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Objective:

To understand the concept of passing primitive and object parameters as arguments to a function and return them from a function; furthering to apply, analyze and create programming constructs to justify why java uses pass by value only. In this assignment we also engage to understand the concept of static fields and methods and make appropriate use so as to construct, differentiate and actualize.

Problem Statement:

1. (a) In class Employee created in Assignment 1 add static instance field emp_count. Use emp_count for getting emp_id in proper sequence. Also include appropiate accessor method for the instance field emp_count.

(b) Write a static method in Employee class.

(c) Write methods to compare two Employees based upon their salary and return object having higher salary.

(d) Write two overloading methods in your employee class.

(e) Use final keyword for creating a constant field.

Code :

```
import java.util.Scanner;

class Employee {
    int emp_id;
    String name;
    int salary;
    String designation;
    static int emp_count = 0;
    static final String company = "TCS";

    Employee(String n) {
        name = n;
        emp_count++;
        emp_id = emp_count;
        salary = 20000;
        designation = "Software Developer";
    }

    static void dispComp() {
        System.out.println("Company name: " + company);
    }

    //remove comment to get the compilation error for updating the final keyword
    /* static void updateComp(String s) {
```

```
        company = s;
    }
    */
    // Accessor method for emp_count
    static int getEmpCount() {
        return emp_count;
    }

    Employee(String n, int s, String d) {
        emp_count++;
        emp_id = emp_count;
        name = n;
        salary = s;
        designation = d;
    }

    Employee() {
        emp_count++;
        emp_id = emp_count;
        name = "temp_employee";
        salary = 10000;
        designation = "UI designer";
    }

    static void dispcount() {
        System.out.println("number of employee: " + emp_count);
    }

    int countemployee() {
        return emp_count;
    }

    void salInc(int b) {
        salary += b;
    }

    // Updated the salary increment method
    void salInc(int b, int p) {
        salary += salary * p / 100 + b;
    }

   // Compare the salary of 2 employee objects and return one with highest salary
    static Employee cmp(Employee a, Employee b) {
        if (b.salary > a.salary) {
            return b;
```

```
        }
        return a;
    }

    static void display(Employee e) {
        System.out.println("name of employee: " + e.name);
        System.out.println("ID of employee: " + e.emp_id);
        System.out.println("Salary of employee: " + e.salary);
        System.out.println("Designation of the employee: " + e.designation);
    }
}

public class assignmentday2 {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        Employee[] arr = new Employee[3];
        System.out.println("enter E to enter details of executive employee");
        System.out.println("enter F to enter details of fresher employee");
        System.out.println("enter any other for temporary employee");
        for (int i = 0; i < 3; i++) {
            System.out.println("enter the type of employee: ");
            char type = sc.next().charAt(0);
            if (type == 'E') {
                System.out.println("Enter the salary of the employee");
                int salary = sc.nextInt();
                System.out.println("Enter the name of the employee");
                String name = sc.next();
                System.out.println("Enter the designation of the employee");
                String designation = sc.next();
                arr[i] = new Employee(name, salary, designation);
            } else if (type == 'F') {
                System.out.println("Enter the name of the employee:");
                String name = sc.next();
                arr[i] = new Employee(name);
            } else {
                arr[i] = new Employee();
            }
        }

        for (Employee e : arr) {
            Employee.display(e);
            System.out.println();
        }
        Employee.dispcount();
        Employee mx = Employee.cmp(arr[0], arr[1]);
```

```
        System.out.println("Employee with the highest salary among the first 2
is: " + mx.name);
        Employee.dispComp();
        for (int i = 0; i < 3; i++) {
            if (arr[i].designation.equals("UI designer")) {
                arr[i].salInc(15000, 10);
            } else if (arr[i].designation.equals("Software Developer")) {
                arr[i].salInc(15000);
            }
        }
        System.out.println("after updating the salary");
        System.out.println();
        for (Employee e : arr) {
            Employee.display(e);
            System.out.println();
        }
        //trying to update Company which is defined final
            // Employee.updateComp("Cognizant");
    }
}
```

Output:

Without final, data member re-initialization:

```
PS C:\Users\RITABRATA> cd "f:\RITABRATA ASSIGNMENTS\SEMESTER 5\java OOPS\L
enter E to enter details of executive employee
enter F to enter details of fresher employee
enter any other for temporary employee
enter the type of employee:
E
Enter the salary of the employee
150000
Enter the name of the employee
Ritabrata
Enter the designation of the employee
Software-Analyst
enter the type of employee:
T
enter the type of employee:
F
Enter the name of the employee:
Sankalpa
name of employee: Ritabrata
ID of employee: 1
Salary of employee: 150000
Designation of the employee: Software-Analyst

name of employee: temp_employee
ID of employee: 2
Salary of employee: 10000
Designation of the employee: UI designer

name of employee: Sankalpa
ID of employee: 3
Salary of employee: 20000
Designation of the employee: Software Developer

number of employee: 3
Employee with the highest salary among the first 2 is: Ritabrata
Company name: TCS
after updating the salary
```

```
name of employee: Ritabrata
ID of employee: 1
Salary of employee: 150000
Designation of the employee: Software-Analyst

name of employee: temp_employee
ID of employee: 2
Salary of employee: 26000
Designation of the employee: UI designer

name of employee: Sankalpa
ID of employee: 3
Salary of employee: 35000
Designation of the employee: Software Developer

PS F:\RITABRATA ASSIGNMENTS\SEMESTER 5\java OOPS\Lab>
```

With Final, data member re-initialization :

```
PS C:\Users\RITABRATA> cd "f:\RITABRATA ASSIGNMENTS\SEMESTER 5\java OOPS\Lab\" ; i
assignmentday2.java:25: error: cannot assign a value to final variable company
         company = s;
         ^
1 error
PS F:\RITABRATA ASSIGNMENTS\SEMESTER 5\java OOPS\Lab>
```