Practical No.-1

Name : Ganesh Vitthal Nagpure

Class : MCA-I

Roll No. : MC232540

Date :

Remark :

**Practical No. 1. Define an abstract class Shape with abstract methods area() and volume(). Write a java program to calculate area and volume of Cone and Cylinder**

**Solution:**

import java.util.\*;

abstract class Shape

{

abstract public void area();

abstract public void vol();

}

class Cone extends Shape

{

int r,s,h;

Cone(int r,int s,int h)

{

this.r=r;

this.s=s;

this.h=h;

}

public void area()

{

System.out.println("Area of Cone = "+(3.14\*r\*s));

}

public void vol()

{

System.out.println("volume of Cone = "+(3.14\*r\*r\*h)/3);

}

}

class Cylinder extends Shape

{ int r,h;

Cylinder(int r,int h)

{ this.r=r;

this.h=h;

}

public void area()

{ System.out.println("Area of Cylinder = "+(2\*3.14\*r\*h));

}

public void vol()

{

System.out.println("volume of Cylinder = "+(3.14\*r\*r\*h));

}

}

public class AbstractDemo

{

public static void main(String a[])

{

Scanner sc = new Scanner(System.in);

System.out.println("Enter radius, side and height for cone");

int r =sc.nextInt();

int s1 =sc.nextInt();

int h =sc.nextInt();

Shape s;

s=new Cone(r,s1,h);

s.area();

s.vol();

System.out.println("Enter radius, height for cylinder");

r =sc.nextInt();

h =sc.nextInt();

s=new Cylinder(r,h);

s.area();

s.vol();

}

}

Practical No.-2

Name : Ganesh Vitthal Nagpure

Class : MCA-I

Roll No. : MC232540

Date :

Remark :

**Practical No. 1. Define an abstract class Shape with abstract methods area() and volume(). Write a java program to calculate area and volume of Cone and Cylinder**

**Solution:** **Write a java program to accept the details of n Cricket Players from user**

**The program should contain following menus**

**-Display average runs of a single player.**

**-Display average runs of all players.**

import java.io.\*;

class Cricket

{

String Name;

int Total\_runs;

int Notout;

int Inning;

float avg;

void accept(){

BufferedReader br = new BufferedReader(new InputStreamReader(System.in));

try{

System.out.print("Enter Name of Player : ");

Name = br.readLine();

System.out.print("Enter Total Runs of Player : ");

Total\_runs = Integer.parseInt(br.readLine());

System.out.print("Enter Name of Times Not out : ");

Notout = Integer.parseInt(br.readLine());

System.out.print("Enter Innings played by players : ");

Inning = Integer.parseInt(br.readLine());

}

catch (Exception e) {}

}

void average(){

avg = Total\_runs/Inning;

System.out.println("Name : "+Name+"\nTotal runs : "+Total\_runs+"\nAvergae :

"+avg+"\nInning : "+ Inning);

}

}

public class ArrayOfObjectsDemo

{

public static void main(String args[]){

float max =0;

int n;

BufferedReader br = new BufferedReader(new InputStreamReader(System.in));

try {

System.out.print("How many Players : ");

n = Integer.parseInt(br.readLine());

Cricket ob1[]= new Cricket[n];

for(int i=0; i<n; i++)

{

ob1[i] = new Cricket();

ob1[i].accept();

}

for(int i=0; i<n; i++)

{

ob1[i].average();

}

for(int i=0; i<n; i++)

{

if(max<ob1[i].avg)

{

max = ob1[i].avg;

}

}

System.out.println("-----------------------------\nMax avg : "+max);

} catch (Exception e) {

System.out.println("Error........."+e);

}

}

}

Practical No.-3

Name : Ganesh Vitthal Nagpure

Class : MCA-I

Roll No. : MC232540

Date :

Remark :

**Practical No. 3. Java Programme to sort ArrayList**

**Solution:**

import java.util.\*;

public class ArrayListSort

{

public static void main(String args[])

{

ArrayList<String> list = new ArrayList<String>();

list.add("Volkswagen");

list.add("Toyota");

list.add("Porsche");

list.add("Ferrari");

list.add("Mercedes-Benz");

list.add("Audi");

list.add("Rolls-Royce");

list.add("BMW");

System.out.println("Before Sorting: "+ list);

// Sorting ArrayList in ascending Order

Collections.sort(list);

// printing the sorted ArrayList

System.out.println("After Sorting: "+ list);

}

}

Practical No.-4

Name : Ganesh Vitthal Nagpure

Class : MCA-I

Roll No. : MC232540

Date :

Remark :

**Practical No. 4. Define an Employee class with suitable attributes having getSalary() method, which returns salary withdrawn by a particular employee. Write a class Manager which extends a class Employee, override the getSalary() method, which will return salary of manager by adding traveling allowance, house rent allowance etc.**

**Solution:**

import java.util.\*;

import java.io.\*;

class Employee

{

String nm;

int id;

float sal;

void accept()

{

System.out.println("Enter id & name");

Scanner s=new Scanner(System.in);

id=s.nextInt();

nm=s.next(); }

float getsalary()

{

System.out.println("Enter salary");

Scanner s=new Scanner(System.in);

sal=s.nextFloat(); return sal; }

}

class Manager extends Employee

{

int ta,hr;

float s1;

float getsalary()

{

super.accept();

s1=super.getsalary();

System.out.println("Enter travelling allownces & house rent");

Scanner s=new Scanner(System.in);

ta=s.nextInt();

hr=s.nextInt();

System.out.println("Salary after adding DA & HRA ="+(s1+ta+hr));

return s1+ta+hr;

}

void display()

{

float a=getsalary();

} }

class InheritDemo

{

public static void main(String a[])

{

Manager ob=new Manager();

ob.display();

}

}

Practical No.-5

Name : Ganesh Vitthal Nagpure

Class : MCA-I

Roll No. : MC232540

Date :

Remark :

**Practical No. 5. Java Programme to demostrate vecors**

**Solution:**

import java.util.\*;

public class VectorDemo {

public static void main(String args[]) {

//Create an empty vector with initial capacity 4

Vector<String> vec = new Vector<String>(4);

//Adding elements to a vector

vec.add("Tiger");

vec.add("Lion");

vec.add("Dog");

vec.add("Elephant");

//Check size and capacity

System.out.println("Size is: "+vec.size());

System.out.println("Default capacity is: "+vec.capacity());

//Display Vector elements

System.out.println("Vector element is: "+vec);

vec.addElement("Rat");

vec.addElement("Cat");

vec.addElement("Deer");

//Again check size and capacity after two insertions

System.out.println("Size after addition: "+vec.size());

System.out.println("Capacity after addition is: "+vec.capacity());

//Display Vector elements again

System.out.println("Elements are: "+vec);

//Checking if Tiger is present or not in this vector

if(vec.contains("Tiger"))

{

System.out.println("Tiger is present at the index " +vec.indexOf("Tiger"));

}

else

{

System.out.println("Tiger is not present in the list.");

}

//Get the first element

System.out.println("The first animal of the vector is = "+vec.firstElement());

//Get the last element

System.out.println("The last animal of the vector is = "+vec.lastElement());

}

}

}

Practical No.-6

Name : Ganesh Vitthal Nagpure

Class : MCA-I

Roll No. : MC232540

Date :

Remark :

**Practical No. 6. Write a java program to accept a number from the**

**user,if number is zero then throw user defined Exception “Number is 0”**

**otherwise calculate the sum of first and last digit of a given number**

**Solution:**

import java.io.\*;

class NumberZero extends Exception

{

NumberZero( )

{ }

}

class Number

{

static int no;

Number( ) throws IOException

{

BufferedReader br=new BufferedReader(new

InputStreamReader(System.in));

System.out.println("enter number:");

no=Integer.parseInt(br.readLine( ));

try

{

if(no==0)

{

throw new NumberZero( );

}

cal( );

}

catch(NumberZero e)

{

System.out.println(" number is zero:");

}

}

void cal( )

{

int l=0,r=0;

l=no%10;

System.out.println(" number="+no);

if(no>9)

{

while(no>0)

{

r=no%10;

no=no/10;

}

System.out.println("addition of first

and last digit="+(l+r));

}

else

System.out.println(" addition of first

and last digit="+l);

}

}

class Excetion

{

public static void main(String a[ ])throws

IOException

{

Number n=new Number();

}

}

Practical No.-7

Name : Ganesh Vitthal Nagpure

Class : MCA-I

Roll No. : MC232540

Date :

Remark :

**Practical No. 7. class representing custom exception**

**Solution:**

class InvalidAgeException extends Exception

{

public InvalidAgeException (String str)

{

// calling the constructor of parent

Exception

super(str);

}

}

// class that uses custom exception

InvalidAgeException

public class CustomExceptionExample

{

// method to check the age

static void validate (int age) throws

InvalidAgeException{

if(age < 18){

// throw an object of user defined

exception

throw new InvalidAgeException("age is

not valid to vote");

}

else {

System.out.println("welcome to vote");

}

}

// main method

public static void main(String args[])

{

try

{

// calling the method

validate(23);

}

catch (InvalidAgeException ex)

{

System.out.println("Caught the

exception");

// printing the message from

InvalidAgeException object

System.out.println("Exception occured:

" + ex);

}

System.out.println("rest of the code...");

}

}

Practical No.-8

Name : Ganesh Vitthal Nagpure

Class : MCA-I

Roll No. : MC232540

Date :

Remark :

**Practical No. 8. StringBuilder class Demo**

**Solution:**

class StringBuilderDemo

{

public static void main(String args[])

{

char ch = 'a';

StringBuilder sb1 = new StringBuilder();

sb1.append(ch);

System.out.println("append char: " + sb1);

StringBuilder sb2=new StringBuilder("Hello

");

sb2.insert(1,"Java");//now original string

is changed

System.out.println(sb2);//prints HJavaello

StringBuilder sb3=new

StringBuilder("Hello");

sb3.replace(1,3,"Java");

System.out.println(sb3);//prints HJavalo

StringBuilder sb4=new

StringBuilder("Hello");

sb4.delete(1,3);

System.out.println(sb4);//prints Hlo

StringBuilder sb5=new

StringBuilder("Hello");

sb5.reverse();

System.out.println(sb5);//prints olleH

}

}

Practical No.-9

Name : Ganesh Vitthal Nagpure

Class : MCA-I

Roll No. : MC232540

Date :

Remark :

**Practical No. 9. Java Program to Illustrate StringTokenizer Class**

**Solution:**

// Importing required classes

import java.util.\*;

// Main class

public class StringTokenizerExample {

// Main driver method

public static void main(String args[])

{

// Constructor 1

System.out.println("Using Constructor 1 -

");

// Creating object of class inside main()

method

StringTokenizer st1 = new StringTokenizer(

"Hello Friends How are you", " ");

// Condition holds true till there is

single token

// remaining using hasMoreTokens() method

while (st1.hasMoreTokens())

// Getting next tokens

System.out.println(st1.nextToken());

// Constructor 2

System.out.println("Using Constructor 2 -

");

// Again creating object of class inside

main()

// method

StringTokenizer st2 = new StringTokenizer(

"JAVA : Code : String", " :");

// If tokens are present

while (st2.hasMoreTokens())

// Print all tokens

System.out.println(st2.nextToken());

// Constructor 3

System.out.println("Using Constructor 3 -

");

// Again creating object of class inside

main()

// method

StringTokenizer st3 = new StringTokenizer(

"JAVA : Code : String", " :",

true);

while (st3.hasMoreTokens())

System.out.println(st3.nextToken());

}

}

Practical No.-10

Name : Ganesh Vitthal Nagpure

Class : MCA-I

Roll No. : MC232540

Date :

Remark :

**Practical No. 10. Java Program For ThreadLifeCycle**

**Solution:**

import java.util.\*;

import java.lang.\*;

class MyThread extends Thread

{

public MyThread(String s)

{

super(s);

}

public void run() {

System.out.println(getName() + "thread

created.");

while (true) {

System.out.println(this);

int s = (int) (Math.random() \* 5000);

System.out.println(getName() + "is

sleeping for :" + s + "mili seconds");

try {

Thread.sleep(s);

} catch (Exception e) {

}

}

}

}

class ThreadLifeCycle

{

public static void main(String args[])

{

MyThread t1=new MyThread("THREAD I"),t2=new

MyThread("THREAD II"),t3=new MyThread("THREAD

III");

t1.start();

t2.start();

t3.start();

try {

t1.join();

t2.join();

t3.join();

}

catch(Exception e) {

}

System.out.println(t1.getName()+"thread

dead.");

System.out.println(t2.getName()+"thread

dead.");

System.out.println(t3.getName()+"thread

dead.");

}

}

Practical No.-11

Name : Ganesh Vitthal Nagpure

Class : MCA-I

Roll No. : MC232540

Date :

Remark :

**Practical No. 11. Define a thread class for printing text on command prompt for ‘n’ number of times. Create 3 threads and run them. Pass the text ‘n’ parameters to the thread constructor.**

**Example:**

**a. First thread prints “I am in FY” 10 times.**

**b. Second thread prints “I am in SY” 20 times**

**c Third thread prints “I am in TY” 30 times**

**Solution:**

class ThreadPrint extends Thread

{

String msg="";

int n;

ThreadPrint(String msg,int n)

{

this.msg=msg;

this.n=n;

}

public void run()

{

try

{ for(int i=1;i<=n;i++)

{

System.out.println(msg+" "+i+" times");

}

System.out.println("\n ");

}

catch(Exception e){}

}

}

class ThreadCmd

{

public static void main(String args[])

{

int n=Integer.parseInt(args[0]);

ThreadPrint t1=new ThreadPrint("I am in FY",n);

t1.start();

ThreadPrint t2=new ThreadPrint("I am in SY",n+10);

t2.start();

ThreadPrint t3=new ThreadPrint("I am in TY",n+20);

t3.start();

}

}

Practical No.-12

Name : Ganesh Vitthal Nagpure

Class : MCA-I

Roll No. : MC232540

Date :

Remark :

**Practical No. 12. Write a java Program to accept name of cities from command prompt & sort them.**

**Solution:**

class SortCmdPrompt

{

public static void main(String arg[])

{

String name[]=new String[10];

int l=arg.length;

String temp;

for(int i=0;i<l;i++)

{

name[i]=arg[i];

}

for(int j=0;j<l;j++)

{

for(int k=j+1;k<l;k++)

{

if((name[j].compareTo(name[k]))<0)

{

temp=name[j];

name[j]=name[k];

name[k]=temp;

}

}

}

System.out.println("Sorted City Are-");

for(int i=0;i<l;i++)

{

System.out.println(name[i]);

}

}

}

Practical No.-13

Name : Ganesh Vitthal Nagpure

Class : MCA-I

Roll No. : MC232540

Date :

Remark :

**Practical No. 13. Write a java program for DeleteFile**

**Solution:**

import java.io.File;

// Import the File class

public class DeleteFile {

public static void main(String[] args) {

File myObj = new File("E:file1.txt");

if (myObj.delete()) {

System.out.println("Deleted the file: " + myObj.getName());

} else {

System.out.println("Failed to delete the file.");

}

}

}

Practical No.-14

Name : Ganesh Vitthal Nagpure

Class : MCA-I

Roll No. : MC232540

Date :

Remark :

**Practical No. 14. creating the file in java**

**Solution:**

import java.io.File;

// Importing the IOException class for handling errors

import java.io.IOException;

class FileOperations {

public static void main(String args[]) {

try {

// Creating an object of a file

File f0 = new File("E:textfile1.txt");

if (f0.createNewFile()) {

System.out.println("File " + f0.getName() + " is created

successfully.");

} else {

System.out.println("File is already exist in the

directory.");

}

} catch (IOException exception) {

System.out.println("An unexpected error is occurred.");

exception.printStackTrace();

} } }

Practical No.-15

Name : Ganesh Vitthal Nagpure

Class : MCA-I

Roll No. : MC232540

Date :

Remark :

**Practical No. 15. Write a java Program for ReadFile**

**Solution:**

import java.io.File;

// Importing FileNotFoundException class for handling errors

import java.io.FileNotFoundException;

// Importing the Scanner class for reading text files

import java.io.FileReader;

import java.io.IOException;

import java.util.Scanner;

class ReadFile {

public static void main(String[] args) {

try {

// Create f1 object of the file to read data

File f1 = new File("E:t1.txt");

Scanner dataReader = new Scanner(f1);

while (dataReader.hasNextLine()) {

String fileData = dataReader.nextLine();

System.out.println(fileData);

FileReader fr = new FileReader(f1);

fr.close();

}

dataReader.close();

} catch (FileNotFoundException exception) {

System.out.println("Unexcpected error occurred!");

exception.printStackTrace();

} catch (IOException e) {

throw new RuntimeException(e);

}

}

}

Practical No.-16

Name : Ganesh Vitthal Nagpure

Class : MCA-I

Roll No. : MC232540

Date :

Remark :

**Practical No. 16. Write a java program for WriteFile.**

**Solution:**

import java.io.FileWriter;

public class WriteFile {

public static void main(String args[]){

try{

FileWriter fw=new FileWriter("E:\\testout.txt");

fw.write("ZEAL COLLEGE MCA I BATCH 2023-25.");

fw.close();

}catch(Exception e){System.out.println(e);}

System.out.println("Success...");

}

}

Practical No.-17

Name : Ganesh Vitthal Nagpure

Class : MCA-I

Roll No. : MC232540

Date :

Remark :

**Practical No. 17. Write a java program for SwingFindReplace.**

**Solution:**

import java.awt.\*;

import java.awt.event.\*;

import javax.swing.\*;

public class SwingFindReplace extends JFrame

implements ActionListener

{

JLabel ltext, lfind, lreplace, loccurance;

JTextArea text;

JTextField findText, replaceText,

occurrenceText;

JButton find, replace, clear;

JPanel pan1,pan2;

int occurrences=0,i=0;

SwingFindReplace()

{

ltext= new JLabel("Enter Text : ");

lfind = new JLabel("Text to Find : ");

lreplace = new JLabel("Text to Replace :

");

loccurance = new JLabel("No.of Occurrences

: ");

text = new JTextArea(1,20);

findText = new JTextField(20);

replaceText = new JTextField(20);

occurrenceText = new JTextField(20);

pan1 = new JPanel();

pan1.setLayout(new GridLayout(4,2));

pan1.add(ltext);

pan1.add(text);

pan1.add(lfind);

pan1.add(findText);

pan1.add(lreplace);

pan1.add(replaceText);

pan1.add(loccurance);

pan1.add(occurrenceText);

find = new JButton("Find");

replace = new JButton("Replace");

clear= new JButton("Clear");

find.addActionListener(this);

replace.addActionListener(this);

clear.addActionListener(this);

pan2 = new JPanel();

pan2.setLayout(new FlowLayout());

pan2.add(find);

pan2.add(replace);

pan2.add(clear);

add(pan1,"Center");

add(pan2,"South");

setTitle("Find And Replace");

setSize(300, 200);

setDefaultCloseOperation(JFrame.EXIT\_ON\_CLOSE);

setVisible(true);

}

public void actionPerformed(ActionEvent ae)

{

if(ae.getSource() == find)

{

String s = text.getText();

String f = findText.getText();

i = s.indexOf(f);

if(i != -1)

{

occurrences++;

occurrenceText.setText(Integer.toString(occurrences

));

text.select(i,i+f.length());

text.requestFocus();

}

}

if(ae.getSource() == replace)

{

if(text.getSelectedText().length()!=0)

{

String r = replaceText.getText();

text.replaceSelection(r);

}

}

if(ae.getSource() == clear)

{

text.setText("");

findText.setText("");

replaceText.setText("");

occurrenceText.setText("");

}

}

public static void main(String[] args)

{

new SwingFindReplace();

}

}

Practical No.-18

Name : Ganesh Vitthal Nagpure

Class : MCA-I

Roll No. : MC232540

Date :

Remark :

**Practical No. 18. Write a java program for DatabaseSelect**

**Solution:**

package mca;

import java.sql.\*;

class DB\_Select{

public static void main(String args[]){

try{

Class.forName("com.mysql.cj.jdbc.Driver");

Connection conn = null;

conn =

DriverManager.getConnection("jdbc:mysql://localhost/z

eal\_college","root", "root");

Statement stmt=conn.createStatement();

ResultSet rs=stmt.executeQuery("select \*

from student ");

System.out.println("Contents of Student

Table :");

System.out.println("RegId Name Batch

Department Address");

while(rs.next())

System.out.println(rs.getString(1)+ "

" +rs.getString(2)+ " " +rs.getString(3)+ " "

+rs.getString(4)+ " " +rs.getString(5));

conn.close();

}catch(Exception e){ System.out.println(e);}

}

}

Practical No.-19

Name : Ganesh Vitthal Nagpure

Class : MCA-I

Roll No. : MC232540

Date :

Remark :

**Practical No. 19. Write a java program for Student\_Insert**

**Solution:**

package mca;

import java.sql.\*;

import java.io.\*;

public class StudentInsert {

public static void main(String a[]) {

PreparedStatement ps;

Connection conn;

try{

Class.forName("com.mysql.cj.jdbc.Driver");

conn = null;

conn = DriverManager.getConnection("jdbc:mysql://localhost/zeal\_college","root",

"root");

if(conn==null) {

System.out.println("Connection Failed......");

System.exit(1);

}

System.out.println("Connection Esatablished......");

Statement stmt=conn.createStatement();

BufferedReader br = new BufferedReader(new InputStreamReader(System.in));

String query="insert into Student values(?,?,?,?,?)";

ps=conn.prepareStatement(query);

System.out.println("Student Details....");

System.out.println("Enter Student Reg Id:");

int regid=Integer.parseInt(br.readLine());

ps.setInt(1,regid);

System.out.println("Enter Name:");

String name=br.readLine();

ps.setString(2,name);

System.out.println("Enter Batch:");

String batch=br.readLine();

ps.setString(3,batch);

System.out.println("Enter Department:");

String dept=br.readLine();

ps.setString(4,dept);

System.out.println("Enter Address:");

String address=br.readLine();

ps.setString(5,address);

int no=ps.executeUpdate();

if(no!=0)

System.out.println("Data inserted succesfully.....");

else

System.out.println("Data NOT inserted");

conn.close();

}

catch(Exception e)

{

e.printStackTrace();

} } }

Practical No.-20

Name : Ganesh Vitthal Nagpure

Class : MCA-I

Roll No. : MC232540

Date :

Remark :

**Practical No. 20. Write a java program for FirstServlet**

**Solution:**

package mca1;

import java.io.IOException;

import java.io.PrintWriter;

import jakarta.servlet.ServletException;

import jakarta.servlet.http.HttpServlet;

import jakarta.servlet.http.HttpServletRequest;

import jakarta.servlet.http.HttpServletResponse;

/\*\* \* Servlet implementation class FirstServlet \*/

public class FirstServlet extends HttpServlet {

private static final long serialVersionUID = 1L;

protected void doGet(HttpServletRequest request, HttpServletResponse response)

throws ServletException, IOException {

PrintWriter pw=response.getWriter();

pw.println("<h1> HELLO World!!! FirstServlet-tried on 21

november!</h1>");

java.util.Date date = new java.util.Date();

pw.println("<h2>"+"Current Date & Time: " +date.toString()+"</h2>");

pw.close();

}

/\*\*

\* @see HttpServlet#doPost(HttpServletRequest request, HttpServletResponse

response)

\*/

protected void doPost(HttpServletRequest request, HttpServletResponse

response) throws ServletException, IOException {

// TODO Auto-generated method stub

doGet(request, response);

}

}