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Assignment 2

11/10/24

Q1) Explain class, object, constructor and method overloading?

Class : A class is a blueprint or template that defines the properties (fields) and behaviour of objects. In Java, classes are used to create objects and organize code in a structure way.

Object : An object is an instance of a class, it is created from a class and can have its own values for the properties defined in the class. Each object of the class can interact with methods.

Constructor : A constructor is a special method used to initialize objects. It is called when an object is created and can set initial values for the object constructor can have same name as the class.

Method Overloading : Is a feature in java that allows multiple methods in the same class to have the same name but with different parameter lists. It provides flexibility in defining methods that perform similar tasks.

Q2] Explain array with suitable example?

A

An array in java is a data structures, that allows you to store multiple values of the same data type in a single container. Each element in the array is identified by an index, starting from 0 for the first ~~elementary~~ element, for the second and so on.

Eg → Public class Array Example {
Public static void main (string [] args) {
int [] numbers = {5, 10, 15, 20, 25};
int sum = 0;
for (int i = 0; i < numbers.length; i++) {
sum += numbers [i];
system.out.println ("Sum of array elements :"+

Q3] Explain why multiple inheritance is not expected in Java?

Multiplicity inheritance refers to the ability of a class in inherit from more than one superclass. In java, inheritance of classes is not supported. This decision was made to avoid complexity and potential issues like the "Diamond problem". Java allows is a well-known issue in language that support multiple inheritance it occurs when a class inherits from two classes that both inherit from the same parent class.

Q] Explain Exception Handling with suitable example.?

In java exception handling is a powerful mechanism to handle runtime errors ensuring the normal flow of the program.

An exception is an event that occurs during the execution of a program disrupting the normal flow of instructions.

java provides a robust way to handle such exceptions, using try, catch, finally, throw and throws keyword.

Example →

```
Public class
  ExceptionHandling Example {
    Public static void main (string[] args) {
      try {
        int [] numbers = {1, 2, 3}
    System. Out. Println (numbers [3]);
      } catch
    System. out. println ("Array index is out");
      } finally
    System. out. println ("Finally blocked executed");
      }
  }
```

Q5] Explain multithreading in Java?

Multithreading in Java is the process of executing two or more threads concurrently to achieve parallelism.

Each thread runs a part of the program independently enabling efficient CPU utilization and faster execution of tasks.

Java provides built-in support for multithreading using the 'Thread' class applications that need to handle many tasks at once, like web servers.

1) Thread : Is a lightweight process and is a part of a program that runs independently of other parts.

2) State of Thread : When a thread object is created, not started when start method is called, the thread is ready to run but waiting for CPU time.

3) Thread Class : Provides methods like start(), sleep() yield(), join() and intercept() to control the execution threads.