

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:

```
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 mybox3 is -1.0

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

Program:

```

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/10000)==0)
        year=y;
    else
        System.out.println("incorrect format");
}

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 SavingsAccount. Use a static variable annualInterestRate to store the annual interest rate for all account holders. Each object of the class contains a private instance variable savingsBalance indicating the amount the saver currently has on deposit. Provide method calculateMonthlyInterest to calculate the monthly interest by multiplying the savingsBalance by annualInterestRate divided by 12 this interest should be added to savingsBalance. Provide a static method modifyInterestRate th

Provide a static method modifyInterestRate that sets the annualInterestRate to a new value. Write a program to test class SavingsAccount. Instantiate two savingsAccount objects, saver1 and saver2, with balances of \$2000.00 and \$3000.00, respectively. Set annualInterestRate to 4%, then calculate the monthly interest and print the new balances for both savers. Then set the annualInterestRate to 5%, calculate the next month's interest and print the new balances for both savers.

Program:

```
class SavingsAccount{
    static float AnnualIntrestRate = (float)4;
    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.

Program:

```

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 < 3; 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<3; i++) {
            info = b[i].bookInfo();
            System.out.println(info);
        }

    }
}

```

}

Sample input and output;

Head First java

Kathy sierra

987456321

Orelly

Barry burd

123456789

Learning made easy

Programming in Java Rama 12345 Wiley

Head First java kathy sierra 987456321 Orelly

Software testing Barry burd 123456789 Learning made easy