COMSATS UNIVERSITY ISLAMABAD, LAHORE CAMPUS



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Class: Object Oriented Programming

Assignment: Lab Assignment 1

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**Task 1: Write a class BankAccount, which has the following attributes: [5 marks]**

**i. accountNumber**

**ii. accountTitle**

**iii. balance (should be greater than zero)**

**All attributes are private.**

**Create a test class named BankAccountTest. In the main method, instantiate the**

**BankAccount object and display information about the account.**

**Note: Ask the user to input the value of accountNumber, accountTitle, and balance.**

**CODE:**

import java.util.Scanner;

public class TestBankAccount{

public static void main(String args[]){

Scanner scn = new Scanner(System.in);

BankAccount bankk = new BankAccount();

System.out.printf("Enter The Title Of The Account (Name):");

String Name = scn.nextLine();

bankk.setName(Name);

System.out.printf("Enter The Number Of The Account Holder:");

int num = scn.nextInt();

bankk.setNumber(num);

System.out.printf("Enter The Balance Of The Account Holder:");

int blnc = scn.nextInt();

bankk.setBalance(blnc);

System.out.println("\nAccount Number = "+ bankk.getNum());

System.out.println("\nAccount Title = " +bankk.getName());

System.out.println("\nAccount Balance = " +bankk.getBalance());

}

}

class BankAccount{

private int accountNumber;

private String accountTitle;

private int Balance;

public void setName(String Name){

this.accountTitle = Name;

}

public String getName(){

return accountTitle;

}

public void setNumber(int num){

this.accountNumber = num;

}

public int getNum(){

return accountNumber;

}

public void setBalance(int blnc){

this.Balance = blnc;

}

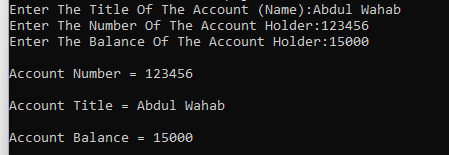
public int getBalance(){

return Balance;

}

}

**OUTPUT:**



**Task 2: Design a class Cylinder, which has the following members: [5 marks]**

**Attributes**

**i. radius**

**ii. height**

**Constructor**

**i. A no-argument constructor. This constructor set the radius to a default value of 1 and**

**prints the statement**

**“A no argument constructor”.**

**ii. A one-argument constructor receiving height and set the radius to default value 1**

**iii. A two-argument constructor receiving height and radius – calling one argument**

**constructor to set height.**

**Note: Demonstrate the use of this reference by the using same names for parameters and**

**instance variables.**

**Methods:**

**i. Setter functions (total 2)**

**ii. Getter functions (total 2)**

**iii. computeArea() -> A=2πrh+2πr2**

**iv. computeVolume() -> V=πr2**

**h**

**v. displayInfo() -> Show the cylinder’s height, radius, area, and volume**

**Test class to test Cylinder**

**Demonstrate all the above constructors/methods by creating different objects and calling**

**each constructor/method at least once.**

**CODE:**

import java.util.\*;

public class TestCylinder{

public static void main(String args[]){

Cylinder cyl = new Cylinder();

Scanner scn = new Scanner (System.in);

System.out.println("\nEnter Radius to Calculate :");

double rad = scn.nextDouble();

cyl.setRadius(rad);

System.out.println("Enter Height to Calculate :");

double hei = scn.nextDouble();

cyl.setHeight(hei);

cyl.displayinfo();

Cylinder cyl\_2 = new Cylinder(rad);

Cylinder cyl\_3 = new Cylinder(hei,rad);

cyl\_2.displayinfo();

cyl\_3.displayinfo();

}

}

class Cylinder{

private double radius ;

private double height ;

//Constructors

public Cylinder(){

this.radius = 1;

System.out.printf("No Arguments Constructor");

}

public Cylinder(double height){

this.radius = 1;

this.height = height;

}

public Cylinder(double height, double radius){

this(height);

this.radius = 1;

}

//Setters

public void setHeight(double height){

this.height = height;

}

public void setRadius(double Radius){

this.radius= Radius;

}

//Getters

public double getHeight(){

return height;

}

public double getRadius(){

return radius;

}

public double calculateArea(){

return (2\*3.14\*height\*radius) + (2\*3.14\*(radius\*radius));

}

public double calculateVolume(){

return (3.14\*radius\*radius\*height);

}

public void displayinfo(){

//Display The Info Here

System.out.print("\nThe Height is = "+height);

System.out.print("\nThe Radius is = "+radius);

System.out.print("\nThe Area is = "+calculateArea());

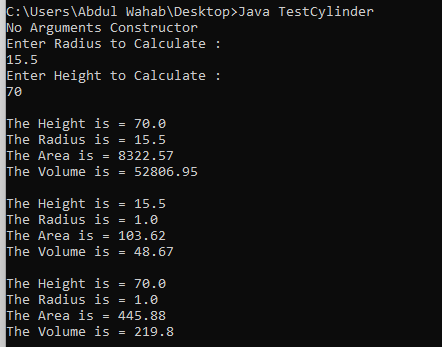
System.out.print("\nThe Volume is = "+calculateVolume());

System.out.println();

}

}

**OUTPUT:**



**Task 3: Write a date class to model a date object. [5 marks]**

**Attributes -> day, month, year**

**i. The value of the day should not be greater than 30, if the day value is greater than 30**

**reset it to 1.**

**ii. The value of the month should not be greater than 12, if the month value is greater**

**than 12 than reset it to 1.**

**Constructors**

**i. No argument constructor. In this constructor set the Day value to 14, the month value**

**to 3, and the year to 2023.**

**ii. One parameterized constructor for setting all three fields.**

**Methods**

**i. A method to print date in “dd/mm/yy” format**

**ii. Implement the setter and getter methods for day and month.**

**✓ Write DateTest class for the Date class**

**i. Create two date objects d1 and d2 by calling constructors with appropriate values**

**ii. Input date, month and year from user using Scanner object**

**iii. Create two reference variables (d3 and d4) of type date.**

**iv. Print date for d1, d2 by calling print method of date.**

**v. Assign d2 to a new object d3 and d3 to d4**

**vi. Change d3 month through the setter methods**

**vii. Print d1, d2, d3 and d4 by calling print method of date and observe the effect of**

**reference types**

**CODE:**

import java.util.\*;

public class TestDate{

public static void main(String args[]){

Scanner Scn = new Scanner(System.in);

Date dt1 = new Date();

Date dt2 = new Date ();

System.out.print("Enter The Day Here : ");

int day = Scn.nextInt();

dt1.setDay(day);

System.out.print("Enter month: ");

int month = Scn.nextInt();

dt1.setMonth(month) ;

dt1.setYear(2023);

Date dt3;

Date dt4;

dt3 = dt1;

dt4 = dt3;

dt1.DisplayDate();

dt2.DisplayDate();

dt3.DisplayDate();

dt4.DisplayDate();

}

}

class Date{

private int Day;

private int Month;

private int Year;

//No arguments Constructor

public Date(){

this.Day = 14;

this.Month= 3;

this.Year = 2023;

}

//Arguments Constructor

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

setDay(day);

setMonth(month);;

setYear(year);

}

//Making Setters With Condition

public void setDay(int day) {

if (day > 12) {

this.Day = 1;

} else {

this.Day = day;

}

}

public void setMonth(int month) {

if (month > 12) {

this.Month = 1;

} else {

this.Month = month;

}

}

public void setYear(int year) {

this.Year = year;

}

//Making Getter Here

public int getDay(){

return Day;

}

public int getMonth(){

return Month;

}

public int getYear(){

return Year;

}

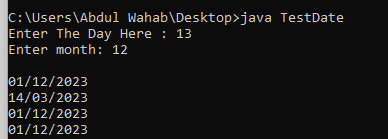
public void DisplayDate() {

System.out.printf("\n%02d/%02d/%02d", this.Day, this.Month, this.Year );

}

}

**OUTPUT:**

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