WEB TECHNOLOGY KCS 602

ASSIGNMENT-01

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Ques-1) Outline the difference between procedural and object-oriented programming language?

Procedural Oriented Programming	Object oriented Programming
1. In procedural programming the program is divided into small parts called functions.	In object oriented programming, the program is divided into small parts called objects.
2. Procedural programming follows a top down approach.	Object oriented programming follows a bottom-up approach.
3. There is no access specifier in procedural programming.	Object-oriented programming has access specifiers like private, public, protected etc.
4. Adding new data & functions is not easy.	Adding new data & function is easy.
5. Procedural programming does not have any proper way of hiding data so it is less secure.	Object-oriented programming provides data hiding so it is more secure.
6. In procedural programming overloading is not possible.	Overloading is possible in object-oriented programming.
7. In procedural programming there is no concept of data hiding & inheritance.	In object oriented programming, data is more important & concept of inheritance is used.
8. In procedural programming, the function is more important than the data.	In object-oriented programming data is more important than function.
9. Procedural programming is based on the unreal world.	Object-oriented programming is based on the real world.
10. Procedural programming is used for designing medium sized programs.	Object oriented programming is used for designing large and complex programs.
11. Procedural programming uses the concept of procedure abstraction.	Object oriented programming uses the concept of data abstraction.
12. Code reusability is absent in procedural programming.	Code reusability is present in object oriented programming.
Ex: C, FORTAN, Pascal, Basic etc.	Ex: C++, Java, Python, C# etc.

Ques-2) Illustrate inheritance. Why multiple inheritance is not possible in Java? How to implement multiple inheritance in Java?

Ans-2) Inheritance in object-oriented programming refers to the mechanism by which a new class, called a derived or child class, is created from an existing class, called a base or ~~parent~~ class parent class. The derived class inherits attributes and behaviours (methods) from the base class, allowing for code reuse and creating a hierarchical relationship between classes.

Here's a simple illustration in Java:

```
// Base Class
class Animal {
    String name;
    void makeSound() {
        System.out.println("Animal sound");
    }
}
// Derived class inheriting from Animal
class Dog extends Animal {
    Dog(String name) {
        this.name = name;
    }
    void makeSound() {
        System.out.println("Woof");
    }
}
```

Multiple Inheritance allows a class to inherit from more than one parent class. Java avoids these complexities by using single inheritance (a class can only extend one superclass) with the use of interfaces to achieve a form of multiple inheritance. Interface in Java allow a class to inherit methods from multiple interfaces, but they cannot contain method implementations.

Eg: Using interfaces to achieve multiple inheritance like behaviour.

```
interface A {
    void methodA();
}
interface B {
    void methodB();
}
class Myclass implements A,B {
    public void methodA() {
        System.out.println("Method A");
    }
    public void methodB() {
        System.out.println("Method B");
    }
}
```

← Myclass implements both interfaces 'A' and 'B', effectively inheriting methods from both interfaces.

Ques-3) Explain string handling and event handling in Java. Difference between throw and throws.

String Handling

String handling in Java refers to the manipulation and management of strings. Java provides a built-in 'string' class, which offers various methods for performing operations on strings such as concatenation, substring abstraction, searching, replacing and more. String handling is essential in almost every java application as strings are commonly used for storing and manipulating textual data.

Event Handling

Event handling in Java involves involves responding to user interactions or system generated events in graphical user interface (GUI) applications. Java provides an event handling mechanism through the AWT (Abstract Windows Toolkit) and Swing libraries. In event-driven programming, event listeners are attached to GUI components such as buttons, text fields or windows. When a specific event occurs such as a button click or keypress, the corresponding event listener's method is invoked to handle the event.

Difference between 'throw' and 'throws':

- 'throw': The 'throw' keyword in Java is used to explicitly throw an exception within a method or constructor. When an exceptional condition occurs within a method, you can use the 'throw' keyword to throw an exception manually. For example:

```
public void validateAge (int age){
        if (age <0) {
            throw new IllegalArgumentException ("Age can't be negative");
        }
}
```

- 'throws': The 'throws' keyword is used in method declarations to indicate that the method may throw one or more types of exceptions. It specifies the exceptions that the method might throw but does not handle them within the method. Instead, the caller of the method is responsible for handling these exceptions or propagating them further. For example:

```
public void readFile() throws IOException{
        // code that might throw IOException
}
```

In this example, the 'readFile' method declares that it may throw an 'IOException'.

Ques-4) Explain Internet addressing. How will you identify IP class?

Internet addressing numerical labels called IP addresses to devices connected to the internet. IP addresses are classified into five classes: A, B, C, D and E. Classes A, B and C are commonly used for addressing devices on the internet. You can identify the class of an IP address by examining the value of the first octet.

- Class A : 0 to 127
- Class B : 128 to 191
- Class C : 192 to 223
- Class D : 224 to 239
- Class E : 240 to 255

Ques-5) Describe the objective of any website. Which type of essential skills required being a member of web project team?

The objective of any website depends on its purpose and target audience. However, common objectives include:

1. Providing Information: Many websites aim to inform visitors about a particular topic, product, service, or organization.
2. E-commerce: Some websites are designed for buying and selling or services online.
3. Social Interaction: Social networking websites facilitate connections between users, allowing them to share content and engage in communities.
4. Entertainment: Websites offer entertainment content such as videos, games, music, or articles to engage visitors
5. Education: Educational websites provide resources, courses, tutorials or information to help users learn about specific topics.

Essential skills for a member of a web project team:

1. Web Developement: Proficiency in HTML, CSS, Jarascript, and frameworks like React or Angular.
2. Design: Understanding of design principles, UI/UX design, and experience with design tools like Adobe XD or sketch.
3. Programming: Knowledge of backend languages such as Python, PHP, Node.js for server side developement.
4. SEO and Digital Marketing: Understanding of SEO techniques, content optimisation, and digital marketing strategies.
5. Collaboration and Communication: Effective teamwork, communication, and problem-solving skills to work within a team & deliver successful projects.

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A+