CS6308 JAVA PROGRAMMING

ASSIGNMENT 9: Inheritance

Total Points:100

Date: 4/10/23

Course Instructor: V P Jayachitra Batch: 2021   B.E CSE Vth Semester

1. Write a program to show single inheritance [CO2: BL:3] points: 25

   Class LivingBeing

   Methods: Breath() and Response()

   Class Animal

   Methods: Walk() and NoOfLegs()

2. Write a program to show Multilevel inheritance[CO2: BL:3]points:25

   Class LivingBeing

   Methods: Breath() and Response()

   Class Animal

   Methods: Walk() and NoOfLegs()

   Class Cat

   Methods: Meow()

   Class Dog

   Methods: Bark()

3. Write a program in Java to create messaging service like WhatsApp that uses single inheritance, multilevel inheritance, and hierarchical inheritance [CO:2, BL:6] points:50

class **User**:

Attributes

    name

    phoneNumber

    status

subclass **Contact**: Stores contacts

Attributes

    contactList

    code snippet :

    class Contact extends User {

      protected User[] contacts;

      protected int contactCount;

    …

    public void addContact(User user) {

    …

    }

    }

class Message: Contains information about message

Attributes

sender

receiver

messageContent

subclass **Chat**: represent chat between two users.:

Attributes

Users (an array of User objects)

messages (an array of Message objects)

Methods

addMessages: add message to the chat

displayChatHistory : display the chat history

code snippet:

```
class Chat {

    private User[] participants;

    private Message[] messages;

}
```

Create a main class **WhatsApp** to test the concepts

```
public class WhatsApp {

    public static void main(String[] args) {

        User alice = new User("Alice", "+1234567890", "Available");

        User bob = new User("Bob", "+9876543210", "Away");

        Contact aliceContacts = new Contact("Alice", "+1234567890",
"Available", 10);
```

```java
        aliceContacts.addContact(bob);

        Message message1 = new Message(alice, bob, "Hi, Bob!");

        Message message2 = new Message(bob, alice, "Hello,
Alice!");

        Chat chat = new Chat(alice, bob, 100);

        chat.addMessage(message1);

        chat.addMessage(message2);

        chat.displayChatHistory();

    }

}
```

CO2: To familiarize the student with Object Oriented Programming in Java

BL6: Create BL3: Apply