

Object oriented programming – LAB VI

1. Implement a Calculator application : Include all calculator operations as abstract methods in a interface and include it in a Package “calculator” and implement all operations in a class and import the package to design calculator.

2. Write a Java program to create package called dept. include a interface with methods display_subjects() and create four classes as CSE, ECE, ME and CE that implements the interface to display their respective dept’s subjects lists. Import the package to display the subjects list dept wise.

3. Implement the following

- a. Create a package named shapes.
- b. Create classes in the package representing common geometric shapes such as Square, Triangle, and Circle. The classes should contain the area and perimeter methods in them.
- c. Compile the package.
- d. Use this package (import the package) to find area and perimeter of different shapes as chosen by the user.

4. Implement the following

- a. Create the package sounds.
 - b. Create interface dolby(with abstract method playDolby), and class Podcast(with method playPodcast) in the package.
 - c. compile the package.
 - d. Use the package(import the package) to play sounds as chosen by the user.
- Note : the methods should include the text as “play XXXXsound”.

5.

- a. Include the package complex
- b. Create a class Arith and declare rp, ip as integer.
- c. Define the function Arith(),set rp and ip to 0
- d. Another function Arith(int rp,in tip) set this.rp=rp and this.ip=ip
- e. create a method add() pass arguments with arith a1 and arith a2
- f. add a1.rp and a2.rp store in rp.

- g. Similarly add a1.ip and a2.ip and store in ip.
- h. Create a function sub(arith a1,arith a2)
- i. Subtract a1.rp and a2.rp store it in rp.
- j. Subtract a1.ip and a2.ip store it in ip.
- k. Import the package and calculate the addition and subtraction of two complex numbers.

Sample I/p and O/p:

Enter real part and imaginary part of 1st complex no: 10 5

Enter real part and imaginary part of 2nd complex no: 3 6

a1=10+5i

a2=3+6i

Added value: 13+11i

Subtracted value: 7-1i

6. Create a package M-Seva and include the interfaces and classes for the following case study and import the package to identify the disease as per user inputs.

Model a M-Seva (Medical-seva) system, that prompts the user to enter his/her symptoms and displays the disease name.

Model for diseases: Acute pancreatitis (AP), Appendicitis (A), Bladder Cancer (BC), Pancreatic Cancer (PC)

Common Symptoms for all diseases: Stomach ache, vomiting, low eye sight

Symptoms for 'AP' : Muscle ache, fever

Symptoms for 'A' : fever, fatigue

Symptoms for 'BC' : skin allergy, low bp

Symptoms for 'PC' : fever, fatigue

As and when M-Seva is alive it has to display message as "Welcome to M-Seva" and prompt the user to enter symptoms. If same symptoms among more than one disease then display all those disease names.

7. Create a package TV-Remote and include the interfaces and classes for the following case study and import the package to tune the channels as user desires.

Model a Television remote system with the following requirements.

Total Buttons 6.

- 1- SWITCH ON
- 6- SWITCH OFF
- 2- STAR SPORTS CHANNEL
- 3- NGC CHANNEL
- 4- DISCOVERY CHANNEL
- 5- STARMOVIES CHANNEL

Selecting the buttons plays(print related channel Text) the channel as stated above. Once the TV is SWITCHED ON the Remote gets life by displaying message “Welcome to TATA SKY”. Until TV is SWITCHED OFF we can tune (change) the channels at our interest.

8. create a package with interface reservation_cost with abstract method total_fare(Passenger[] passengers) where as Passenger : class, passengers : reference to array of objects.

Create a class that implements the method of interface to find the total_fare of the reservation.

Passengers can be children, students, citizens, seniorcitizens.

The fare for children zero, and for students 30% discount of the actual fare, for senior citizens 50% discount of the actual fare and no discount for citizens.

Import the package to find the total fare of all passengers.

9. create a package admission and include interfaces and classes and import them to design a system for engineering admissions.

Admission to an Engineering college is given if the following conditions are Satisfied

- (i) Maths marks ≥ 90
- (ii) Physics marks ≥ 95
- (iii) Chemistry marks ≥ 70
- (iv) English marks ≥ 80
- (v) Total percentage in all Four subjects ≥ 80

given the marks in Four subjects, implement a program to process the applications to list the eligible students.