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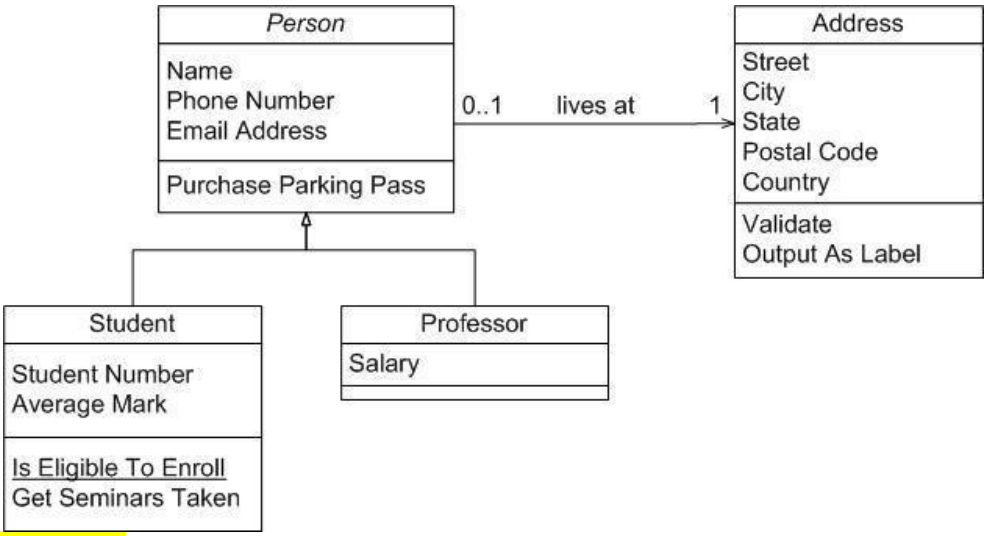
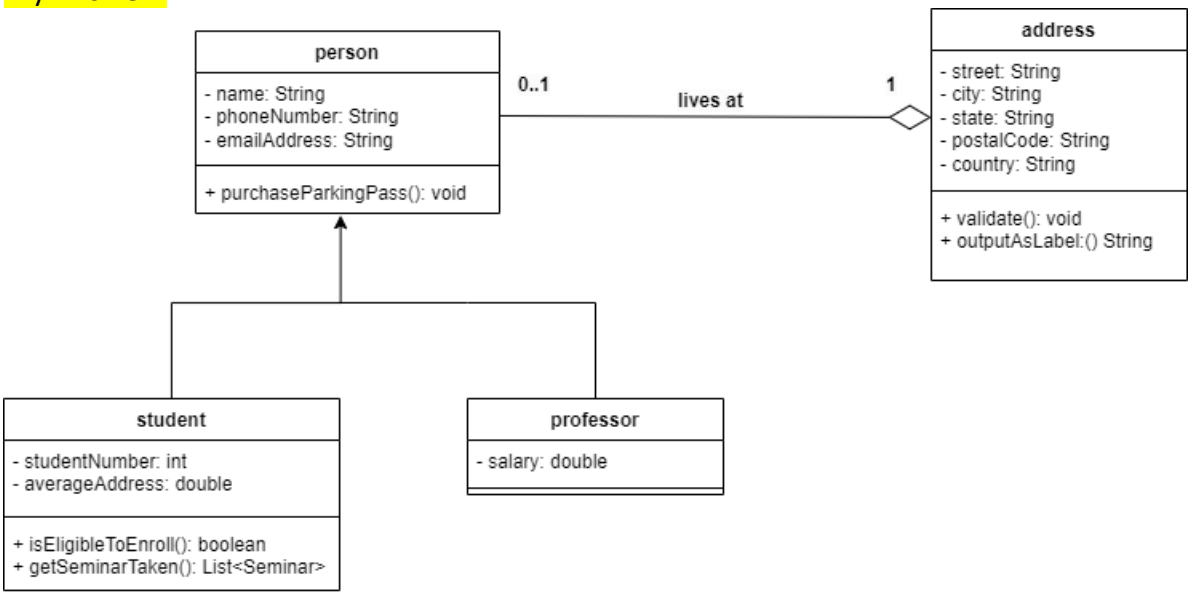
UTS QUESTIONS
OBJECT-BASED PROGRAMMING PRACTICUM

1. Identify the following diagram class, make complete improvements and in accordance with the rules for writing the diagram class.



My Answer :



2. Create a diagram class that uses multilevel inheritance and create the program code!

   My Answer :

   - Person

```java
package week_8_UTS.question_2;

public class Person09 {
    private String name;
    private String phoneNumber;
    private String emailAddress;
    private Address09 address;

    public Person09(String name, String phoneNumber, String emailAddress) {
        this.name = name;
        this.phoneNumber = phoneNumber;
        this.emailAddress = emailAddress;
    }

    public void purchaseParkingPass() {
        System.out.println(name + " has purchased a parking pass.");
    }

    public void setAddress(Address09 address) {
        this.address = address;
    }

    public Address09 getAddress() {
        return this.address;
    }

    public String getName() {
        return this.name;
    }

    public String getPhoneNumber() {
        return this.phoneNumber;
    }

    public String getEmailAddress() {
        return this.emailAddress;
    }
}
```

- Student

```java
package week_8_UTS.question_2;

import java.util.List;

public class Student09 extends Person09 {
    private int studentNumber;
    private double averageMark;

    public Student09(String name, String phoneNumber, String emailAddress, int studentNumber, double averageMark) {
        super(name, phoneNumber, emailAddress);
        this.studentNumber = studentNumber;
        this.averageMark = averageMark;
    }

    public int getStudentNumber() {
        return this.studentNumber;
    }

    public boolean isEligibleToEnroll() {
        return averageMark >= 60.0;
    }

    public List<String> getSeminarTaken() {
        return List.of("Seminar AI", "Seminar Data Science");
    }
}
```

- Professor

```java
package week_8_UTS.question_2;

public class Professor09 extends Person09 {
    private double salary;

    public Professor09(String name, String phoneNumber, String emailAddress, double salary) {
        super(name, phoneNumber, emailAddress);
        this.salary = salary;
    }

    public double getSalary() {
        return this.salary;
    }
}
```

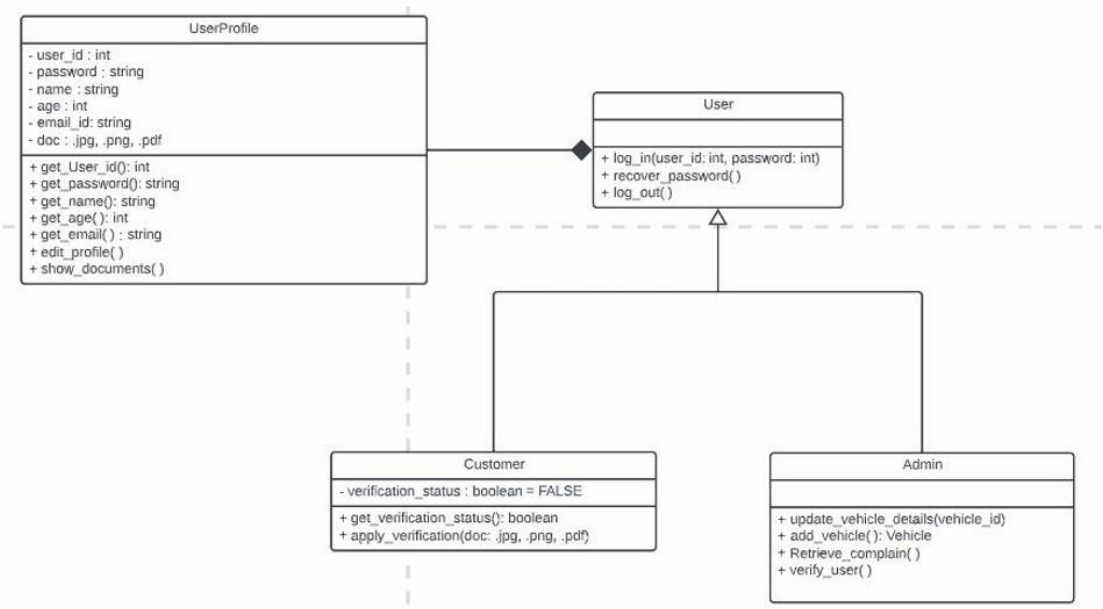
- Address

```java
package week_8_UTS.question_2;

public class Address09 {
    private String street;
    private String city;
    private String state;
    private String postalCode;
    private String country;

    public Address09(String street, String city, String state, String postalCode, String country) {
        this.street = street;
        this.city = city;
        this.state = state;
        this.postalCode = postalCode;
        this.country = country;
    }

    public void validate() {
        System.out.println("Validating address: " + street + ", " + city + ", " + country);
    }

    public String outputAsLabel() {
        return street + ", " + city + ", " + state + " " + postalCode + ", " + country;
    }
}
```

- Main

```java
package week_8_UTS.question_2;

public class Main09 {
    public static void main(String[] args) {
        Address09 address = new Address09("Mt. Hariyono", "Malang", "ID", "62701", "INDONESIA");
        address.validate();
        System.out.println("Alamat: " + address.outputAsLabel());

        Student09 student = new Student09("Abdul", "089372456748", "abdul@gmail.com", 12345, 75.5);
        student.setAddress(address);

        System.out.println("\nInformasi Mahasiswa:");
        System.out.println("-".repeat(30));
        System.out.println("Nama: " + student.getName());
        System.out.println("Nomor Mahasiswa: " + student.getStudentNumber());
        System.out.println("Nomor Telepon: " + student.getPhoneNumber());
        System.out.println("Alamat Email: " + student.getEmailAddress());
        System.out.println("Apakah mahasiswa layak mendaftar? " + student.isEligibleToEnroll());
        System.out.println("Seminars yang diambil: " + student.getSeminarTaken());

        Professor09 professor = new Professor09("Dr. Romi", "0898776576895", "romi@gmail.com", 85000);
        professor.setAddress(address);

        System.out.println("\nInformasi Dosen:");
        System.out.println("-".repeat(30));
        System.out.println("Nama: " + professor.getName());
        System.out.println("Nomor Telepon: " + professor.getPhoneNumber());
        System.out.println("Alamat Email: " + professor.getEmailAddress());
        System.out.println("Gaji: " + professor.getSalary());

        student.purchaseParkingPass();
        professor.purchaseParkingPass();
    }
}
```

3. Please identify the class diagram by providing an explanation of the concept of inheritance, the relationship between classes and the following system flow, create a program code from the following class diagram!



My Answer :

- UserProfile

```java
package week_8_UTS.question_3;

public class UserProfile09 {
    private int userId;
    private String password;
    private String name;
    private int age;
    private String emailId;
    private String doc;

    public UserProfile09(int userId, String password, String name, int age, String emailId, String doc) {
        this.userId = userId;
        this.password = password;
        this.name = name;
        this.age = age;
        this.emailId = emailId;
        this.doc = doc;
    }

    public int getUserId() {
        return userId;
    }

    public String getPassword() {
        return password;
    }

    public String getName() {
        return name;
    }

    public int getAge() {
        return age;
    }

    public String getEmail() {
        return emailId;
    }

    public void editProfile(String newName, int newAge, String newEmail) {
        this.name = newName;
        this.age = newAge;
        this.emailId = newEmail;
        System.out.println("Profile updated successfully.");
    }

    public void showDocuments() {
        System.out.println("Documents: " + doc);
    }

    public String getDoc() {
        return doc;
    }
}
```

- User

```java
package week_8_UTS.question_3;

public class User09 {
    public boolean logIn(int userId, String password) {
        System.out.println("User  logged in with ID: " + userId);
        return true;
    }

    public void recoverPassword() {
        System.out.println("Password recovery initiated.");
    }

    public void logOut() {
        System.out.println("User  logged out.");
    }
}
```

- Customer

```java
package week_8_UTS.question_3;

public class Customer09 extends User09 {
    private boolean verificationStatus = false;

    public boolean getVerificationStatus() {
        return verificationStatus;
    }

    public void applyVerification(String doc) {
        if (doc != null && !doc.isEmpty()) {
            verificationStatus = true;
            System.out.println("Verification applied with document: " + doc);
        } else {
            System.out.println("Document not valid for verification.");
        }
    }
}
```

- Admin

```java
package week_8_UTS.question_3;

public class Admin09 extends User09 {
    public void updateVehicleDetails(int vehicleId) {
        System.out.println("Vehicle details updated for Vehicle ID: " + vehicleId);
    }

    public void addVehicle() {
        System.out.println("New vehicle added.");
    }

    public void retrieveComplain() {
        System.out.println("Retrieving user complaints.");
    }

    public void verifyUser(Customer09 customer) {
        if (customer.getVerificationStatus()) {
            System.out.println("Customer verified.");
        } else {
            System.out.println("Customer not verified.");
        }
    }
}
```

- Main

```java
package week_8_UTS.question_3;

public class Main09 {
    public static void main(String[] args) {
        UserProfile09 userProfile = new UserProfile09(101, "password101", "Emil", 30, "emil@gmail.com", "profile.jpg");
        System.out.println("User  Profile:");
        System.out.println("-".repeat(30));
        System.out.println("Name: " + userProfile.getName());
        System.out.println("Age: " + userProfile.getAge());
        System.out.println("Email: " + userProfile.getEmail());
        System.out.println("Documents: " + userProfile.getDoc());
        userProfile.showDocuments();
        userProfile.editProfile("Edo", 31, "edo@gmail.com");

        Customer09 customer = new Customer09();
        System.out.println("\nLogin sebagai Customer:");
        System.out.println("-".repeat(30));
        customer.logIn(101, "password101");
        customer.applyVerification("member_card.png");
        System.out.println("Verification Status: " + customer.getVerificationStatus());
        customer.logOut();

        Admin09 admin = new Admin09();
        System.out.println("\nLogin sebagai Admin:");
        System.out.println("-".repeat(30));
        admin.logIn(000, "admin");
        admin.addVehicle();
        admin.updateVehicleDetails(010);
        admin.retrieveComplain();
        admin.verifyUser(customer);
        admin.logOut();
    }
}
```

---- Good Luck ----