**Lab Report**

**Course: BESE-29**

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**Task 1: Working with Java Variables (Task1.java)**

**Objective:**  
To understand and demonstrate the usage of class variables, instance variables, and local variables in Java.

**Procedure:**

* Created a directory lab4 on the Desktop.
* Wrote Java code in Task1.java to display class, instance, and local variable values.
* Compiled and executed the program multiple times to observe variable values and their scope.

public class Task1 {

static int classCount;

int instanceCount;

public void showCount() {

int localCount = 10;

System.out.println("classCount: " + classCount);

System.out.println("instanceCount: " + instanceCount);

System.out.println("localCount: " + localCount);

System.out.println("---------------show count executed successfully-----------");

}

public static void main(String[] args) {

// your code here

}

}

**Output:**

classCount: 0

instanceCount: 0

localCount: 10

---------------show count executed successfully-----------

classCount: 0

instanceCount: 1000

localCount: 10

---------------show count executed successfully-----------

**Task 2: Default Values in Java (Task2.java)**

**Procedure:**

* Edited Task2.java to declare instance and static variables without initialization.
* Compiled and ran the program to print their default values.

**Code Snippet:**

public class Task2 {

int instanceVar;

static int staticVar;

public static void main(String[] args) {

Task2 obj = new Task2();

System.out.println("Instance variable: " + obj.instanceVar);

System.out.println("Static variable: " + staticVar);

}

}

**Output:**

Instance variable: 0

Static variable: 0

**Git Version Control Tasks**

**Procedure:**

* Initialized Git repository inside lab4 directory.
* Added remote origin to GitHub repositories (initially with wrong permissions, then corrected).
* Created and pushed branches (master, LabTask).
* Committed changes with appropriate messages.

**Commands Used:**

# Task 1 : commit 1

git init

git remote add origin https://github.com/ihtesham3344/lab4

git add .

git commit -m "v1"

git push -u origin master

git branch LabTask

git push -u origin LabTask

**Output:**

Initialized empty Git repository in C:/Users/student/Desktop/lab4/.git/

[master (root-commit) 54eafff] v1

4 files changed, 60 insertions(+)

To https://github.com/ihtesham3344/lab4

\* [new branch] master -> master

branch 'master' set up to track 'origin/master'.

# Task 2 : commit 2

git init

git remote add origin https://github.com/ihtesham3344/lab4

git add .

git commit -m "v2"

git push -u origin master

git branch LabTask

git push -u origin LabTask

**Output:**

Initialized empty Git repository in C:/Users/student/Desktop/lab4/.git/

[master (root-commit) 54eafff] v1

4 files changed, 60 insertions(+)

To https://github.com/ihtesham3344/lab4

\* [new branch] master -> master

branch 'master' set up to track 'origin/master'.

**Task 3: Compound Interest Calculation (Task3.java)**

**Objective:**  
To calculate and display the final worth of an investment after a given number of years with a fixed interest rate.

**Procedure:**

* Implemented a Java program in Task3.java that calculates compound interest.
* Compiled and ran the program.

**Code Snippet:**

public class Task3 {

public static void main(String[] args) {

double principal = 1000.0;

double rate = 0.05;

int years = 4;

double amount = principal \* Math.pow(1 + rate, years);

System.out.println("Investing $" + principal + " at an interest rate of " + (rate \* 100) + "% for " + years + " years will have a final worth of $" + amount);

}

}

**Output:**

Investing $1000.0 at an interest rate of 5.0% for 4 years will have a final worth of $1215.5062500000001