CSE18R272-LAB MANUAL

KALASALINGAM ACADEMY OF RESEARCH AND EDUCATION

COMPUTER SCIENCE AND EDUCATION

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Section: A5

Course name: java programming

Course Code: CSE18R272

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1. write a java program to implement inheritance using super keyword.

   Program

Source Code:

```
class Box {
   private double width;
   private double height;
   private double depth;
Box (double w, double h, double l) {
   width = w;
   height = h;
   depth = l;
}
Box () {
   width = -1;
   height = -1;
   depth = -1;
}
double volume () {
   return width * height * depth;
}
}
class BoxWeight extends Box {
   double weight; // weight of box
   BoxWeight( double w, double h , double d, double m) {
      super (w, h, d); // call superclass constructor
      weight = m;
   }
   BoxWeight (){
      super ();
      weight = -1;
```

```
}
}
public class Main
{
public static void main(String[] args) {
BoxWeight b1 = new BoxWeight(5.4,3.6,2.4,4.8);
BoxWeight b2 = new BoxWeight();
double v;
      v = b1. volume ();
      System.out.println (" Volume of mybox1 is " + v);
      v = b2. volume ();
      System.out.println (" Volume of mybox3 is " + v);
}
}
```

Output:

Volume of mybox1 is 46.656

Volume of mybox2 is -1.0

2. Create a class called Date that includes three pieces of information as instancevariables—a month (typeint), a day (typeint) and a year (typeint). Your classshould have a constructor that initializes the three instance variables andassumes that the values provided are correct. Provide a set and a get method foreach instance variable. Provide a method displayDate that displays the month, day and year separated by forward slashes (/). Write a test application namedDateTest that demonstrates cl

Source Code:

```
class Date {
   int  day ;
   int month ;
   int year ;
   public Date ( int d , int m , int y) {
      if(m<13 && d<31){
```

```
        month = m; day=d; year=y;
    }
    else{
        System.out.println("incorrect date");
    }

    }
void setMonth(int m){
    if(m<13)
        month=m;
    else
        System.out.println("incorrect format");
}
void setDay(int d){
    if(d<31)
        day=d;
    else
        System.out.println("incorrect format");
}
void setYear(int y){
    if((y/1000)==0)
        year=y;

}
int getMonth(){
    return month;
}
int getDay(){
    return day;
}
```

```
    int getYear(){
        return year;
    }
    void display () {
        System.out.println("The date is " + day +"/" + month + "/" + year);
    }


}
public class Main
{
        public static void main(String[] args) {
                Date d1 = new Date(16,9,2020);
                d1.display();
                d1.setDay(15);
                d1.setMonth(9);
                d1.setYear(2020);


        }
}
```

Output:

The date is 16/9/2020

3. Create class Savings Account. Use static variable annual Interest Rate to store theannual interest rate for all account holders. Each object of the class contains a private instance variable savings Balance indicating the amount the saver currently has on deposit. Provide method calculate Monthly Interest to calculate the monthly interest by multiplying the savingsBalance by annualInterestRatedivided by 12 this interest should be added to savingsBalance. Provide a staticmethod modify Interest Rate th

Provide a staticmethod modifyInterestRate that sets the annualInterestRate to a new value.Write a program to test class SavingsAccount. Instantiate two savingsAccountobjects, saver1 and saver2, with balances of $2000.00 and $3000.00, respectively.Set

annualInterestRate to 4%, then calculate the monthly interest and print thenew balances for both savers. Then set the annualInterestRate to 5%, calculate the next month's interest and print the new balances for both savers.

Source Code:

```
class SavingsAccount{
   static float AnnualIntrestrate = (float)8.5;
   private float SavingsBalance;
   void caluclateMonthlyIntrest(){
      float intrest = ((SavingsBalance*AnnualIntrestrate)/12);
      SavingsBalance+=intrest;
      System.out.println("balance is " + SavingsBalance);
   }
   static void  ModifyIntrestrate(float rate){
      AnnualIntrestrate=rate;
   }
   public SavingsAccount(float balance){
      SavingsBalance=balance;


   }


}
public class Main
{
        public static void main(String[] args) {
                SavingsAccount s1 = new SavingsAccount(2000.0f);
                SavingsAccount s2 = new SavingsAccount(3000.0f);
                s1.caluclateMonthlyIntrest();
                s2.caluclateMonthlyIntrest();
                SavingsAccount.ModifyIntrestrate(5.0f);
                s1.caluclateMonthlyIntrest();
```

```
                s2.caluclateMonthlyIntrest();
        }
}
```

Output:

Balance is 2666.6667

Balance is 4000.0

Balance is 3777.7778

Balance is 5666.6665

4.write a java program create a class callled book and initialize the respective details of book using class constructor and access them by creating objects and perform required operations.

Source Code:

```
import java.util.Scanner;
class Book
{
   String bookName;
   String author;
   String ISBN, publisher;
   Book(String title, String auth, String isbn, String publish)
   {
      bookName = title;
      author =auth;
      this.ISBN = isbn;
      publisher = publish;
   }
   void setTitle(String name)
   {  bookName = name; }
   void setAuthor(String auth)
   { author = auth; }
```

```
    void setISBN(String s)
    { ISBN = s; }
    void setPublisher(String p)
    {
        publisher = p;
    }
    String getTitle()
    {  return bookName; }
    String getAuthor()
    { return author; }
    String getISBN()
     { return ISBN; }
     String getPublisher()
     { return publisher; }
    String bookInfo()
    {
        String info = bookName + " " + author + " " + ISBN + " " + publisher;
        return info;

    }
}

public class Main
{
            public static void main(String[] args) {
                Book b[] = new Book[30];
                b[0] = new Book("Programming in Java", "Rama", "12345", "Wiley");
                String title, auth, isbn, publisher;
                Scanner s = new Scanner(System.in);
                for (int i =1; i < 5; i++)
```

```
            {
                title = s.next();
                auth = s.next();
                isbn = s.next();
                publisher = s.next();
                b[i] = new Book(title,auth,isbn,publisher);
            }
            b[2].setTitle("Software Testing");
            System.out.println(b[2].getTitle());
            String info;
            for (int i =0; i<5; i++) {
                info = b[i].bookInfo();
                System.out.println(info);
            }

        }
}
```

Input and output:

intro to java
Prakash
8639804680
ravi
basic java
koti
8659847265
adi
advanced java
abhi

7856947523

tarun

Output:

Software Testing

Programming in Java Rama 12345 Wiley

intro to java Prakash

Software Testing ravi basic java

koti 8659847265 adi advanced

java abhi 7856947523 tarun