Java Program

1. What is classes and object ?

Ans :- Class is a collection of objects and it doesn't take any space on memory , class is also called as blueprint/logical entity.

Types of class

a). Pre-defined (Scanner ,System, String ,Console)

b). User-defined (Demo , a , test)

a. User-defined class

Ans:- A class Which is created by java programmer is called User-defined class.

Ex:- class class_name

```
{
--- --- --- --- ---- --- // data
--- --- --- --- --- --- ---// methods
}
```

b. Pre-defined class

Ans:- In Java, predefined methods are the method that is already defined in the Java class libraries is known as predefined methods.

Ex:- Scanner ,System, String

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OBJECT:

:- Object is an instance of class that executes the class. once the object is created ,it takes up space like other variable in memory.

Syntax:- ClassName object = **new** ClassName();

Class & Object Program

```
public class Demo   // Concrete class

{

int a=10;

string b= ” Dillip ” ;

void show ()

{

 System . out . print ("a +”  “  + b ) ;

}

}

Class Test

{

Public static void main (string[ ] args )

{

Demo s = new Demo (  ) ;
```

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```
S . Show ( );

}

}
```

Output Screen

JavaC Text . java

Java text

```
10   Dillip
```

2.What is links and Association.

Ans:- Link is a physical , conceptual or conceptual connection between instance or object and many be same or different in class.

Ex:- (Person) Works for (Company)
Dillip (Hp)

Links Relation ship

 # Association :- An Association is the relationship among classes.

Ex:- (Person) Works for (Company)
Name name

Atributes

(Person) Employee (person)
Name name

(Association with Inverse direction)

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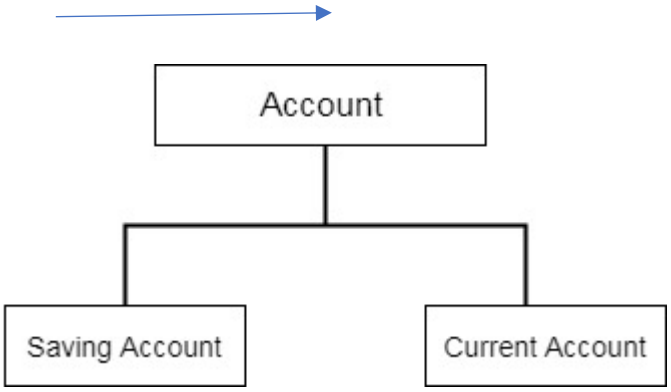
3. What is generalization and inheritance.

Ans:- **Generalization:** It is also referred as is a " relationship. It is relationship between a class (super class) and one or more variations of the class (sub classes). The super class holds common attributes, operations and association. The subclasses add specific attributes, operations and associations. Each sub class inherits the features of its super class.

Notation: A large hollow arrow head is used to show generalization. The arrowhead points towards the super class.

Ex :-



Inheritance: It is the mechanism of inheriting features of super class in its subclass. Inheritance provides reusability of code where code declared for super class can be used by its sub class.

Inheritance in used java

- Class
- Sub class /Child Class
- Super class/ Parent class
- Reusability

Syntax of java Inheritance

```
class Subclass-name extends Superclass-name
{
   //methods and fields
}
```

3. What is Aggregation.

Ans:-The Aggregation is a execute of Association, is a strong from of Association in which an aggregate class. component are part of the aggregate. this aggregate is the “part whole” or a part of “relationship”.

4. **What is Multiple Inheritance.**

Ans:- Multipte inheritance permits a class to have more than one superclass and to inherit features from all parents. Then you can mix information from two or more sources. Multiple lnheritance complicated form of generalization than single inheritance, which restricts the class hierarchy to a tree. The advantage of multiple inheritance is greater power in specifying classes and an increased opportunity for reuse. The disadvantage is a loss of conceptual and implementation simplicity.
The term multiple inheritance is used somewhat imprecisely to mean either the conceptual relationship between classes or the language mechanism that implements that relationship. Whenever possible, we try to distinguish between generalization (the conceptual relationship) and inheritance (the language mechanism), but the term "multiple inheritance" is more widely used than the term "multiple generalization."
Kinds of Muttiple Inheritace

5. What is Abstract class in detail? Detail.

Ans:- A class which contain the Abstract keyboard in its declaration is called abstract class.

Notes:- (i) We can't create object for abstract class.

(ii) It may or may not contain abstract methods.

Abstract class A

{

—----- —- —--

—---- —-- —--

}

(iii) To use an abstract class you have to inherit it from sub classes.

Ex:- abstract class animal {

……..

…..

}

Class dog extends animal

{

}

Class demo

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```
{
Public static void main (String [ ] args)
{
Animal r=new dog();
}
}
```

6. what is derived Data ?

Ans:- A derived element is a function of one or more elements, which in tum may be derived. A derived element is redundant, because the other elements completely determine it. Ultimately, the derivation tree terminates with base elements. Classes, associations, and attributes may be derived. The notation for a derived element is a slash in front of the element name .You should also show the constraint that determines the derivation. attribute. A derived attribute is a function of one or more elements.set with respect to assembly coordinates. We can define a coordinate system for each part that is derived from machine coordinates, assembly offset, and part offset. This coordinate system can be represented as a derived class called Offiet relate.dto each part by a derived association called, N et Offset.

7. What is Packages Diagram.

- Package diagram, a kind of structural diagram, shows the arrangement and organization of model elements in middle to large scale project.

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- Package diagram can show both structure and dependencies between sub-systems or modules, showing different views of a system, for example, as multi-layered (aka multi-tiered) application - multi-layered application model.

Basic Concepts of Package Diagram

- Package diagram follows hierarchal structure of nested packages. Atomic module for nested package are usually class diagrams. There are few constraints while using package diagrams, they are as follows.

- Package name should not be the same for a system, however classes inside different packages could have the same name.

- Packages can include whole diagrams, name of components alone or no components at all.

- Fully qualified name of a package has the following syntax.
- Basic Concepts of Package Diagram
- Packages can be represented by the notations with some examples shown below:

Unit 2

1. What is state Modelling?

Ans:- A state model describe the life of the object over a period of time and it also define the sequence of operations that are implemented on the object over that period of time.all the State model dear by represent Behaviour and control accept of the entire system.

Figure

Element of a state model

Types of event

Single event

Change event

time event

what is a state and state diagram behaviour

Answer the attributes value and links held by an object are called its a state at a single moment in time. A state describe the result (response) of the object to input event a state is an abstraction of the attributes value and link of an object. is called a state Diagram behaviour.

Ex- Class

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{

int roll num;

string name;

string add;

}

a state diagram behaviour explain.

ans:- A state diagram show the dynamic behaviour of a system. the state diagram describe the relationship between event and States. the state diagram is the best way to show the event -state relationship and their operation in the system. When an event is received, the next state depends on the current state as well as input event. the changing of a state which is called by an event is called a transitions.

a. Initial state
b. Final state
c. Decision box
d. Transition
e. State box

Type of state

(i)simple state

(ii) Composite state

(iii)

Submachine state

Figure

2. What is Dynamic modelling event and a state.

answer:- dynamic modelling the dynamic modelling describe student of software concern which time and the Sequencing of the operation.

events:- and invisible action form on the object and another is an event. and event is it something that I can this. relation of event to each other

Casually related: before after

Casually unrelated :concurrent

Ex:- 1. Train no 6903 departs from delhi

2.

Driver pushers the horn button.

Ex- input string entered(text)

Mouse button pushed (button,location)

Q. What is transitions and condition?

Ans:- transition:- A transition do notes a change in the state of an object .if an object is a certain State when an event occurs, the object may perform certain activities subject to specified condition and change the state.

the five part of a transition

source state

event Trigger

guard condition

Action

Target state

Figure

#Condition:-

Q what Is advance dynamic Modelling concept.

Ans:-Dynamic Modelling entry and exit action are features of advance dynamic Modelling. Action can be associated with entry and exiting a state an alternative to connecting them to transition. an entry action is performed when a state to be expressed in terms of matched entry and exit action without regard to what happens before a state becomes active.an internal action does not change the state it executes within the state.

Q A Simple dynamic Modelling.

Ans:-That dynamic model represents the time dependent aspects of a system. it is concerned with the temporal changes in the state of the objects in a system.

State

Transition

Event

Action

concurrency of transition

Q what is Interaction Modelling: use-case models.

ans:- Modelling user interaction is important as it help to identify user requirements.

Modelling system to system interaction highlights the communication problem that may arise.

modelling component interaction help us understand if a proposed system structure is likely to deliver the required system performance and dependability.

Use case diagram and sequence diagram may be used for interaction modelling.

use case Modelling

use cases where developed originally to support requirement Elicitation and now incorporated into the UML

Each use case represents a discrete task the involves external interaction with a system.

Actors in a use case may be people or other systems.

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