# LAPORAN TUGAS FROM ENTITY TO OBJECT PRAKTIK PEMROGRAMAN BERORIENTASI OBJEK

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TEKNOLOGI REKAYASA PERANGKAT LUNAK

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1. OBJECTIVE
   To bridge your knowledge from Database Systems to Object-Oriented Programming (OOP). You will understand how a database "Entity" (Table) translates into a Java "Class," and how data records translate into "Objects."
2. CONTEXT
   In your previous semester, you designed an ERD (Entity Relationship Diagram) for a specific case study (e.g., Library System, E-Commerce, Academic Portal, etc.).
   - In a Database, an entity is represented as a Table.
   - In OOP, an entity is represented as a Class.
3. INTRUCTION
   1) Selected Entity: user and admin
   2) Database Table Structure and mapping to java attributes

   ADMIN

| Database atributes | Java atributes | Data type |
|---|---|---|
| id | id | int |
| name | name | string/varchar |
| email | email | string/varchar |
| password | pass | string/varchar |

   USER

| Database atributes | Java atributes | Data type |
|---|---|---|
| id | id | int |
| name | name | string/varchar |
| email | email | string/varchar |
| password | pass | string/varchar |
| pekerjaan | pekerjaan | string/varchar |
| usia | usia | int |

4. IMPLEMENTATION

Data sample

DummyData.java

assessment1 > DummyData.java > ...

```java
package assessment1;
import java.util.ArrayList;

public class DummyData {
    public static ArrayList<User> users() {
        ArrayList<User> userList = new ArrayList<>();

        userList.add(new User(id: 1, name: "Deco", email: "deco@email.com", pass: "12345", pekerjaan: "manager", usia: 40));
        userList.add(new User(id: 2, name: "Akbar", email: "akbar@email.com", pass: "12345", pekerjaan: "stakeholder", usia: 30));
        userList.add(new User(id: 3, name: "Prasetya", email: "prasetya@email.com", pass: "12345", pekerjaan: "good person", usia: 20));

        return userList;
    }

    public static ArrayList<Admin> admins() {
        ArrayList<Admin> adminList = new ArrayList<>();

        adminList.add(new Admin(id: 1, name: "Sherlock Holmes", email: "sherlock@email.com", pass: "12345"));
        adminList.add(new Admin(id: 2, name: "Watson", email: "watson@email.com", pass: "12345"));

        return adminList;
    }
}

```

Account controller

Account.java

assessment1 > Account.java > Account

```java
package assessment1;
public class Account {
    protected int id;
    protected String name;
    protected String email;
    protected String pass;

    public Account(int id, String name, String email, String pass) {
        this.id = id;
        this.name = name;
        this.email = email;
        this.pass = pass;
    }

    public int getId() {
        return id;
    };

    public String getName() {
        return name;
    };

    public String getEmail() {
        return email;
    };

    public String getPass() {
        return pass;
    };

}

```

Admin inherits from account

Admin.java

assessment1 > Admin.java > Admin

```java
package assessment1;
public class Admin extends Account {
    public Admin (int id, String name, String email, String pass){
        super(id, name, email, pass);
    }
}
```

User inherits from account

User.java

assessment1 > User.java > User

```java
package assessment1;
public class User extends Account {
    protected String pekerjaan;
    protected int usia;

    public User (int id, String name, String email, String pass, String pekerjaan, int usia){
        super(id, name, email, pass);
        this.pekerjaan = pekerjaan;
        this.usia = usia;
    }

    public String getPekerjaan() {
        return pekerjaan;
    };

    public int getUsia() {
        return usia;
    };
}
```

Auth controller

Auth.java

assessment1 > Auth.java > Auth > login()

```java
package assessment1;
import java.util.ArrayList;;

public class Auth {
    enum Role {
        ADMIN,
        USER
    }

    String email;
    String pass;
    Role role;
    ArrayList<User> users;
    ArrayList<Admin> admins;




    public Auth(String email, String pass, ArrayList<User> userList, ArrayList<Admin>adminList) {
        this.email = email;
        this.pass = pass;
        this.users = userList;
        this.admins = adminList;
    };

    public String getEmail() {
        return email;
    };
```

```java
    public Role login(){
        for (Admin a : admins){
            if (a.getEmail().equals(email) && a.getPass().equals(pass)){
                return Role.ADMIN;
            }
        }

        for (User u : users){
            if(u.getEmail().equals(email) && u.getPass().equals(pass)){
                return Role.USER;
            }
        }
        return null;
    };
}
```

Main file


Main.java 1, M
assessment1 > Main.java > Main > main(String[])
1 package assessment1;
2 import java.util.Scanner;
3
4 public class Main {
Run | Debug
5 public static void main(String[] args) {
6 Scanner sc = new Scanner(System.in);
7
8 boolean closed = false;
9 boolean loggedIn = false;
10
11 System.out.print(s: "\033[H\033[2J");
12 System.out.flush();
13
14 while (closed == false) {
15 System.out.println(x: "Welcome to 'Energy Bersih dan Terjangkau' ");
16 System.out.println(x: "please login first!");
17 System.out.println(x: "1. Login");
18 System.out.println(x: "2. Close");
19
20 String input = sc.nextLine();
21
22 switch (input) {
23 case "1":
24 System.out.print(s: "\033[H\033[2J");
25 System.out.flush();
26
27 System.out.print(s: "Email: ");
28 String email = sc.nextLine();
29
30 System.out.print(s: "\033[H\033[2J");
31 System.out.flush();

Main.java 1, M

assessment1 > Main.java > Main > main(String[])

```
4   public class Main {
5       public static void main(String[] args) {
33                      System.out.print(s: "Password: ");
34                      String pass = sc.nextLine();
35
36                      Auth auth = new Auth(email, pass, DummyData.users(), DummyData.admins());
37                      Auth.Role role = auth.login();
38
39                      if (role == Auth.Role.ADMIN) {
40                          System.out.print(s: "\033[H\033[2J");
41                          System.out.flush();
42
43                          System.out.println(x: "Logged in as Admin");
44                          loggedIn = true;
45
46                          while (loggedIn) {
47                              System.out.println(x: "Admin Menu:");
48                              System.out.println(x: "1. View Users");
49                              System.out.println(x: "2. View Admins");
50                              System.out.println(x: "3. View Profile");
51                              System.out.println(x: "4. Logout");
52                              System.out.print(s: "Enter your choice: ");
53                              String adminChoice = sc.nextLine();
54
55                              switch (adminChoice) {
56                                  case "1":
57                                      System.out.print(s: "\033[H\033[2J");
58                                      System.out.flush();
59                                      System.out.println(x: "Users:");
60                                      for (User user : DummyData.users()) {
61                                          System.out.println("ID: " + user.getId() + ", Name: " + user.getName()
62                                                  + ", Email: " + user.getEmail() + ", Pekerjaan: " + user.getPekerjaan()
```

Main.java 1, M

assessment1 > Main.java > Main > main(String[])

```
4   public class Main {
5       public static void main(String[] args) {
63                                          + ", Usia: " + user.getUsia());
64                                  }
65                                  System.out.println(x: "");
66                                  break;
67                              case "2":
68                                  System.out.print(s: "\033[H\033[2J");
69                                  System.out.flush();
70                                  System.out.println(x: "Admins:");
71                                  for (Admin admin : DummyData.admins()) {
72                                      System.out.println("ID: " + admin.getId() + ", Name: " + admin.getName()
73                                              + ", Email: " + admin.getEmail());
74                                  }
75                                  System.out.println(x: "");
76                                  break;
77                              case "3":
78                                  System.out.print(s: "\033[H\033[2J");
79                                  System.out.flush();
80                                  System.out.println(x: "Profile:");
81                                  for (Admin admin : DummyData.admins()) {
82                                      if (admin.getEmail().equals(email)) {
83                                          System.out.println("ID: " + admin.getId() + ", Name: " + admin.getName()
84                                                  + ", Email: " + admin.getEmail());
85                                          break;
86                                      }
87                                  }
88                                  for (User user : DummyData.users()) {
89                                      if (user.getEmail().equals(email)) {
90                                          System.out.println("ID: " + user.getId() + ", Name: " + user.getName() + ", Email: " + user.getEmail()
91                                                  + ", Pekerjaan: " + user.getPekerjaan() + ", Usia: " + user.getUsia());
92                                          break;
93                                      }
```


Main.java 1, M
assessment1 > Main.java > Main > main(String[])
4 public class Main {
5 public static void main(String[] args) {
94 }
95 System.out.println(x: "");
96 break;
97 case "4":
98 loggedIn = false;
99 System.out.print(s: "\033[H\033[2J");
100 System.out.flush();
101 break;
102 default:
103 System.out.println(x: "Invalid choice");
104 break;
105 }
106 }
107 } else if (role == Auth.Role.USER) {
108 System.out.print(s: "\033[H\033[2J");
109 System.out.flush();
110
111 System.out.println(x: "Logged in as User");
112 loggedIn = true;
113
114 while (loggedIn) {
115 System.out.println(x: "User Menu:");
116 System.out.println(x: "1. View Profile");
117 System.out.println(x: "2. Logout");
118 System.out.print(s: "Enter your choice: ");
119 String userChoice = sc.nextLine();
120
121 switch (userChoice) {
122 case "1":
123 System.out.print(s: "\033[H\033[2J");
124 System.out.flush();

Main.java 1, M

assessment1 > Main.java > Main > main(String[])

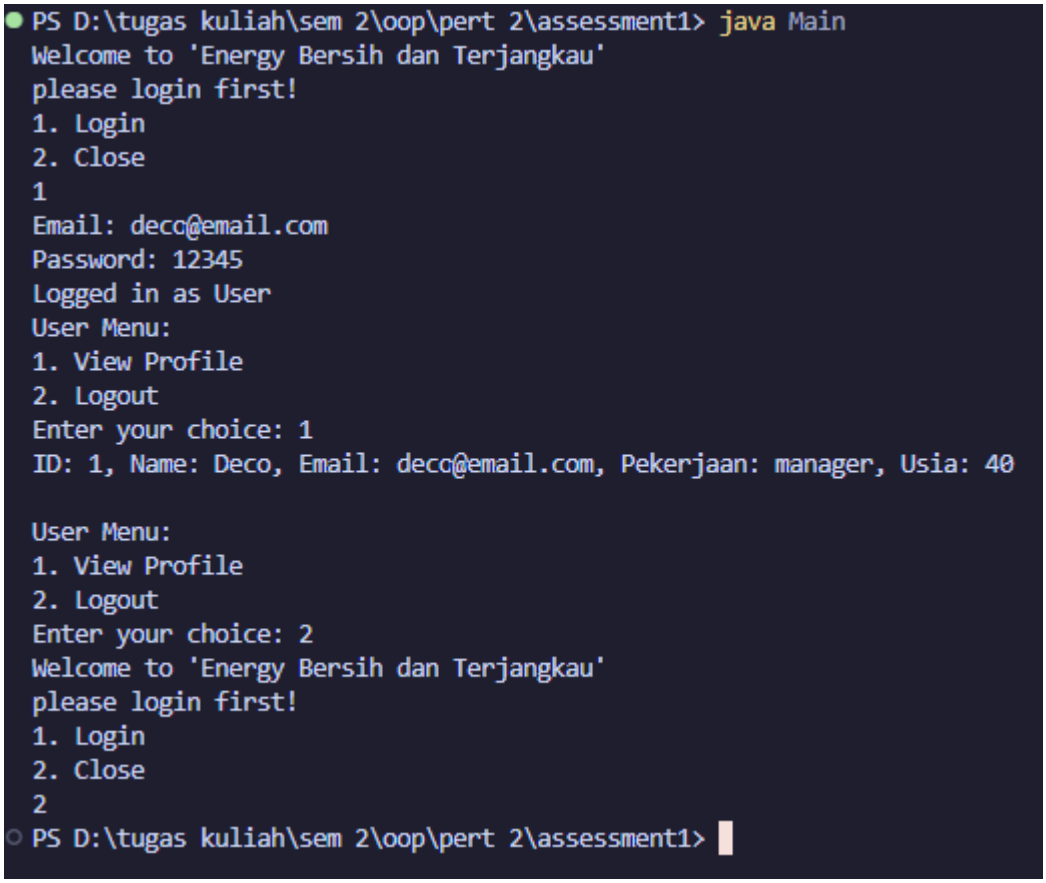
```
4   public class Main {
5       public static void main(String[] args) {
125                                 for (User user : DummyData.users()) {
126                                     if (user.getEmail().equals(email)) {
127                                         System.out.println("ID: " + user.getId() + ", Name: " + user.getName()
128                                                 + ", Email: " + user.getEmail() + ", Pekerjaan: "
129                                                 + user.getPekerjaan()
130                                                 + ", Usia: " + user.getUsia());
131                                         break;
132                                     }
133                                 }
134                                 System.out.println(x: "");
135                                 break;
136                             case "2":
137                                 loggedIn = false;
138                                 System.out.print(s: "\033[H\033[2J");
139                                 System.out.flush();
140                                 break;
141                             default:
142                                 System.out.println(x: "Invalid choice");
143                                 break;
144                         }
145                     }
146                 } else {
147                     System.out.print(s: "\033[H\033[2J");
148                     System.out.flush();
149                     System.out.println(x: "Login failed");
150                     System.out.println(x: "");
151                 }
152                 break;
153             case "2":
154                 closed = true;
155                 break;
```

Main.java 1, M

assessment1 > Main.java > Main > main(String[])

```
4   public class Main {
5       public static void main(String[] args) {
156                     default:
157                         System.out.println(x: "Invalid input");
158                 }
159             }
160         }
161     }
162
```

5. PROGRAM OUTPUT



```
PS D:\tugas kuliah\sem 2\oop\pert 2\assessment1> java Main
Welcome to 'Energy Bersih dan Terjangkau'
please login first!
1. Login
2. Close
1
Email: sherlock@email.com
Password: 12345
Logged in as Admin
Admin Menu:
1. View Users
2. View Admins
3. View Profile
4. Logout
Enter your choice: 1
Users:
ID: 1, Name: Deco, Email: deco@email.com, Pekerjaan: manager, Usia: 40
ID: 2, Name: Akbar, Email: akbar@email.com, Pekerjaan: stakeholder, Usia: 30
ID: 3, Name: Prasetya, Email: prasetya@email.com, Pekerjaan: good person, Usia: 20

Admin Menu:
1. View Users
2. View Admins
3. View Profile
4. Logout
Enter your choice: 2
Admins:
ID: 1, Name: Sherlock Holmes, Email: sherlock@email.com
ID: 2, Name: Watson, Email: watson@email.com

Admin Menu:
1. View Users
2. View Admins
3. View Profile
4. Logout
Enter your choice: 3
Profile:
ID: 1, Name: Sherlock Holmes, Email: sherlock@email.com

Admin Menu:
1. View Users
2. View Admins
3. View Profile
4. Logout
Enter your choice: 4
Welcome to 'Energy Bersih dan Terjangkau'
please login first!
1. Login
2. Close
2
PS D:\tugas kuliah\sem 2\oop\pert 2\assessment1>
```

6. REPOSITORY LINK
   https://github.com/DecoPrasetya/DecoRepositoryPBO

7. TEAM MEMBERS
   1. Cristian Reynaldi – 254311017
   2. Deco Prasetya – 254311022
   3. Daffa Hafist Atha Kuncoro – 254311025
   4. Muhammad Adistya Rafif Rasendriya – 254311026