 *DEPARTMENT OF INFORMATION TECHNOLOGY*

Experiment No.9

|  |  |  |
| --- | --- | --- |
| Experiment No | 9 | |
| Experiment Title | A)Write a program to demonstrate the use of “this” keyword in java  B & C) Write programs based on static method concept in java. | |
| Resources / Apparatus Required | Java SE(JDK)8u102 ,  gedit text editor | PC |
| Objectives | The objective of this experiment is to learn programs based on “static” keyword (static method concept) and “this” keyword in java. | |
| Theory | this keyword concept in java There can be a lot of usage of **java this keyword**. In java, this is a **reference variable** that refers to the current object.  **Usage of java this keyword**  Here is given the 6 usage of java this keyword.   1. this keyword can be used to refer current class instance variable. 2. this() can be used to invoke current class constructor. 3. this keyword can be used to invoke current class method (implicitly) 4. this can be passed as an argument in the method call. 5. this can be passed as argument in the constructor call. 6. this keyword can also be used to return the current class instance.   java this keyword Java static keyword The **static keyword** in java is used for memory management mainly. Java static keyword can be applied with variables, methods, blocks and nested class. The static keyword belongs to the class than instance of the class. The static can be:   1. variable (also known as class variable) 2. method (also known as class method) 3. block 4. nested class  1) Java static variable If you declare any variable as static, it is known static variable.   * The static variable can be used to refer the common property of all objects (that is not unique for each object) e.g. company name of employees ,college name of students etc. * The static variable gets memory only once in class area at the time of class loading.  Advantage of static variable It makes your program **memory efficient** (i.e it saves memory).  **2) Java static method**  If you apply static keyword with any method, it is known as static method.   * A static method belongs to the class rather than object of a class. * A static method can be invoked without the need for creating an instance of a class. * static method can access static data member and can change the value of it.  Restrictions for static method  |  | | --- | | There are two main restrictions for the static method. They are: |  |  | | --- | | 1. The static method cannot use non static data member or call   non-static method directly.   1. this and super cannot be used in static context. |   **3) Java static block**   * Is used to initialize the static data member. * It is executed before main method at the time of class loading.     . | |
| Program & output | A)  import java.util.\*;  class Box  {  private int l,b,h;  public Box(int l,int b,int h)  {  this.l=l;  this.b=b;  this.h=h;  }  public void show()  {  System.out.println("Length ="+this.l);  System.out.println("Breadth ="+this.b);  System.out.println("Height ="+this.h);  }  }  class UseBox  {  public static void main (String args[])  {  Box B1=new Box(10,20,30);  B1.show();  }  }  C:\Users\Mahesh\Desktop\oopm exp 7,9,10,11 outputs\this program exp 9 printout.png    B)  import java.util.\*;  class Emp  {  public static int nextId=1;  int age;  public static void showNextId()  {  System.out.println("Next EmpId is "+nextId);  }  }  class UseEmp  {  public static void main (String args[])  {  Emp E=new Emp();  E.showNextId();  Emp.showNextId();  }  }  C:\Users\Mahesh\Desktop\oopm exp 7,9,10,11 outputs\emp exp 9 output.png    C)  import java.util.\*;  class Person  {  private int age;  private String name;  public Person(int age,String name)  {  this.age=age;  this.name=name;  }  public static Person createPerson(int a,String s)  {  if (a<0)  {  return null;  }  else  {  Person P=new Person(a,s);  return P;  }  }  public void show()  {  System.out.println("Age is "+age+ "Name is "+name);  }  }  class UsePerson  {  public static void main (String args[])  {    Person P1=Person.createPerson(25,"RAVI");  P1.show();  Person P2=Person.createPerson(27,"AMIT");  P2.show();  }  }      C:\Users\Mahesh\Desktop\oopm exp 7,9,10,11 outputs\exp 9 printout.png | |
| Conclusion | Thus, we have learnt programs based on “static” keyword concept as well as  “this “ keyword concept in java. | |