Module: Java + UI + PHP

Course: Core Java

Session 2: Classes, Objects and Constructors

Trainer Notes

1 Session Plan

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| --- | --- | --- | --- | --- | --- | --- |
| Time  (min) | Content | Methodology | Trainer  Approach | Learner  Activity | Learning  Outcome  (Bloom's) | Learning  Outcome  (Gardner's) |
| 15 | Object explanation using dice game | Reference to  Reading  Material and  Slides | Facilitate,  Elicit  responses | Think,  Respond,  Identify | Remember,  Understand | Intrapersonal,  interpersonal |
| 15 | Class explanation using dice game | Reference to  Reading  Material and  Slides | Facilitate,  Elicit  responses | Think,  Respond,  Identify | Remember,  Understand | Intrapersonal,  interpersonal |
| 15 | Properties and behaviors | Reference to  Reading  Material and  Slides | Facilitate,  Elicit  responses | Think,  Respond,  Identify | Remember,  Understand | Intrapersonal,  interpersonal |
| 15 | Constructors | Reference to  Reading  Material and  Slides | Facilitate,  Elicit  responses | Think,  Respond,  Identify | Remember,  Understand | Intrapersonal,  interpersonal |
| 25 | Guided Classroom  Activities | Group Activities | Facilitate | Work on guided activities | Remember,  Understand,  Coding | Intrapersonal,  interpersonal |
| 05 | Conclusion | Discussion | Question,  Facilitate,  Guides | Participates,  Recollect  concepts | Remember | Intrapersonal,  interpersonal |

2 Objectives

* Explain class and object
* Differentiate class and object
* Demonstrate simple java classes, construct and use java objects
* Demonstrate Constructor
* Explain the need for Constructor
* Demonstrate Parameterized Constructors
* Explain and demonstrate use of “this” keyword

3 Materials Needed

* Slides

1. Presentation Description

The Facilitator is expected to follow the Presentation Slides as a guideline for the flow of the session.

5 Guided Classroom Activities

**Classes and Objects**

* The payroll system of an organization involves calculating the gross salary of each type of employee and the tax applicable to each. Create the following entity classes. As described below.
  + Class Employee
    - Fields: id: int, name : String, basicSalary : double, HRAPer : double,DAPer : double
    - Public Method: calculateGrossSalary() - returns a double
    - Calculate the gross salary as : basicSalary +HRAPer +DAPer
  + Class Manager
    - Fields: id: int, name : String, basicSalary : double, HRAPer : double,DAPer : double, projectAllowance: double
    - Public Method: calculateGrossSalary() - returns a double
    - Calculate the gross salary as : basicSalary +HRAPer +DAPer + projectAllowance
  + Class Trainer
    - Fields: id: int, name : String, basicSalary : double, HRAPer : double,DAPer : double, batchCount: int, perkPerBatch: double
    - Public Method: calculateGrossSalary() - returns a double
    - Calculate the gross salary as : basicSalary +HRAPer +DAPer +(batchCount \* perkPerBatch)
  + Class Sourcing
    - Fields: id: int, name : String, basicSalary : double, HRAPer : double,DAPer : double, enrollmentTarget: int, enrollmentReached: int, perkPerEnrollment: double
    - Public Method: calculateGrossSalary() - returns a double
    - Calculate the gross salary as : basicSalary +HRAPer +DAPer +((enrollmentReached/enrollmentTarget)\*100)\*perkPerEnrollment)
  + Class TaxUtil
    - Fields: None
    - Public Methods:
    - calculateTax(Employee) - returns a double
    - calculateTax(Manager) - returns a double
    - calculateTax(Trainer) - returns a double
    - calculateTax(Sourcing) - returns a double
    - Tax Calculation Logic: If gross salary is greater than 30000 tax is 20% else, tax is 5%

**Constructors**

* To create the constructors for the classes for a payroll system of an organization
* The payroll system of an organization involves calculating the gross salary of each type of employee and the tax applicable to each. Create the constructors for the following entity classes. The entity classes, their fields and methods are already given in your candidate project. You have to create the constructors for each class as described below.
  + Class Employee
    - Constructors:
    - default constructor: This constructor should initialize the instance variables with the proper default values
    - parameter constructor: with fields in the Order: ( int id, String name, double basicSalary, double HRAPer, double DAPer)
  + Class Manager
    - Constructors:
    - default constructor: This constructor should initialize the instance variables with the proper default values
    - parameter constructor: with fields in the Order: ( int id, String name, double basicSalary, double HRAPer, double DAPer, double projectAllowance)
  + Class Trainer
    - Constructors:
    - default constructor: This constructor should initialize the instance variables with the proper default values
    - parameter constructor: with fields in the Order: ( int id, String name, double basicSalary, double HRAPer, double DAPer, int batchCount,double perkPerBatch)
  + Class Sourcing
    - Constructors:
    - default constructor: This constructor should initialize the instance variables with the proper default values
    - parameter constructor: with fields in the Order: ( int id, String name, double basicSalary, double HRAPer, double DAPer, int enrollmentTarget, int enrollmentReached, double perkPerEnrollment)
  + Class TaxUtil
    - Constructors:
    - Default constructor: This constructor should initialize the instance variables with the proper default values.