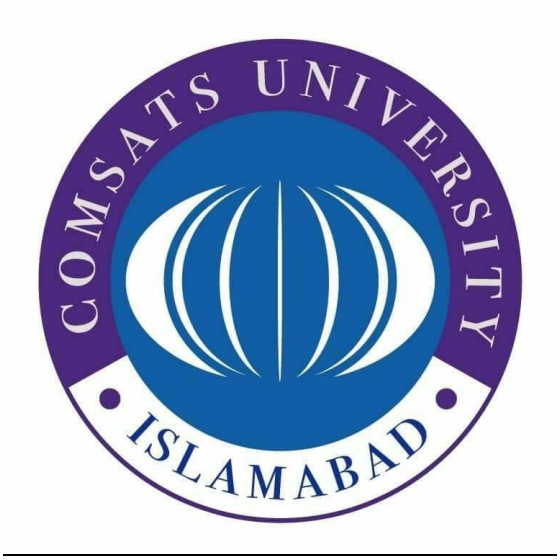
COMSATS UNIVERSITY ISLAMABAD, LAHORE CAMPUS



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Class: OOP

Assignment: Lab Assignment 2

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Task 1:

Make a class Address that have three attributes, streetNumber, city and country. All attributes are private

and will be exposed using getter and setter method.

Make a class Date with three attributes, day, month and year. All attribute are private. In constructor, you

have to validate day. If day is out of range, you have to print a message, “Invalid Date”. Suppose all

months have 30 days.

Make a class Employee that has four instance variable id, name, birthdate and address. The class has also

display function that display all the information of an Employee. Id is integer, name is a reference to

String object while birthdate is reference to Date object and address is reference to Address object. All

instance variable are private. Employee class has a fully parameterized constructor.

Make another class EmployeeTest, in main method, instantiate an employee object named employee1.

Initialize id and address attribute using constructor. The attribute name and birthday should be initialized

using the setter method. Get all values from the user. Print all values using display method.

/* Paste Code here*/

CODE:

```
import java.util.Scanner;

public class LabAssign2_Task1 {
    public static void main(String[] args) {

        Scanner scn = new Scanner(System.in);

        System.out.print("Enter Employee ID:");
        int id = scn.nextInt();
        System.out.print("Enter Employee Name:");
        String name = scn.next();
```

```
        System.out.print("Enter Birthday in Order: ");
        System.out.println("\nEnter Date:");
        int day = scn.nextInt();
        System.out.println("Enter Month:");
        int month = scn.nextInt();
        System.out.println("Enter Year:");
        int year = scn.nextInt();

        //Making an Object Here of Class Date and Giving Values in
Constructor
        Datee BirthDate = new Datee(day, month, year);
        Address add = new Address();

        //Now Taking Value for Address
        System.out.print("Enter Employee street number: ");
        add.setStreetNumber(scn.nextInt());

        System.out.print("Enter Employee city: ");
        add.setCity(scn.next());

        System.out.print("Enter country: ");
        add.setCountry(scn.next());

        // create employee object and display information
        Employee employee1 = new Employee(id , add );

        employee1.setName(name);
        employee1.setBirthDate(BirthDate);

        //Calling Display Function From Employee
        employee1.displayInfo();

    }


}


class Address{
    private int streetNumber;
    private String city;
    private String country;

    public int getStreetNumber() {

        return streetNumber;
    }

    public void setStreetNumber(int streetNumber) {

        this.streetNumber = streetNumber;
    }

    public String getCity() {

        return city;
    }
```

```
    public void setCity(String city) {

        this.city = city;
    }

    public String getCountry() {
        return country;
    }

    public void setCountry(String country) {
        this.country = country;
    }
}

class Date{
    private int day;
    private int year;
    private int month;

    public Date(int day, int month, int year) {

        if (day < 1 || day > 30) {

            System.out.println("Invalid Date");

        }
        else {
            this.day = day;
            this.month = month;
            this.year = year;
        }

    }
}

class Employee{

    private int id;
    private String name;
    private Datee birthDate;
    private Address Address;

    public int getId() {
        return id;
    }

    public void setId(int id) {
        this.id = id;
    }

    public String getName() {
        return name;
    }

    public void setName(String name) {
        this.name = name;
```

```
    }

    public Datee getBirthDate() {
        return birthDate;
    }

    public void setBirthDate(Datee birthDate) {
        this.birthDate = birthDate;
    }

    public Address getAddress() {
        return Address;
    }

    public void setAddress(Address address) {
        Address = address;
    }

    public Employee(int id, String name, Datee birthDate, Address address) {

        this.id = id;
        this.name = name;
        this.birthDate = birthDate;
        Address = address;

    }

    public Employee(int id, Address address) {
        this.id = id;
        Address = address;
    }

    public void displayInfo() {

        System.out.println("\nEmployee Info :");
        System.out.println("\nID: " + id);
        System.out.println("Name: " + name);
        System.out.println("Birthdate: " + birthDate.getDay() + "-" +
birthDate.getMonth() + "-" + birthDate.getYear());
        System.out.println("Address: " + Address.getStreetNumber() + "," +
Address.getCity() + "," + Address.getCountry());

    }

}
```

OUTPUT:

Task 2:

For each class/attribute described below, choose the appropriate data type. All attributes of each class

should be private and exposed via get/set methods. Also, define at least one constructor shall take and

initialize 2-3 attributes of the object.

1. Define a class Course with courseCode and courseTitle attributes.

2. Define a class PhoneNumber with countryCode, cityCode, and lineNumber attributes.

Define a class Student with name, email, CNIC, courses list, and contactNumber attributes. Where

courses array should be of type Course; contactNumber should be of Type PhoneNumber. Define a

constructor in Student class that takes CNIC, name, and contact number only.

Create a StudentTest class, in its main method, create a Student object i.e. student1. Fully initialize its'

all attributes. CNIC, name, and contact number shall be initialized by the constructor, other attributes

shall be initialized using setter methods. All attribute values shall be taken from the user. After the

object is fully initialized, print all, attribute values from the student object reference.

CODE:

```
import java.util.Scanner;

public class LabAssign2_Task2 {
    public static void main(String[] args) {
    Scanner scn = new Scanner(System.in);

        //Taking Input From User
        System.out.println("Enter Student Name:");
        String name = scn.nextLine();
        System.out.println("Enter Student Email:");
        String email = scn.nextLine();
        System.out.println("Enter Student CNIC:");
        String cnic= scn.nextLine();

        System.out.println("Enter PhoneNumber Details:");
        System.out.println("Enter Country Code:");
        int ccode = scn.nextInt();
        System.out.println("Enter City Code:");
        int citycode = scn.nextInt();
        System.out.println("Enter Line Number:");
        int Linenum = scn.nextInt();

        PhoneNumber contactNumber = new PhoneNumber(ccode,citycode,Linenum);

        Student student1 = new Student(name,cnic,contactNumber);
        student1.setEmail(email);

        //Taking Input for CourseList Here
        System.out.println("Enter How Many Courses You want to Add:");
        int Limit = scn.nextInt();
        Course[] courseList = new Course[Limit];

        //Taking Leftover input Here to Avoid input-Errors
        scn.nextLine();

        for (int i=0;i<Limit;i++)
        {
            System.out.println("Course : "+(i+1));

            System.out.println("Enter Course Code :");
            String courseC  = scn.nextLine();
            System.out.println("Enter Course Title:");
            String courseT = scn.nextLine();
```

```
            System.out.println();

            courseList[i] = new Course(courseC,courseT);

        }
        student1.setCourseList(courseList);
        student1.displayInfo();

        //Printing CourseList Array Here

        for (int i=0;i<Limit;i++){

            System.out.println("Course: "+(i+1));
            System.out.println("Course Code:
"+student1.getCourseList()[i].getCourseCode());
            System.out.println("Course Title:
"+student1.getCourseList()[i].getCourseTitle());


        }

    }


}


class Course{
    private String courseCode;
    private String courseTitle;

    public String getCourseCode() {
        return courseCode;
    }

    public void setCourseCode(String courseCode) {
        this.courseCode = courseCode;
    }

    public String getCourseTitle() {
        return courseTitle;
    }

    public void setCourseTitle(String courseTitle) {
        this.courseTitle = courseTitle;
    }

    //Making Constructor Here of Courses

    public Course(String courseCode, String courseTitle) {
        this.courseCode = courseCode;
        this.courseTitle = courseTitle;
    }
}

class PhoneNumber{
    private int countryCode;
```

```
    private int cityCode;
    private int lineNumber;


    public int getCountryCode() {
        return countryCode;
    }

    public void setCountryCode(int countryCode) {
        this.countryCode = countryCode;
    }

    public int getCityCode() {
        return cityCode;
    }

    public void setCityCode(int cityCode) {
        this.cityCode = cityCode;
    }

    public int getLineNumber() {
        return lineNumber;
    }

    public void setLineNumber(int lineNumber) {
        this.lineNumber = lineNumber;
    }
    //Making a Constructor Here for class PhoneNumber
    public PhoneNumber(int countryCode, int cityCode, int lineNumber) {
        this.setCountryCode(countryCode);
        this.setCityCode(cityCode);
        this.setLineNumber(lineNumber);
    }


}
class Student {
    private String Name;
    private String Email;
    private String CNIC;
    private Course[] courseList;
    private PhoneNumber contactNumber;

    //Making Constructor Here with 3 Attributes

    public Student(String name, String CNIC, PhoneNumber contactNumber) {
        Name = name;
        this.CNIC = CNIC;
        this.contactNumber = contactNumber;

    }

    public String getName() {
        return Name;
    }

    public void setName(String name) {
```

```
        Name = name;
    }

    public String getEmail() {
        return Email;
    }

    public void setEmail(String email) {
        Email = email;
    }

    public String getCNIC() {
        return CNIC;
    }

    public void setCNIC(String CNIC) {
        this.CNIC = CNIC;
    }

    public Course[] getCourseList() {
        return courseList;
    }

    public void setCourseList(Course[] courseList) {
        this.courseList = courseList;
    }

    public PhoneNumber getContactNumber() {
        return contactNumber;
    }

    public void setContactNumber(PhoneNumber contactNumber) {
        this.contactNumber = contactNumber;
    }

    public void displayInfo(){

        System.out.println("Student Name: "+Name);
        System.out.println("Student Email: "+Email);
        System.out.println("Student CNIC: "+CNIC);
        System.out.println("Student Phone Number: "
                           +contactNumber.getCountryCode()
                           +"-"+contactNumber.getCityCode()
                           +"-"+contactNumber.getLineNumber());


    }

}
```

OUTPUT:

```
Enter Student Name:
 Abdul Wahab
Enter Student Email:
Wahab@gmail.com
Enter Student CNIC:
333018284356
Enter PhoneNumber Details:
Enter Country Code:
0092
Enter City Code:
309
Enter Line Number:
6627543
Enter How Many Courses You want to Add:
2
Course : 1
Enter Course Code :
CSC100
Enter Course Title:
Object Oriented Programming
```

```
Course : 2
Enter Course Code :
HUM100
Enter Course Title:
English

Student Name:  Abdul Wahab
Student Email: Wahab@gmail.com
Student CNIC: 333018284356
Student Phone Number: 92-309-6627543
Course: 1
Course Code: CSC100
Course Title: Object Oriented Programming
Course: 2
Course Code: HUM100
Course Title: English
```