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**OBJECT-ORIENTED PROGRAMMING**

**5. Encapsulation\_modifier exercises**

**1. List all disadvantages of the Procedural programming model.**

**Answer:**

*- Harder to understand as logical relation between data and functions is unclear*

*- Hard to maintain*

*- Hard to extend/expand*

**2. List four features of the Object-oriented programming model.**

**Answer:**

**-** *Encapsulation*

*- Inheritance*

*- Abstraction*

*- Polymorphism*

**3. What does “Encapsulation” mean in the the Object-oriented programming model?**

**Answer:**

- *Bundling data and associated functionalities*

*- Hide internal details and restricting access*

**4. List three features of the Procedural programming model.**

**Answer:**

- *View program as a process of transforming data*

*-Data and associated functions are separated*

*-Data is publicly accessible to everyone*

**5. Take an example to show the differences between the Procedural and Object-oriented programming models. The example must be not same with the examples in the lecture slides.**

**Answer:**

*-Ex pop: C,Vb,Fortran,pascal*

*-Ex oop: c++,java,vb.net,c#.net*

**6. What is the purpose of a (service) class?**

**-** *A template to create instance (objects) out of it.*

**7. What does a (service) class comprise?**

**Answer:**

*- A class comprises 2 types of members:*

*+ attributes (data members)*

*+ methods (behaviour members)*

**8. Can the constructors of a class be overloaded? Take an example.**

**Answer:**

*- In addition to overloading methods, we can also overload constructors in java. Overloaded constructor is called based upon the parameters specified when new is executed.*

*Ex: // An example class to understand need of*

*// constructor overloading.*

*class Box*

*{*

*double width, height,depth;*

*// constructor used when all dimensions*

*// specified*

*Box(double w, double h, double d)*

*{*

*width = w;*

*height = h;*

*depth = d;*

*}*

*// compute and return volume*

*double volume()*

*{*

*return width \* height \* depth;*

*}*

*}*

*As we can see that the Box() constructor requires three parameters. This means that all declarations of Box objects must pass three arguments to the Box() constructor. For example, the following statement is currently invalid:*

*Box ob = new Box();*

**9. List all modifiers for the attributtes and methods in a class.**

**Answer:**

*-final*

*-static*

*- abstract*

*- transient*

*- synchronized*

*- volatile*

**10. What do “Accessor” and “Mutator” methods mean ?**

**Answer:**

**-** *An accessor is a method that accesses (retrieves) the value of an object’s attribute*

*- A mutator is a method that mutates (modifies) the value of an object’s attribute*

**11. What is the output of the following JAVA program ?**

*File Geek.java in the package p1*

*package p1; class Geek*

*{*

*void display()*

*{*

*System.out.println("Hello World!");*

*}*

*}*

*File GeekNew.java in the package p2*

*package p2; import p1.\*;*

*//This class is having default access modifier class GeekNew*

*{ public static void main(String args[])*

*{*

*//accessing class Geek from package p1*

*Geeks obj = new Geek();*

*obj.display();*

*}*

*}*

**Answer***: Compile time error*

**12/ Predict the output of the program**

***package p1;***

***class A***

***{***

***private void display()***

***{***

***System.out.println("GeeksforGeeks");***

***}***

***}***

***class B***

***{***

***public static void main(String args[])***

***{***

***A obj = new A(); obj.display();***

***}***

***}***

**Answer***: error:display() has private access in A*

**13/ Predict the output of the following program.**

***File A.java in the package p1 package p1; public class A***

***{***

***public void display()***

***{***

***System.out.println("GeeksforGeeks");***

***}***

***}***

***File B.java in the package p2 package p2; import p1.\*; class B***

***{***

***public static void main(String args[])***

***{***

***A obj = new A;***

***obj.display();***

***}***

***}***

**Answer:** *GeeksforGeeks*

**14. Examine the following code. Where can the program use the variable fte?**

**Answer:** *A. In all classes within the program*

**15. Examine the following code. What is true about the variables and methods within the class NYCustomer?**

**Answer:** *B. They can be accessed by other packages and classes*

**16. Answer the question in the page 35 of the lecture slides**

**Answer:** *BankAcct*

**17. Give an example about class members and instance members, and how to access those members.**

**Answer:**

**18. What happen if the parameter of a method (or a local variable) has the same name as the data attribute? Give an example.**

**Answer:** *These methods will not work*

*public void setWord(String word) {*

*word = word;*

*}*

**19. Take an example about the “this” reference.**

**Answer:** *public Student(int age)*

*{ this.age=age;}*

**20. Take an example of using “this” reference in constructors.**

**Answer:** *public class Student {*

*private String name;*

*private int age;*

*public Student(int age) {*

*this.age = age;*

*}*

*public Student(String name) {*

*this.name = name;*

*}*

*public Student(String name, int age) {*

*this(name);*

*this.age = age;*

*}*

**21. How to compare two objects? Give an example.**

**Answer:** - *To compare if two objects have the same data values, we should use equals() instead of ==*

*- == compares the references of the objects instead*

**22. What is Unified Modeling Language? Give an example in the context of Object-oriented programming.**

**Answer:**

*-Graphical language*

*-A set of diagrams with specific syntax*

*-A total of 14 different types of diagram (as of UML2.2)*

*-Used to represent object oriented program components in a succinct way*

*-Commonly used in software industry*