

**PRAKTIKUM DASAR PEMROGRAMAN  
PROJEK TUGAS AKHIR  
MESIN ATM**



**Disusun oleh :**

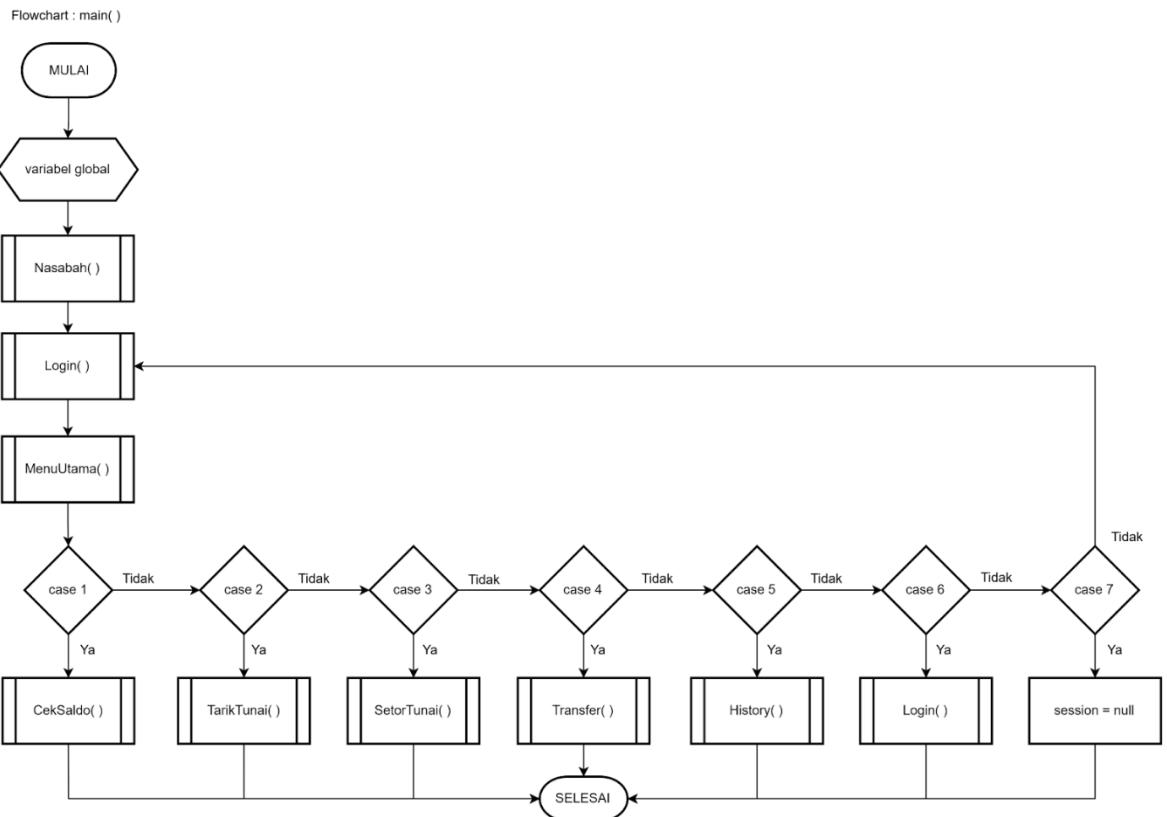
- 1. Alyssa Tifara Y. (2341760164)**
- 2. Lavina (2341760062)**
- 3. Gilang Andhika E. (2341760129)**

**PROGRAM STUDI SISTEM INFORMASI BISNIS  
JURUSAN TEKNOLOGI INFORMASI  
POLITEKNIK NEGERI MALANG**

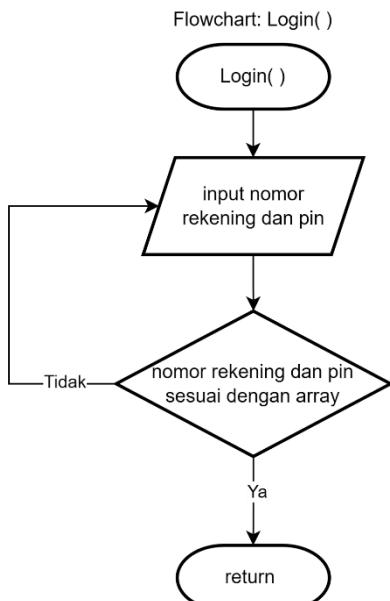
**2023**

## 1. Flowchart

### 1.1. main( )

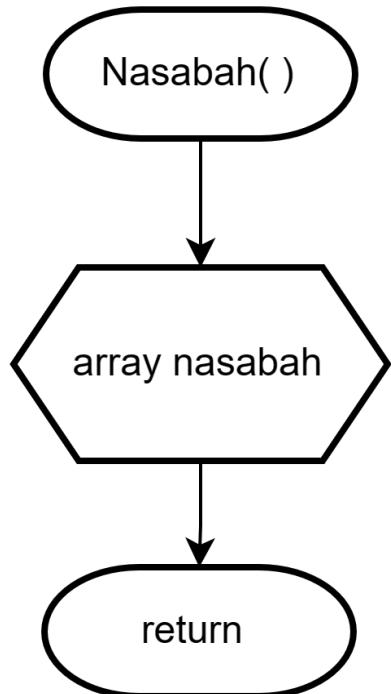


### 1.2. Login( )

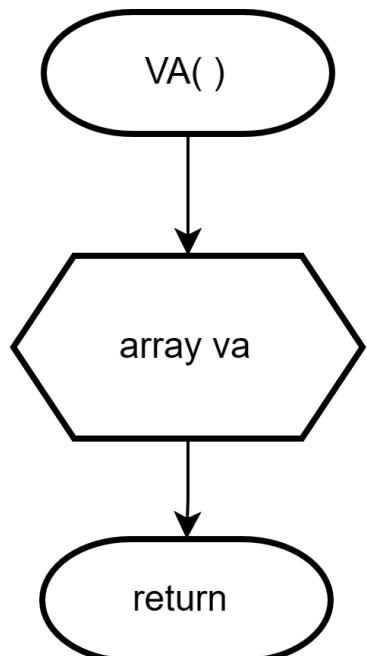


### 1.3. Nasabah( )

Flowchart: Nasabah( )

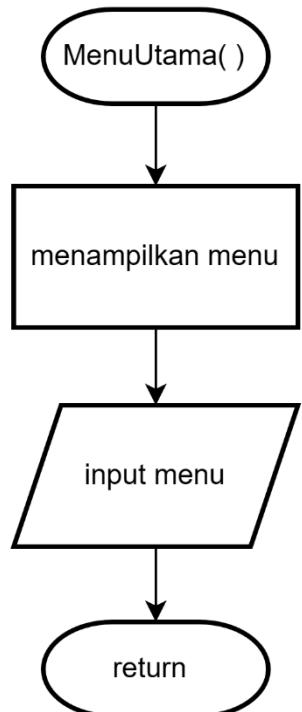


### 1.4. VA()



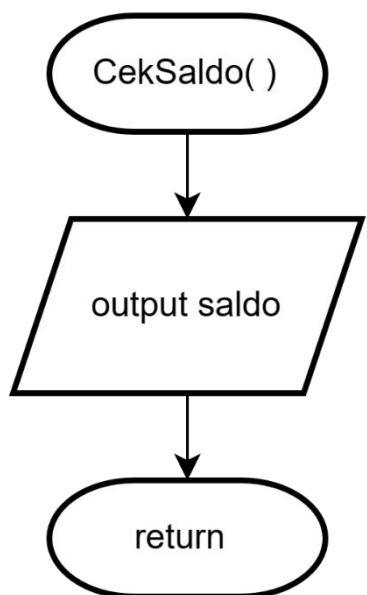
### **1.5. MenuUtama( )**

Flowchart: MenuUtama( )



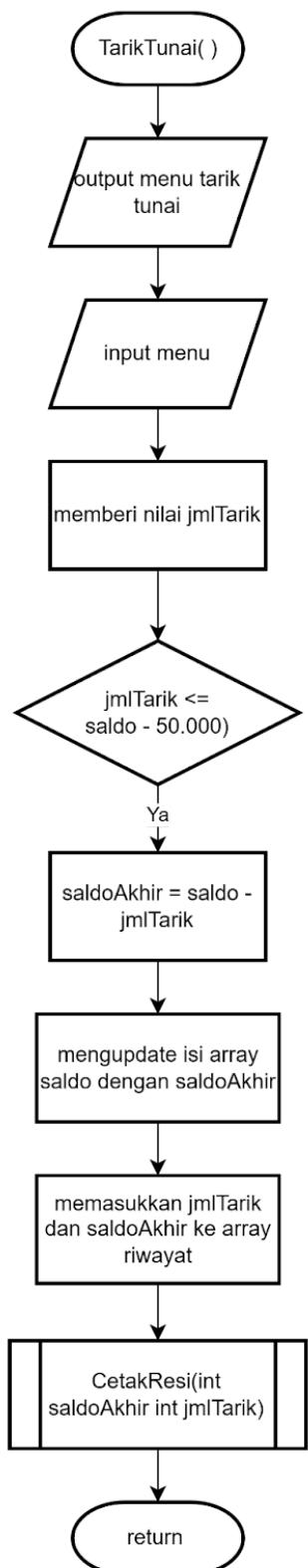
### **1.6. CekSaldo( )**

Flowchart: CekSaldo( )

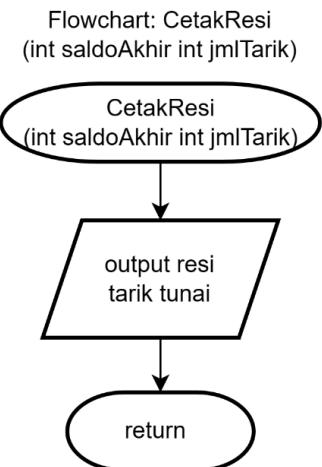


## 1.7. TarikTunai( )

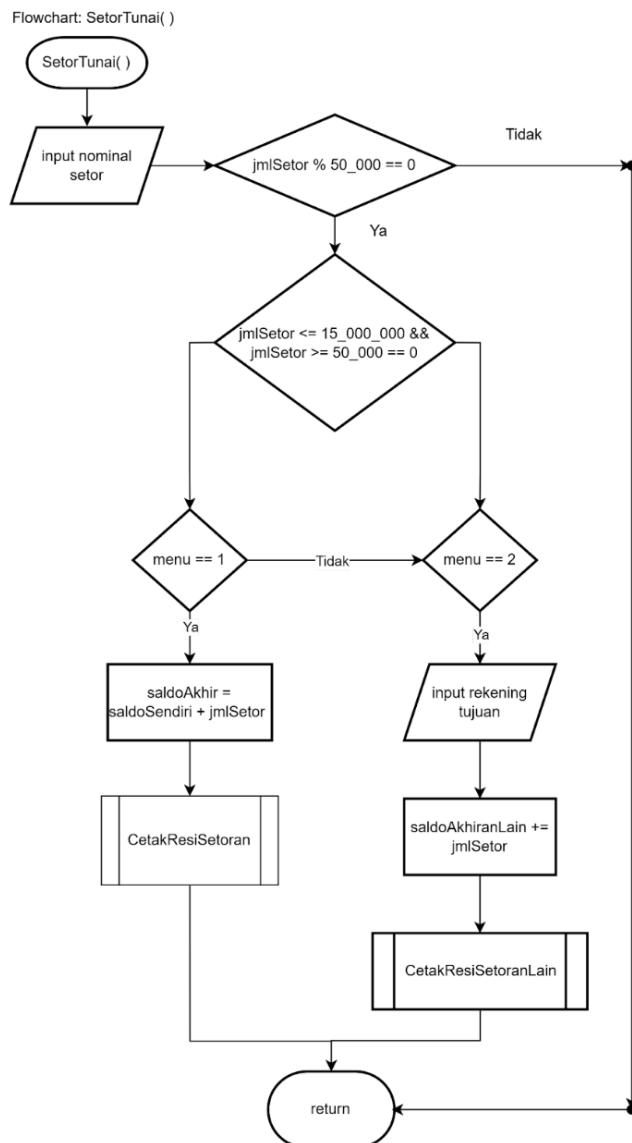
Flowchart: TarikTunai( )



## 1.8. CetakResi (int saldoAkhir int jmlTarik)

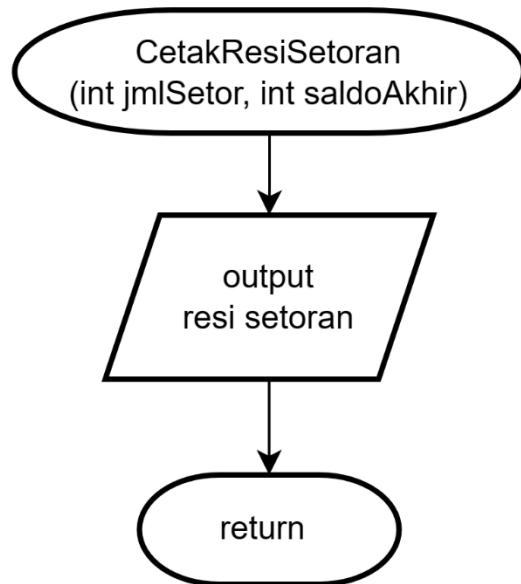


## 1.9. SetorTunai( )



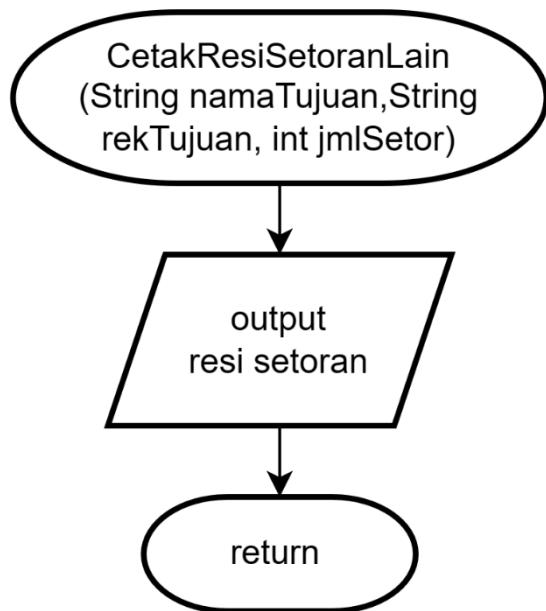
### 1.10. CetakResiSetoran (int jmlSetor, int saldoAkhir)

Flowchart: CetakResiSetoran  
(int jmlSetor, int saldoAkhir)

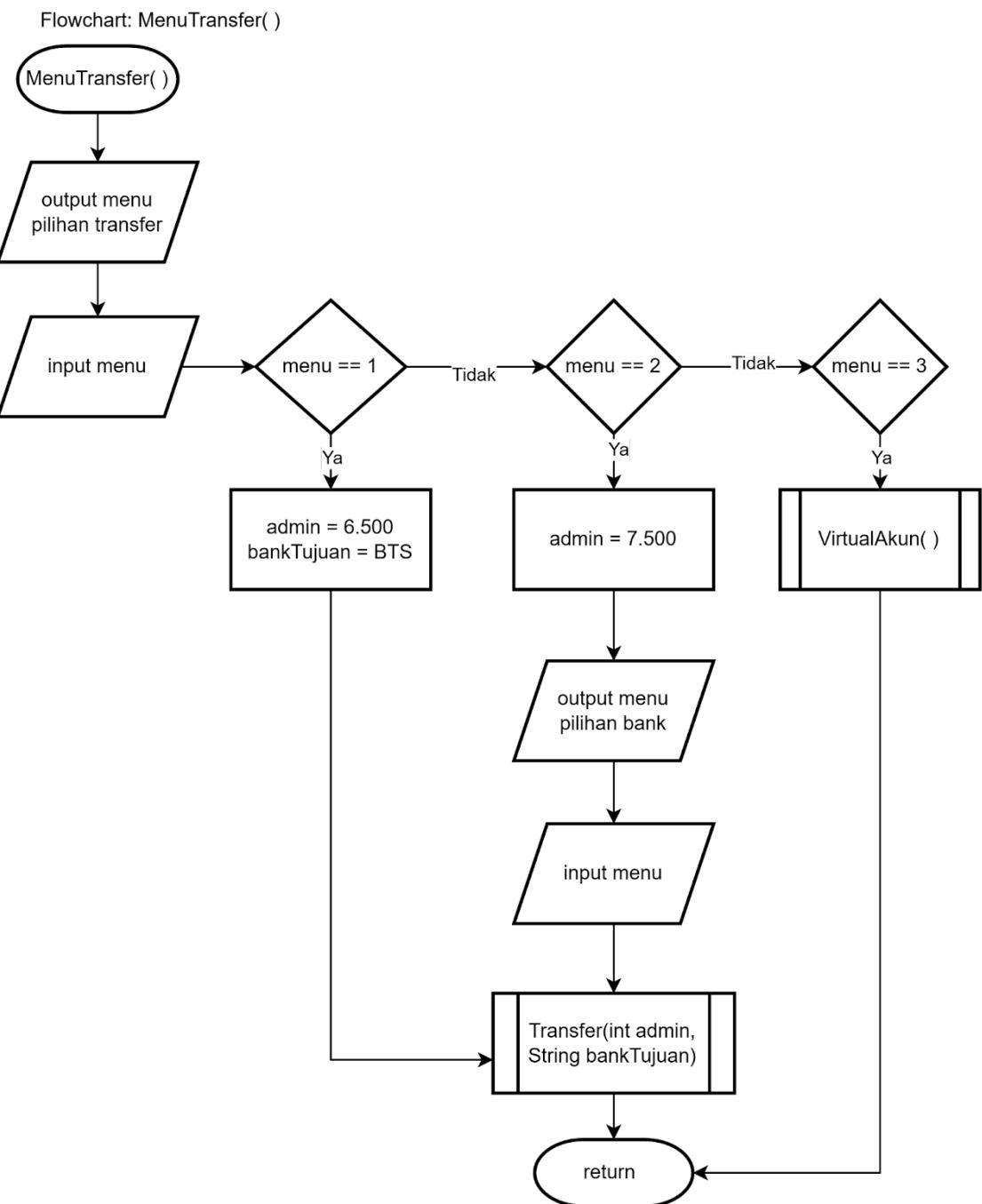


### 1.11. CetakResiSetoranLain (String namaTujuan, String rekTujuan, int jmlSetor)

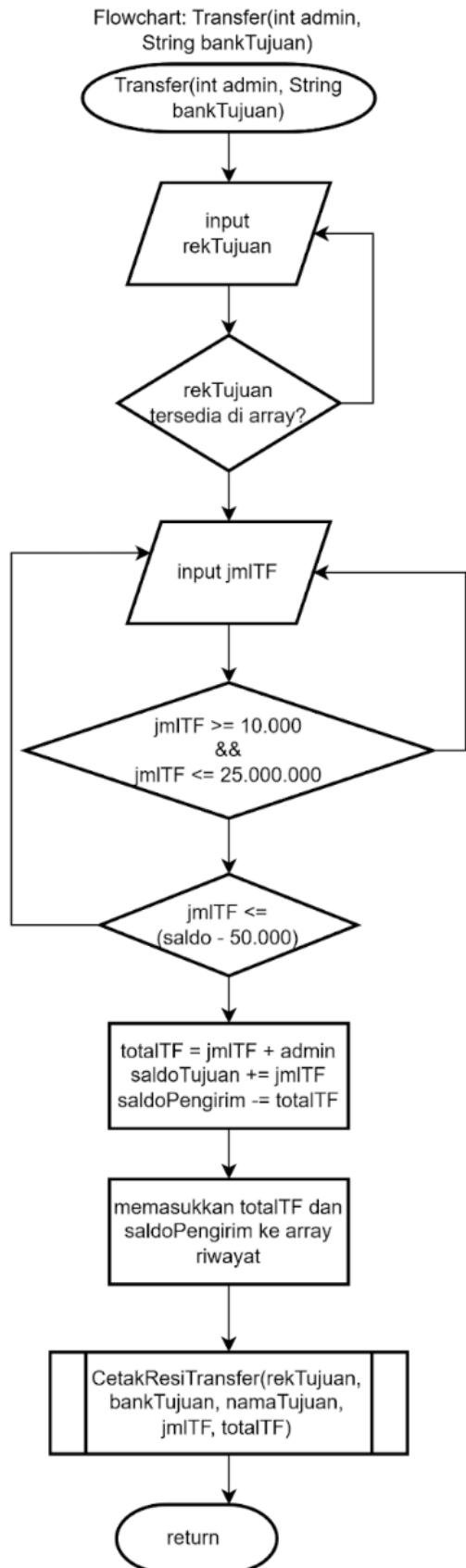
Flowchart: CetakResiSetoranLain  
(String namaTujuan, String rekTujuan, int jmlSetor)



## 1.12. MenuTransfer( )

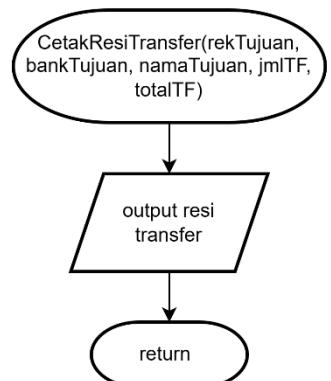


### 1.13. Transfer (int admin, String bankTujuan)



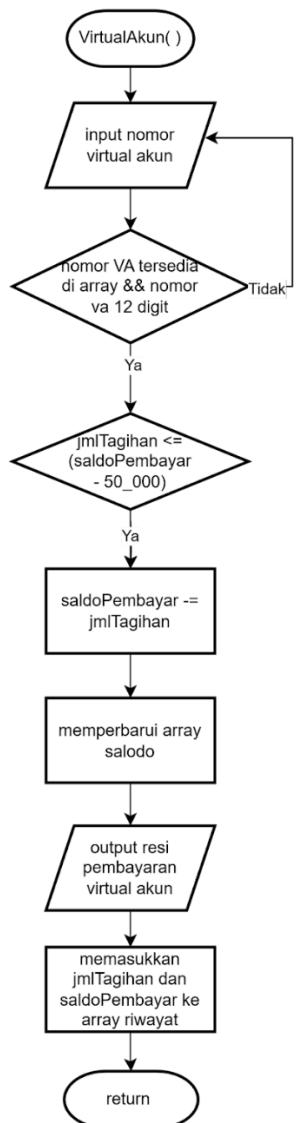
### 1.14. CetakResiTransfer (rekTujuan, bankTujuan, namaTujuan, jmlTF, totalTF)

Flowchart : CetakResiTransfer(rekTujuan, bankTujuan, namaTujuan, jmlTF, totalTF)



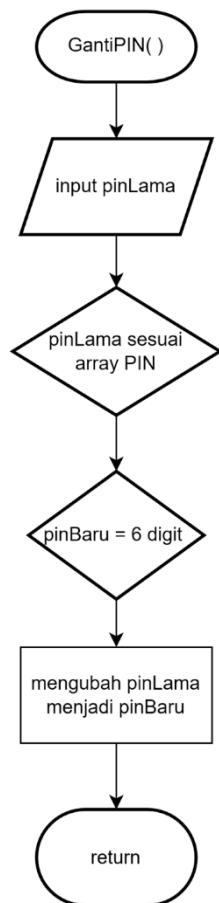
### 1.15. VirtualAkun( )

Flowchart : VirtualAkun( )



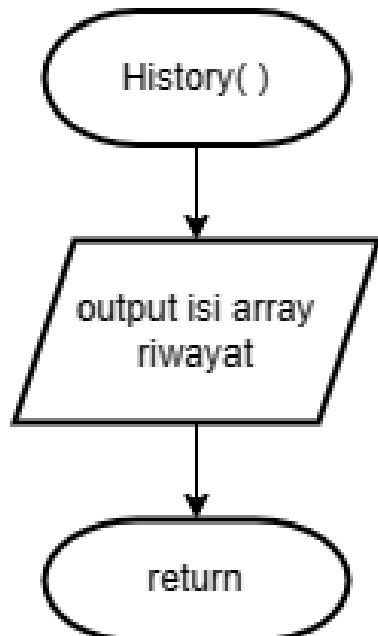
### **1.16. Ganti PIN()**

Flowchart : GantiPIN()



### **1.17. History()**

Flowchart : History()



## 2. Kode Program

```
● ● ●
1 import java.time.LocalDate;
2 import java.time.LocalDateTime;
3 import java.util.Locale;
4 import java.util.Scanner;
5
6 public class MesinATM_5 {
7     static Scanner sc = new Scanner(System.in);
8     static LocalDate date = LocalDate.now();
9     static LocalDateTime time = LocalDateTime.now();
10    static String[][] nasabah = new String[3][5];
11    static String[][] riwayat = new String[10][4];
12    static String[][] va = new String[3][3];
13    static int counter = 0;
14    static int index = -1;
15    static int indexTujuan = -1;
16
17    public static void main(String[] args) {
18
19        Nasabah();
20        String session = Login();
21        while (session != null) {
22            switch (MenuUtama()) {
23                case 1:
24                    // Cek Saldo
25                    CekSaldo();
26                    break;
27                case 2:
28                    // Tarik Tunai
29                    TarikTunai();
30                    break;
31                case 3:
32                    // Setor Tunai
33                    SetorTunai();
34                    break;
35                case 4:
36                    // Transfer
37                    MenuTransfer();
38                    break;
39                case 5:
40                    // Ganti PIN
41                    GantiPIN();
42                    break;
43                case 6:
44                    // Mutasi
45                    History();
46                    break;
47                case 7:
48                    // Masuk
49                    Login();
50                    break;
51                case 8:
52                    // Keluar
53                    session = null;
54                    break;
55                default:
56                    System.out.println("Menu Tidak Valid !");
57                    break;
58            }
59        }
60    }
}
```

```
1 static void Nasabah() {
2     nasabah[0][0] = "1234567890"; // Nomor Rekening
3     nasabah[0][1] = "123456"; // PIN
4     nasabah[0][2] = "20000000"; // Saldo
5     nasabah[0][3] = "Lavina"; // Nama
6     nasabah[0][4] = "BTS"; // Nama Bank
7
8     nasabah[1][0] = "0987654321";
9     nasabah[1][1] = "098765";
10    nasabah[1][2] = "30000000";
11    nasabah[1][3] = "Alyssa";
12    nasabah[1][4] = "BTS";
13
14    nasabah[2][0] = "6789054321";
15    nasabah[2][1] = "654789";
16    nasabah[2][2] = "10000000";
17    nasabah[2][3] = "Galih";
18    nasabah[2][4] = "BRI";
19
20    nasabah[3][0] = "1982736547";
21    nasabah[3][1] = "230804";
22    nasabah[3][2] = "10500000";
23    nasabah[3][3] = "Aden";
24    nasabah[3][4] = "BNI";
25
26    nasabah[4][0] = "8735629846";
27    nasabah[4][1] = "111213";
28    nasabah[4][2] = "20800000";
29    nasabah[4][3] = "Anais";
30    nasabah[4][4] = "BCA";
31 }
32
33 static void VA() {
34     va[0][0] = "123456789012";
35     va[0][1] = "Listrik PLN";
36     va[0][2] = "55000000";
37
38     va[1][0] = "123456789034";
39     va[1][1] = "Air PDAM";
40     va[1][2] = "1500000";
41
42     va[2][0] = "123456789056";
43     va[2][1] = "Uang Kuliah Tunggal";
44     va[2][2] = "5000000";
45 }
46
```



```
1 static String Login() {
2     String session = null;
3
4     do {
5         boolean trueRek = false;
6         boolean truePIN = false;
7
8         System.out.println("\n=====");
9         System.out.println("    SELAMAT DATANG DI BANK BTS !");
10        System.out.println("=====");
11        System.out.print("\nMasukkan Nomor Rekening anda : ");
12        String noRek = sc.nextLine();
13        System.out.print("Masukkan PIN anda           : ");
14        String pin = sc.nextLine();
15        System.out.println("\n=====");
16
17        for (int i = 0; i < nasabah.length; i++) {
18            index = i;
19            if (nasabah[i][0].equals(noRek)) {
20                trueRek = true;
21                if (nasabah[i][1].equals(pin)) {
22                    truePIN = true;
23                    session = nasabah[i][0];
24                    break;
25                }
26            }
27        }
28
29        if (!truePIN && !trueRek) {
30            System.out.println("\n=====");
31            System.out.println("Nomor Rekening dan PIN Anda Salah !");
32            System.out.println("=====");
33        } else if (!truePIN) {
34            System.out.println("\n=====");
35            System.out.println("PIN Anda Salah !");
36            System.out.println("=====");
37        } else if (!trueRek) {
38            System.out.println("\n=====");
39            System.out.println("Nomor Rekening Anda Salah !");
40            System.out.println("=====");
41        }
42    } while (session == null);
43    return session;
44 }
45
```

```
1 static int MenuUtama() {
2     int menu = 0;
3
4     System.out.println("\n||=====| |");
5     System.out.println("||          PILIHAN MENU      | |");
6     System.out.println("||_____| |");
7     System.out.println("||          1. Cek Saldo    | |");
8     System.out.println("||          2. Tarik Tunai   | |");
9     System.out.println("||          3. Setor Tunai   | |");
10    System.out.println("||          4. Transfer       | |");
11    System.out.println("||          5. Ganti PIN     | |");
12    System.out.println("||          6. Riwayat       | |");
13    System.out.println("||          7. Masuk         | |");
14    System.out.println("||          8. Keluar        | |");
15    System.out.println("||=====| |");
16    System.out.print("\nPilih menu : ");
17    menu = sc.nextInt();
18    sc.nextLine();
19    return menu;
20 }
21
```

```
1 static void CekSaldo() {
2     while (true) {
3         int saldo = Integer.parseInt(nasabah[index][2]);
4         System.out.println("\n===== JUMLAH SALDO ANDA =====");
5         System.out.printf(Locale.ITALY, "\nRp %,d \n", saldo);
6         System.out.println("\n=====");
7         System.out.print("Transaksi Lain ? (y/n) : ");
8         String konfirmasi = sc.nextLine();
9
10        if (konfirmasi.equalsIgnoreCase("y")) {
11            break;
12        } else {
13            Login();
14        }
15        break;
16    }
17
18 }
19
```



```
1 static void TarikTunai() {
2     int saldo = Integer.parseInt(nasabah[index][2]);
3     int jmlTarik = 0;
4     int saldoAkhir;
5
6     System.out.println("\n| =====");
7     System.out.println("|| TARIK TUNAI ||");
8     System.out.println("|| _____ ||");
9     System.out.println("|| 1. 100.000 ||");
10    System.out.println("|| 2. 200.000 ||");
11    System.out.println("|| 3. 300.000 ||");
12    System.out.println("|| 4. 500.000 ||");
13    System.out.println("|| 5. 1.000.000 ||");
14    System.out.println("|| 6. 2.000.000 ||");
15    System.out.println("|| 7. Penarikan lainnya ||");
16    System.out.println("|| ===== ||");
17    System.out.print("Pilih menu : ");
18    int menu = sc.nextInt();
19    sc.nextLine();
20
21    if (menu < 7) {
22        System.out.print("Apakah Anda Yakin ? (y/n) : ");
23        String konfirmasi = sc.nextLine();
24
25        if (konfirmasi.equalsIgnoreCase("y")) {
26            if (menu == 1) {
27                jmlTarik = 100_000;
28            } else if (menu == 2) {
29                jmlTarik = 200_000;
30            } else if (menu == 3) {
31                jmlTarik = 300_000;
32            } else if (menu == 4) {
33                jmlTarik = 500_000;
34            } else if (menu == 5) {
35                jmlTarik = 1_000_000;
36            } else if (menu == 6) {
37                jmlTarik = 2_000_000;
38            }
39            saldoAkhir = saldo - jmlTarik;
40            nasabah[index][2] = String.valueOf(saldoAkhir);
41            CetakResiTariKTunai(saldoAkhir, jmlTarik);
42
43            String jenisTrans = "Tarik Tunai";
44            LocalDate tglTrans = date;
45
46            counter++;
47            riwayat[counter][0] = String.valueOf(tglTrans);
48            riwayat[counter][1] = jenisTrans;
49            riwayat[counter][2] = String.valueOf(jmlTarik);
50            riwayat[counter][3] = nasabah[index][2];
51        } else {
52            System.out.println("\n=====");
53            System.out.println("Transaksi Dibatalkan !");
54            System.out.println("=====");
55        }
56    }
57}
```

```

56     } else if (menu == 7) {
57         boolean isTarik = false;
58         do {
59             System.out.print("Masukkan jumlah penarikan: Rp ");
60             jmlTarik = sc.nextInt();
61             sc.nextLine();
62
63             if (jmlTarik >= 100_000) {
64                 if (jmlTarik <= 7_000_000) {
65                     isTarik = true;
66                     System.out.print("Apakah Anda Yakin ? (y/n) : ");
67                     String confirm = sc.nextLine();
68
69                     if (confirm.equalsIgnoreCase("y")) {
70                         saldoAkhir = saldo - jmlTarik;
71                         nasabah[index][2] = String.valueOf(saldoAkhir);
72                         CetakResiTariK Tunai(saldoAkhir, jmlTarik);
73
74                         String jenisTrans = "TariK Tunai";
75                         LocalDate tglTrans = date;
76
77                         counter++;
78                         riwayat[counter][0] = String.valueOf(tglTrans);
79                         riwayat[counter][1] = jenisTrans;
80                         riwayat[counter][2] = String.valueOf(jmlTarik);
81                         riwayat[counter][3] = nasabah[index][2];
82                     }
83                 } else {
84                     System.out.println("\n=====");
85                     System.out.println("Maksimal TariK Tunai Rp 7.000.000");
86                     System.out.println("=====\\n");
87                 }
88             }
89         } else {
90             System.out.println("\n=====");
91             System.out.println("Minimal TariK Tunai Rp 100.000");
92             System.out.println("=====\\n");
93         }
94     } while (!isTarik);
95 }
96 }
97

```



```

1 static void CetakResiTariK Tunai(int saldoAkhir, int jmlTarik) {
2     do {
3         System.out.println("\n=====");
4         System.out.println(" ATM BTS");
5         System.out.println("=====");
6         System.out.printf("\n" + date + " %tT%n", time);
7         System.out.println("Cabang JTI Polinema");
8         System.out.println("\nTariK Tunai");
9         System.out.printf(Locale.ITALY, "Jumlah : Rp %,d %n", jmlTarik);
10        System.out.printf(Locale.ITALY, "Sisa Saldo : Rp %,d %n ", saldoAkhir);
11        System.out.println("\n===== Terima Kasih ! =====");
12        System.out.print("\nTransaksi Lain ? (y/n) : ");
13        String konfirmasi = sc.nextLine();
14
15        if (konfirmasi.equalsIgnoreCase("y")) {
16            break;
17        } else {
18            Login();
19        }
20        break;
21    } while (true);
22 }
23

```

```
1 static void SetorTunai() {
2     int jmlSetor;
3     int saldoAkhir = 0, saldoAkhirLain = 0;
4     String rekSetor = null, namaTujuan = null, Banktujuan = null;
5     int saldoSendiri = Integer.parseInt(nasabah[index][2]);
6
7     boolean isSetor = false;
8     do {
9         System.out.print("Masukkan Nominal Setor : ");
10        jmlSetor = sc.nextInt();
11        sc.nextLine();
12
13        if (jmlSetor % 50_000 == 0) {
14            if (jmlSetor <= 15_000_000 && jmlSetor >= 50_000) {
15                isSetor = true;
16                System.out.println("\n|=====");
17                System.out.println("||      Rekening Tujuan      ||");
18                System.out.println("||_____||");
19                System.out.println("||      1. Rekening Sendiri    ||");
20                System.out.println("||      2. Rekening Lainnya    ||");
21                System.out.println("||=====||");
22                System.out.print("\nPilih Rekening Tujuan : ");
23                int menu = sc.nextInt();
24                sc.nextLine();
25
26                if (menu == 1) {
27                    System.out.print("Apakah Anda Yakin ? (y/n) : ");
28                    String konfirmasi = sc.nextLine();
29
30                    if (konfirmasi.equalsIgnoreCase("y")) {
31                        rekSetor = nasabah[index][0];
32                        saldoAkhir = saldoSendiri + jmlSetor;
33                        nasabah[index][2] = Integer.toString(saldoAkhir);
34
35                        CetakResiSetoran(jmlSetor, saldoAkhir);
36                    } else {
37                        System.out.println("\n=====");
38                        System.out.println("Transaksi Dibatalkan !");
39                        System.out.println("=====");
40
41                }
42
43            } else if (menu == 2) {
44                do {
45                    System.out.print("Masukkan Rekening Tujuan : ");
46                    rekSetor = sc.nextLine();
47
48                    for (int i = 0; i < nasabah.length; i++) {
49                        if (rekSetor.equals(nasabah[i][0])) {
50                            saldoAkhirLain = Integer.parseInt(nasabah[i][2]);
51                            saldoAkhirLain += jmlSetor;
52
53                            System.out.println("Rekening Tujuan Berhasil Ditambahkan!");
54                            System.out.println("Saldo Akhir : " + saldoAkhirLain);
55                            System.out.println("=====");
56
57                            break;
58                        }
59                    }
60
61                } while (!rekSetor.equals(nasabah[i][0]));
62            }
63        }
64    }
65}
```

```

52             nasabah[i][2] = String.valueOf(saldoAkhirLain);
53             saldoAkhir = Integer.parseInt(nasabah[index][2]);
54             namaTujuan = nasabah[1][3];
55             Banktujuan = nasabah[i][4];
56         }
57     }
58
59     System.out.print("Apakah Anda Yakin ? (y/n) : ");
60     String konfirmasi = sc.nextLine();
61
62     if (konfirmasi.equalsIgnoreCase("y")) {
63         if (Banktujuan == "BTS") {
64             CetakResiSetoranLain(namaTujuan, rekSetor, jmlSetor);
65             break;
66         } else {
67             System.out.println("\n=====");
68             System.out.println("Rekening Tidak Valid");
69             System.out.println("=====");
70         }
71     } else {
72         System.out.println("\n=====");
73         System.out.println("Transaksi Dibatalkan !");
74         System.out.println("=====");
75         break;
76     }
77
78     } while (true);
79 }
80 } else {
81     System.out.println("\n=====");
82     System.out.println("Jumlah Setor Minimal Rp 50.000 dan \nMaksimal Rp 15.000.000");
83     System.out.println("=====\\n");
84 }
85 } else {
86     System.out.println("\n=====");
87     System.out.println("Jumlah Setor Harus Kelipatan Rp 50.000");
88     System.out.println("=====\\n");
89 }
90
91 String jenisTrans = "Setor Tunai";
92 LocalDate tglTrans = date;
93
94 counter++;
95 riwayat[counter][0] = String.valueOf(tglTrans);
96 riwayat[counter][1] = jenisTrans;
97 riwayat[counter][2] = String.valueOf(jmlSetor);
98 riwayat[counter][3] = nasabah[index][2];
99 } while (!isSetor);
100 }
101

```



```
1 static void CetakResiSetoran(int jmlSetor, int saldoAkhir) {
2     do {
3         System.out.println("\n=====");
4         System.out.println("          ATM BTS");
5         System.out.println("=====");
6         System.out.printf("\n" + date + " %tT%n", time);
7         System.out.println("Cabang JTI Polinema");
8         System.out.println("\nSetor Tunai");
9         System.out.printf(Locale.ITALY, "Jumlah      : Rp %,d %n ", jmlSetor);
10        System.out.printf(Locale.ITALY, "Total Saldo   : Rp %,d %n ", saldoAkhir);
11        System.out.println("\n===== Terima Kasih ! =====");
12        System.out.print("\nTransaksi Lain ? (y/n) : ");
13        String konfirmasi = sc.nextLine();
14
15        if (konfirmasi.equalsIgnoreCase("y")) {
16            break;
17        } else {
18            Login();
19        }
20        break;
21    } while (true);
22 }
23
24 static void CetakResiSetoranLain(String namaTujuan, String rekTujuan, int jmlSetor) {
25     do {
26         System.out.println("\n=====");
27         System.out.println("      SETOR TUNAI BERHASIL !");
28         System.out.println("=====");
29         System.out.println("\nSetor Tunai");
30         System.out.println("No Rekening      : " + rekTujuan);
31         System.out.println("Nama Penerima   : " + namaTujuan);
32         System.out.printf(Locale.ITALY, "Jumlah      : Rp %,d %n ", jmlSetor);
33         System.out.println("\n===== Terima Kasih ! =====");
34         System.out.print("\nTransaksi Lain ? (y/n) : ");
35         String konfirmasi = sc.nextLine();
36
37        if (konfirmasi.equalsIgnoreCase("y")) {
38            break;
39        } else {
40            Login();
41        }
42        break;
43    } while (true);
44
45 }
46
```



```
1 static void MenuTransfer() {
2     System.out.println("\n||=====| |");
3     System.out.println("||      Menu Transfer      | |");
4     System.out.println("||-----| |");
5     System.out.println("||      1. Sesama Bank    | |");
6     System.out.println("||      2. Bank Lain      | |");
7     System.out.println("||      3. Virtual Akun   | |");
8     System.out.println("||      4. Kembali         | |");
9     System.out.println("||=====| |");
10    System.out.print("\nPilih Menu Transfer : ");
11    int menu = sc.nextInt();
12    sc.nextLine();
13
14    int admin;
15    String bankTujuan = null;
16    if (menu == 1) {
17        admin = 6_500;
18        bankTujuan = "BTS";
19        Transfer(admin, bankTujuan);
20    } else if (menu == 2) {
21        admin = 7_500;
22        System.out.println("\n||=====| |");
23        System.out.println("||      Bank Tujuan       | |");
24        System.out.println("||-----| |");
25        System.out.println("||      1. BRI             | |");
26        System.out.println("||      2. BNI             | |");
27        System.out.println("||      3. BCA             | |");
28        System.out.println("||      4. Kembali         | |");
29        System.out.println("||=====| |");
30        System.out.print("Pilih Menu Bank           : ");
31        int menuBank = sc.nextInt();
32        sc.nextLine();
33
34        if (menuBank == 1) {
35            bankTujuan = "BRI";
36        } else if (menuBank == 2) {
37            bankTujuan = "BNI";
38        } else if (menuBank == 3) {
39            bankTujuan = "BCA";
40        } else if (menuBank == 4) {
41            MenuUtama();
42        } else {
43            System.out.println("\n=====| |");
44            System.out.println("Menu Tidak Valid !");
45            System.out.println("=====| |");
46        }
47
48        Transfer(admin, bankTujuan);
49    } else if (menu == 3) {
50        VirtualAkun();
51    } else {
52        System.out.println("\n=====| |");
53        System.out.println("Menu Tidak Valid !");
54        System.out.println("=====| |");
55    }
56
57 }
```

```
1 static void Transfer(int admin, String bankTujuan) {
2     int saldoPengirim = Integer.parseInt(nasabah[index][2]);
3     int saldoTujuan = 0, jmlTF = 0, totalTF = 0;
4     boolean rekValid = false;
5     String rekTujuan = null, namaTujuan = null;
6
7     do {
8         System.out.print("Masukkan Nomor Rekening Tujuan: ");
9         rekTujuan = sc.nextLine();
10
11        for (int j = 0; j < nasabah.length; j++) {
12            if (rekTujuan.equals(nasabah[j][0]) && !rekTujuan.equals(nasabah[index][2])) {
13                indexTujuan = j;
14                rekValid = true;
15                break;
16            }
17        }
18    }
19
20    if (!rekValid) {
21        System.out.println("\n=====");
22        System.out.println("Nomor Rekening Tidak Valid !");
23        System.out.println("=====");
24    }
25 } while (!rekValid);
26
27 boolean isTransfer = false;
28 do {
29     System.out.print("Masukkan Nominal Transfer : ");
30     jmlTF = sc.nextInt();
31     sc.nextLine();
32
33     if (jmlTF >= 10_000 && jmlTF <= 25_000_000) {
34         isTransfer = true;
35         if (jmlTF <= (saldoPengirim - 50_000)) {
36             System.out.print("Apakah Anda Yakin ? (y/n) : ");
37             String konfirmasi = sc.nextLine();
38             if (konfirmasi.equalsIgnoreCase("y")) {
39                 totalTF = jmlTF + admin;
40
41                 saldoTujuan = Integer.parseInt(nasabah[indexTujuan][2]);
42                 saldoTujuan += jmlTF;
43                 nasabah[indexTujuan][2] = String.valueOf(saldoTujuan);
44
45                 saldoPengirim -= totalTF;
46                 nasabah[index][2] = String.valueOf(saldoPengirim);
47
48                 namaTujuan = nasabah[indexTujuan][3];
49                 bankTujuan = nasabah[indexTujuan][4];
50
51                 String jenisTrans = "Transfer";
52                 LocalDate tglTrans = date;
53
54                 counter++;
55                 riwayat[counter][0] = String.valueOf(tglTrans);
56                 riwayat[counter][1] = jenisTrans;
57                 riwayat[counter][2] = String.valueOf(totalTF);
58                 riwayat[counter][3] = nasabah[index][2];
59
59
60                 CetakResiTransfer(rekTujuan, bankTujuan, namaTujuan, jmlTF, totalTF);
61             } else {
62                 System.out.println("\n=====");
63                 System.out.println("Transaksi Dibatalkan !");
64                 System.out.println("=====");
65                 break;
66             }
67         } else {
68             System.out.println("\n=====");
69             System.out.print("Saldo Anda Kurang !");
70             System.out.println("=====\\n");
71         }
72     } else {
73         System.out.println("\n=====");
74         System.out.println("Minimal Transfer Rp 10.000 dan \\nMaksimal Rp 25.000.000");
75         System.out.println("=====\\n");
76     }
77 } while (!isTransfer);
78
79 }
```

```
● ● ●
1 static void CetakResiTransfer(String rekTujuan, String bankTujuan, String namaTujuan, int jmlTF, int totalTF) {
2     String konfirmasi = "n";
3
4     do {
5         System.out.println("\n=====");
6         System.out.println("          ATM BTS");
7         System.out.println("=====");
8         System.out.printf("\n" + date + " %tT%n", time);
9         System.out.println("Cabang JTI Polinema");
10        System.out.println("\nTransfer");
11        System.out.println("Ke Bank      : " + bankTujuan);
12        System.out.println("Ke Rekening   : " + rekTujuan);
13        System.out.println("Nama       : " + namaTujuan);
14        System.out.printf(Locale.ITALY, "Jumlah      : Rp %,d %n", jmlTF);
15        System.out.println("\n===== Terima Kasih ! =====");
16
17        System.out.print("\nTransaksi Lain ? (y/n) : ");
18        konfirmasi = sc.nextLine();
19
20        if (konfirmasi.equalsIgnoreCase("y")) {
21            break;
22        } else {
23            Login();
24        }
25        break;
26    } while (true);
27
28 }
29
```

```
● ● ●
1 static void GantiPIN() {
2     boolean isPIN = false;
3     do {
4         System.out.print("Masukkan PIN Lama : ");
5         String pinLama = sc.nextLine();
6
7         if (pinLama.equals(nasabah[index][1])) {
8             System.out.print("Masukkan PIN Baru : ");
9             String pinBaru = sc.nextLine();
10
11            if (pinBaru.length() == 6) {
12                isPIN = true;
13                nasabah[index][1] = pinBaru;
14                Login();
15            } else {
16                System.out.println("\n=====");
17                System.out.println("PIN Harus 6 Digit");
18                System.out.println("=====");
19            }
20        } else {
21            System.out.println("\n=====");
22            System.out.println("PIN Anda Salah !");
23            System.out.println("=====");
24        }
25    } while (!isPIN);
26 }
```

```
● ○ ●
1 static void VirtualAkun() {
2     VA();
3     int saldoPembayar = Integer.parseInt(nasabah[index][2]);
4     boolean vaValid = false;
5     int jmlTagihan = 0;
6     String jenis = null, noVA, konfirmasi;
7
8     do {
9         System.out.print("Masukkan Nomor Virtual Acoount (12 Digit): ");
10        noVA = sc.nextLine();
11
12        for (int i = 0; i < va.length; i++) {
13            if (va[i][0].equals(noVA)) {
14                if (noVA.length() == 12) {
15                    vaValid = true;
16                    jenis = va[i][1];
17                    jmlTagihan = Integer.parseInt(va[i][2]);
18                } else {
19                    System.out.println("\n=====");
20                    System.out.println("Nomor Virtual Akun Harus 12 Digit !");
21                    System.out.println("=====");
22                }
23            }
24        }
25
26        if (!vaValid) {
27            System.out.println("\n=====");
28            System.out.println("Nomor Virtual Akun Tidak Valid !");
29            System.out.println("=====");
30        }
31    } while (!vaValid);
32
33    while (true) {
34        if (jmlTagihan <= (saldoPembayar - 50_000)) {
35            System.out.println("\n=====");
36            System.out.println("          RINCIAN PEMBAYARAN      ");
37            System.out.println("=====");
38            System.out.println("\nNomor VA      : " + noVA);
39            System.out.println("Pembayaran      : " + jenis);
40            System.out.printf(Locale.ITALY, "Tunggakan      : Rp %,d %n", jmlTagihan);
41            System.out.printf(Locale.ITALY, "Jumlah Tagihan      : Rp %,d %n", jmlTagihan);
42            System.out.println("\n=====");
43        } else {
44            System.out.println("\n=====");
45            System.out.println("Saldo Anda Kurang !");
46            System.out.println("=====");
47            break;
48        }
}
```

```

49         System.out.print("Apakah Anda Yakin ? (y/n) : ");
50         konfirmasi = sc.nextLine();
51
52         if (konfirmasi.equalsIgnoreCase("y")) {
53             saldoPembayar -= jmlTagihan;
54             nasabah[index][2] = Integer.toString(saldoPembayar);
55             System.out.println("\n=====");
56             System.out.println("Pembayaran Berhasil !");
57             System.out.println("=====");
58
59             String jenisTrans = "Pembayaran " + jenis;
60             LocalDate tglTrans = date;
61
62             counter++;
63             riwayat[counter][0] = String.valueOf(tglTrans);
64             riwayat[counter][1] = jenisTrans;
65             riwayat[counter][2] = String.valueOf(jmlTagihan);
66             riwayat[counter][3] = nasabah[index][2];
67
68             break;
69         } else {
70             System.out.println("\n=====");
71             System.out.println("Transaksi Dibatalkan");
72             System.out.println("=====");
73         }
74
75         System.out.print("\nTransaksi Lain ? (y/n) : ");
76         konfirmasi = sc.nextLine();
77
78         if (konfirmasi.equalsIgnoreCase("y")) {
79             break;
80         } else {
81             Login();
82         }
83         break;
84     }
85 }
86
87 }
88

```

```

● ● ●
1   static void History() {
2     do {
3       System.out.println("\n=====");
4       System.out.println("|                               Mutasi Rekening                               |");
5       System.out.println("|          |          |          |          |          |          |");
6       System.out.println("|          |          |          |          |          |          |");
7       System.out.println("|          Tgl          |          Keterangan          |          Mutasi          |          Saldo          |");
8       System.out.println("|=====|=====|=====|=====|=====|=====|");
9
10    for (int i = 0; i < riwayat.length; i++) {
11      if (riwayat[i] != null) {
12        if (riwayat[i][0] != null & riwayat[i][1] != null & riwayat[i][2] != null
13           && riwayat[i][3] != null) {
14          System.out.printf("| %-10s | %-22s | %-14s | %-15s | %n", riwayat[i][0],
15                            riwayat[i][1], riwayat[i][2], riwayat[i][3]);
16          System.out
17            .println("=====");
18        }
19      } else {
20        break;
21      }
22    }
23    System.out.println();
24
25    System.out.print("Transaksi Lain ? (y/n) : ");
26    String konfirmasi = sc.nextLine();
27
28    if (konfirmasi.equalsIgnoreCase("y")) {
29      break;
30    } else {
31      Login();
32    }
33    break;
34  } while (true);
35 }
36

```

### 3. Output Program

#### 3.1 Autentikasi Pengguna

```
=====
SELAMAT DATANG DI BANK BTS !
=====

Masukkan Nomor Rekening anda : 1234567890
Masukkan PIN anda : 123456

=====
|| =====
| PILIHAN MENU
| -----
| 1. Cek Saldo
| 2. Tarik Tunai
| 3. Setor Tunai
| 4. Transfer
| 5. Ganti PIN
| 6. Riwayat
| 7. Masuk
| 8. Keluar
|| =====

Pilih menu : |
```

#### 3.2 Pemrosesan Transaksi

##### 3.2.1 Cek Saldo

```
=====
|| =====
| PILIHAN MENU
| -----
| 1. Cek Saldo
| 2. Tarik Tunai
| 3. Setor Tunai
| 4. Transfer
| 5. Ganti PIN
| 6. Riwayat
| 7. Masuk
| 8. Keluar
|| =====

Pilih menu : 1

===== JUMLAH SALDO ANDA =====

Rp 20.000.000

=====
Transaksi Lain ? (y/n) : |
```

### 3.2.2 Tarik Tunai & Cetak Resi

```
=====
          TARIK TUNAI
=====
1. 100.000
2. 200.000
3. 300.000
4. 500.000
5. 1.000.000
6. 2.000.000
7. Penarikan lainnya
=====

Pilih menu : 1
Apakah Anda Yakin ? (y/n) : y

=====
          ATM BTS
=====

2023-12-14 05:01:13
Cabang JTI Polinema

Tarik Tunai
Jumlah           : Rp 100.000
Sisa Saldo       : Rp 19.900.000

===== Terima Kasih ! =====
```

```
=====
          TARIK TUNAI
=====
1. 100.000
2. 200.000
3. 300.000
4. 500.000
5. 1.000.000
6. 2.000.000
7. Penarikan lainnya
=====

Pilih menu : 7
Masukkan jumlah penarikan: Rp 150000
Apakah Anda Yakin ? (y/n) : y

=====
          ATM BTS
=====

2023-12-14 05:01:13
Cabang JTI Polinema

Tarik Tunai
Jumlah           : Rp 150.000
Sisa Saldo       : Rp 19.750.000

===== Terima Kasih ! =====
```

### 3.2.3 Setor Tunai & Cetak Resi

```
Pilih menu : 3
Masukkan Nominal Setor : 2000000

===== Rekening Tujuan =====
1. Rekening Sendiri
2. Rekening Lainnya

Pilih Rekening Tujuan : 1
Apakah Anda Yakin ? (y/n) : y

=====
ATM BTS
=====

2023-12-14 05:01:13
Cabang JTI Polinema

Setor Tunai
Jumlah : Rp 2.000.000
Total Saldo : Rp 21.750.000

===== Terima Kasih ! =====
```

```
Masukkan Nominal Setor : 3000000

===== Rekening Tujuan =====
1. Rekening Sendiri
2. Rekening Lainnya

Pilih Rekening Tujuan : 2
Masukkan Rekening Tujuan : 0987654321
Apakah Anda Yakin ? (y/n) : Y

=====
ATM BTS
=====

2023-12-14 08:23:21
Cabang JTI Polinema

Setor Tunai
No Rekening : 0987654321
Nama Penerima : Alyssa
Jumlah : Rp 3.000.000

===== Terima Kasih ! =====
```

### 3.2.4 Transfer & Cetak Resi

```
=====  
      Menu Transfer  
=====  
      1. Sesama Bank  
      2. Bank Lain  
      3. Virtual Akun  
      4. Kembali  
=====  
  
Pilih Menu Transfer : 1  
Masukkan Nomor Rekening Tujuan: 0987654321  
Masukkan Nominal Transfer : 1000000  
Apakah Anda Yakin ? (y/n) : y  
  
=====  
          ATM BTS  
=====  
  
2023-12-14 05:01:13  
Cabang JTI Polinema  
  
Transfer  
Ke Bank : BTS  
Ke Rekening : 0987654321  
Nama : Alyssa  
Jumlah : Rp 1.000.000  
  
===== Terima Kasih ! =====
```

```
Pilih Menu Transfer : 2  
  
=====  
      Bank Tujuan  
=====  
      1. BRI  
      2. BNI  
      3. BCA  
      4. Kembali  
=====  
  
Pilih Menu Bank : 1  
Masukkan Nomor Rekening Tujuan: 6789054321  
Masukkan Nominal Transfer : 2000000  
Apakah Anda Yakin ? (y/n) : y  
  
=====  
          ATM BTS  
=====  
  
2023-12-14 05:01:13  
Cabang JTI Polinema  
  
Transfer  
Ke Bank : BRI  
Ke Rekening : 6789054321  
Nama : Galih  
Jumlah : Rp 2.000.000  
  
===== Terima Kasih ! =====
```

### 3.3 Pembayaran (*Virtual Account*)

```
||-----||  
||       Menu Transfer    ||  
||-----||  
||   1. Sesama Bank      ||  
||   2. Bank Lain         ||  
||   3. Virtual Akun     ||  
||   4. Kembali           ||  
||-----||  
  
Pilih Menu Transfer : 3  
Masukkan Nomor Virtual Acoount (12 Digit): 123456789056  
  
=====  
          RINCIAN PEMBAYARAN  
=====  
  
Nomor VA      : 123456789056  
Pembayaran    : Uang Kuliah Tunggal  
Tuggakan      : Rp 5.000.000  
Jumlah Tagihan : Rp 5.000.000  
  
=====  
Apakah Anda Yakin ? (y/n) : y  
  
=====  
Pembayaran Berhasil !  
=====
```

### 3.4 Manajemen Rekening (Mutasi Rekening)

Pilih menu : 6				
=====				
Mutasi Rekening				
December 2023				
Tgl	Keterangan	Mutasi	Saldo	
2023-12-14   Tarik Tunai	100000	19900000		
2023-12-14   Tarik Tunai	150000	19750000		
2023-12-14   Setor Tunai	2000000	21750000		
2023-12-14   Setor Tunai	3000000	21750000		
2023-12-14   Transfer	1006500	20743500		
2023-12-14   Transfer	2007500	18736000		
2023-12-14   Pembayaran Uang Kuliah Tunggal	5000000	13736000		

### 3.5 Mengubah PIN

```
Pilih menu : 5
Masukkan PIN Lama : 123456
Masukkan PIN Baru : 230804

=====
SELAMAT DATANG DI BANK BTS !
=====

Masukkan Nomor Rekening anda : 1234567890
Masukkan PIN anda : 230804

=====
|-----|
| PILIHAN MENU |
|-----|
| 1. Cek Saldo |
| 2. Tarik Tunai |
| 3. Setor Tunai |
| 4. Transfer |
| 5. Ganti PIN |
| 6. Riwayat |
| 7. Masuk |
| 8. Keluar |
|-----|
```