check Balance
- [2] Deposit
- [3] Withdraw
- [4] Transfer Money
- [5] Bill Payment
- [6] Exit

```
-----  
Your Selection:
```

```
You choose to Transfer money  
Your Balance is: $15750
```

```
Enter 6 digit Account Number to Transfer Money  
654446
```

```
Enter amount to transfer:  
5750
```

```
You have transferred: $5750  
Your New Balance is: $10000
```

```
=====  
Would you like to do another transaction:  
[1] Yes  
[2] No
```

```
-----Take your receipt!!!-----  
-----Thank you for using ATM Banking Machine!!!-----
```

```
Process returned 0 (0x0) execution time : 106.964 s  
Press any key to continue.
```