

Mid-Term Exam

Praktikum Dasar Pemrograman

Nama : Yuma Akhunza Kausar Putra

NIM : 2341720259

Kelas : TI 1i

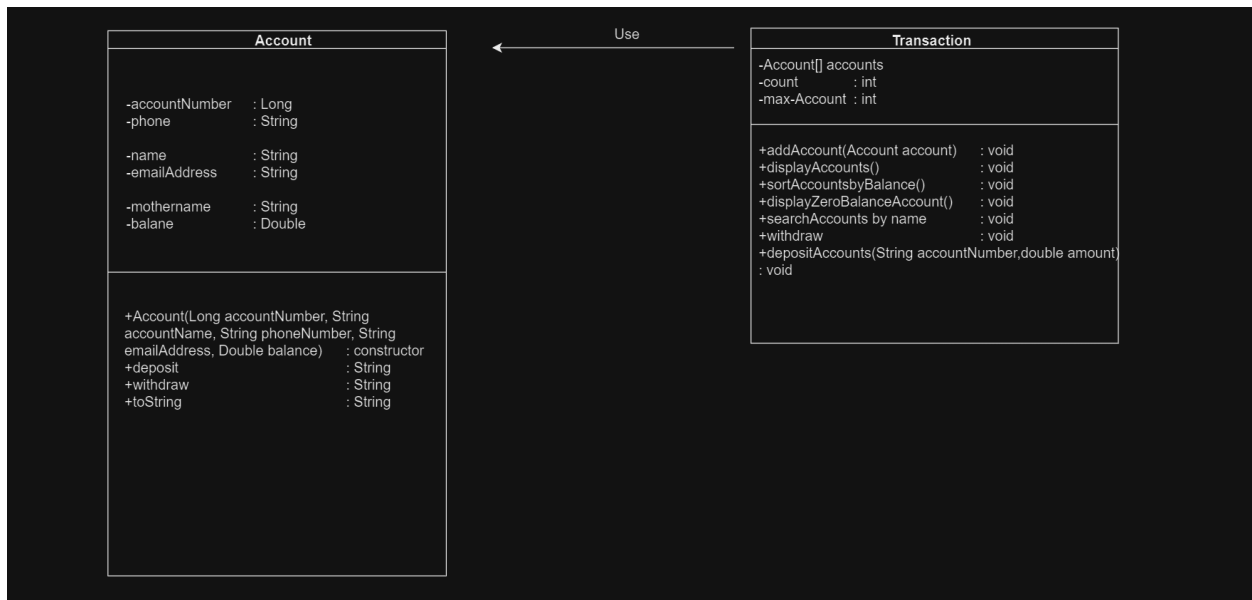
Question:

Based on the case given above:

- 1.) Create class diagram/s for your program design
- 2.) Create the program that implements class diagram to solve the problem of the case above (give} comments to give explanation for the source code)
- 3.) Put the (1) class diagram, (2) screenshot of your program source code and (3) screenshot of the output of the program in a PDF file
- 4.) Submit the PDF file through your LMS account

Jawaban.

1.)



2.) Output :

```
All accounts
File Edit View

All accounts:
AccountNumber: 16030927, Name: Wallace, MotherName: 3084, Phone: 1-458-264-3263, Email: ligula.Nullam@tacitisociosqu.edu, Balance: 10000.0
AccountNumber: 16100617, Name: Darius, MotherName: 0573, Phone: 1-357-843-0547, Email: nec@lectusjusto.org, Balance: 7000.0
AccountNumber: 16240401, Name: Fuller, MotherName: 2243, Phone: 571-7062, Email: convallis@vestibulumanteipsum.org, Balance: 5000.0
AccountNumber: 16270525, Name: Malcolm, MotherName: 0112, Phone: 623-0234, Email: porttitor.tellus.non@curabitur.ca, Balance: 44000.0
AccountNumber: 16971204, Name: Geoffrey, MotherName: 2416, Phone: 1-683-416-8323, Email: ut.pellentesque@luctusutpellentesque.com, Balance: 50000.0
AccountNumber: 16100727, Name: Rudyard, MotherName: 8862, Phone: 650-5379, Email: Proin.eget@velitgestaslacinia.ca, Balance: 123000.0
AccountNumber: 16460329, Name: Troy, MotherName: 4259, Phone: 897-7608, Email: pede.Suspendisse.dui@a.ca, Balance: 100000.0
AccountNumber: 16320421, Name: Alec, MotherName: 3437, Phone: 792-4447, Email: non@mus.com, Balance: 34000.0
AccountNumber: 16180729, Name: Walter, MotherName: 7229, Phone: 863-8209, Email: Pellentesque.ut.ipsu@neque.ca, Balance: 334544.0
AccountNumber: 16950313, Name: Simon, MotherName: 6823, Phone: 592-6919, Email: tellus.justo.sit@commodoauctor.net, Balance: 23444.0
AccountNumber: 16850708, Name: Kamal, MotherName: 3528, Phone: 1-115-339-7678, Email: dictum@nec.edu, Balance: 567770.0

Sorting accounts by balance:
Accounts sorted by balance (descending):
AccountNumber: 16850708, Name: Kamal, MotherName: 3528, Phone: 1-115-339-7678, Email: dictum@nec.edu, Balance: 567770.0
AccountNumber: 16100727, Name: Rudyard, MotherName: 8862, Phone: 650-5379, Email: Proin.eget@velitgestaslacinia.ca, Balance: 123000.0
AccountNumber: 16460329, Name: Troy, MotherName: 4259, Phone: 897-7608, Email: pede.Suspendisse.dui@a.ca, Balance: 100000.0
AccountNumber: 16180729, Name: Walter, MotherName: 7229, Phone: 863-8209, Email: Pellentesque.ut.ipsu@neque.ca, Balance: 334544.0
AccountNumber: 16971204, Name: Geoffrey, MotherName: 2416, Phone: 1-683-416-8323, Email: ut.pellentesque@luctusutpellentesque.com, Balance: 50000.0
AccountNumber: 16270525, Name: Malcolm, MotherName: 0112, Phone: 623-0234, Email: porttitor.tellus.non@curabitur.ca, Balance: 44000.0
AccountNumber: 16320421, Name: Alec, MotherName: 3437, Phone: 792-4447, Email: non@mus.com, Balance: 34000.0
AccountNumber: 16030927, Name: Wallace, MotherName: 3084, Phone: 1-458-264-3263, Email: ligula.Nullam@tacitisociosqu.edu, Balance: 10000.0
AccountNumber: 16100617, Name: Darius, MotherName: 0573, Phone: 1-357-843-0547, Email: nec@lectusjusto.org, Balance: 7000.0
AccountNumber: 16240401, Name: Fuller, MotherName: 2243, Phone: 571-7062, Email: convallis@vestibulumanteipsum.org, Balance: 5000.0
AccountNumber: 16950313, Name: Simon, MotherName: 6823, Phone: 592-6919, Email: tellus.justo.sit@commodoauctor.net, Balance: 23444.0

Displaying accounts with zero balance:
No accounts with zero balance found.

Searching for accounts with name keyword 'Simon':
Accounts matching the name keyword 'Simon':
AccountNumber: 16950313, Name: Simon, MotherName: 6823, Phone: 592-6919, Email: tellus.justo.sit@commodoauctor.net, Balance: 23444.0

Withdrawing 10000.0 from account number 16180729:
Withdrawal successful. New balance: 324544.0

Depositing 5000.0 into account number 16180729:
Deposit successful. New balance: 329544.0

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Source Code :

```
1  package mid_exam;
2
3  public class Account {
4      long accountNumber;
5      String name;
6      String motherName;
7      String phone;
8      String email;
9      double balance;
10
11     // Constructor
12     public Account(long accountNumber, String name, String motherName, String phone, String email, double balance) {
13         this.accountNumber = accountNumber;
14         this.name = name;
15         this.motherName = motherName;
16         this.phone = phone;
17         this.email = email;
18         this.balance = balance;
19     }
20
21     // Deposit money into the account
22     public void deposit(double amount) {
23         if (amount > 0) {
24             balance += amount;
25             System.out.println("Deposit successful. New balance: " + balance);
26         } else {
27             System.out.println("Invalid amount. Please enter a positive number.");
28         }
29     }
30
31     // Withdraw money from the account
32     public void withdraw(double amount) {
33         if (amount > 0) {
34             if (amount <= balance) {
35                 balance -= amount;
36                 System.out.println("Withdrawal successful. New balance: " + balance);
37             } else {
38                 System.out.println("Insufficient funds for withdrawal.");
39             }
40         } else {
41             System.out.println("Invalid amount. Please enter a positive number.");
42         }
43     }
44
45     // String representation of the account
46     @Override
47     public String toString() {
48         return "AccountNumber: " + accountNumber + ", Name: " + name + ", MotherName: " + motherName +
49             ", Phone: " + phone + ", Email: " + email + ", Balance: " + balance;
50     }
51 }
52
```

```

1  package mid_exam;
2
3  public class Main {
4      public static void main(String[] args) {
5          // Create the account manager
6          AccountManager accountManager = new AccountManager();
7
8          // Load the provided data into the account manager
9          accountManager.addAccount(new Account(16030927, "Wallace", "3084", "1-458-264-3263", "ligula.Nullam@tacitisociosqu.edu", 10000));
10         accountManager.addAccount(new Account(16100617, "Darius", "0573", "1-357-843-0547", "nec@lectusjusto.org", 7000));
11         accountManager.addAccount(new Account(16240401, "Fuller", "2243", "571-7062", "convallis@Vestibulumanteipsum.org", 5000));
12         accountManager.addAccount(new Account(16270525, "Malcolm", "0112", "623-0234", "porttitor.tellus.non@Curabitur.ca", 44000));
13         accountManager.addAccount(new Account(16971204, "Geoffrey", "2416", "1-683-416-8323", "ut.pellentesque@luctusutpellentesque.com", 50000));
14         accountManager.addAccount(new Account(16100727, "Rudyard", "8862", "650-5379", "Proin.eget@velitegestaslacinia.ca", 123000));
15         accountManager.addAccount(new Account(16460329, "Troy", "4259", "897-7608", "pede.Suspendisse.dui@a.ca", 100000));
16         accountManager.addAccount(new Account(16320421, "Alec", "3437", "792-4447", "non@mus.com", 34000));
17         accountManager.addAccount(new Account(16180729, "Walter", "7229", "863-8209", "Pellentesque.ut.ipsu@neque.ca", 334544));
18         accountManager.addAccount(new Account(16950313, "Simon", "6823", "592-6919", "tellus.justo.sit@commodoauctor.net", 23444));
19         accountManager.addAccount(new Account(16850708, "Kamal", "3528", "1-115-339-7678", "dictum@nec.edu", 567770));
20
21         // Display all accounts
22         System.out.println("\nAll accounts:");
23         accountManager.displayAllAccounts();
24
25         // Sort accounts by balance in descending order
26         System.out.println("\nSorting accounts by balance:");
27         accountManager.sortAccountsByBalance();
28
29         // Display accounts with zero balance
30         System.out.println("\nDisplaying accounts with zero balance:");
31         accountManager.displayZeroBalanceAccounts();
32
33         // Search accounts by name keyword
34         String nameKeyword = "Simon";
35         System.out.println("\nSearching for accounts with name keyword '" + nameKeyword + "':");
36         accountManager.searchAccountByName(nameKeyword);
37
38         // Perform withdrawal from an account
39         long accountNumberToWithdraw = 16180729;
40         double withdrawAmount = 10000;
41         System.out.println("\nWithdrawing " + withdrawAmount + " from account number " + accountNumberToWithdraw + ":");
42         accountManager.withdraw(accountNumberToWithdraw, withdrawAmount);
43
44         // Perform deposit into an account
45         long accountNumberToDeposit = 16180729;
46         double depositAmount = 5000;
47         System.out.println("\nDepositing " + depositAmount + " into account number " + accountNumberToDeposit + ":");
48         accountManager.deposit(accountNumberToDeposit, depositAmount);
49     }
50 }

```

```

1 package mid_exam;
2
3 import java.util.Arrays;
4 import java.util.Comparator;
5
6 public class AccountManager {
7     Account[] accounts;
8     int count;
9     static final int MAX_ACCOUNTS = 100; // Maximum number of accounts allowed in the array
10
11     // Constructor
12     public AccountManager() {
13         accounts = new Account[MAX_ACCOUNTS];
14         count = 0;
15     }
16
17     // Add a new account
18     public void addAccount(Account account) {
19         if (count < MAX_ACCOUNTS) {
20             accounts[count] = account;
21             count++;
22             System.out.println("Account added successfully.");
23         } else {
24             System.out.println("Account array is full. Cannot add more accounts.");
25         }
26     }
27
28     // Display all accounts
29     public void displayAllAccounts() {
30         for (int i = 0; i < count; i++) {
31             System.out.println(accounts[i]);
32         }
33     }
34
35     // Sort accounts by balance in descending order
36     public void sortAccountsByBalance() {
37         Arrays.sort(accounts, 0, count, Comparator.comparingDouble((Account account) -> account.balance).reversed());
38         System.out.println("Accounts sorted by balance (descending).");
39         displayAllAccounts();
40     }
41
42     // Display accounts with zero balance
43     public void displayZeroBalanceAccounts() {
44         System.out.println("Accounts with zero balance:");
45         boolean foundZeroBalance = false;
46         for (int i = 0; i < count; i++) {
47             if (accounts[i].balance == 0) {
48                 System.out.println(accounts[i]);
49                 foundZeroBalance = true;
50             }
51         }
52         if (!foundZeroBalance) {
53             System.out.println("No accounts with zero balance found.");
54         }
55     }
56
57     // Search accounts by name keyword
58     public void searchAccountByName(String nameKeyword) {
59         System.out.println("Accounts matching the name keyword '" + nameKeyword + "':");
60         boolean foundMatch = false;
61         for (int i = 0; i < count; i++) {
62             if (accounts[i].name.toLowerCase().contains(nameKeyword.toLowerCase())) {
63                 System.out.println(accounts[i]);
64                 foundMatch = true;
65             }
66         }
67         if (!foundMatch) {
68             System.out.println("No accounts matching the name keyword found.");
69         }
70     }
71
72     // Withdraw from an account
73     public void withdraw(long accountNumber, double amount) {
74         for (int i = 0; i < count; i++) {
75             if (accounts[i].accountNumber == accountNumber) {
76                 accounts[i].withdraw(amount);
77                 return;
78             }
79         }
80         System.out.println("Account not found.");
81     }
82
83     // Deposit into an account
84     public void deposit(long accountNumber, double amount) {
85         for (int i = 0; i < count; i++) {
86             if (accounts[i].accountNumber == accountNumber) {
87                 accounts[i].deposit(amount);
88                 return;
89             }
90         }
91         System.out.println("Account not found.");
92     }
93 }
94
95
96

```