

Multi-level Inheritance:

```

class A {
    methodA();
}

class B : public A {
    methodB();
}

class C : public B {
    methodC();
}

```

class SuperCalculator : public SimpleCalculator, public ScientificCalculator {
 add(), subtract(), sq-root(), exponent();
}

object → { child } ; .

The diagram illustrates the class hierarchy and object creation. On the left, code defines three classes: A, B, and C. Class A has a method methodA(). Class B inherits from A and adds methodB(). Class C inherits from B and adds methodC(). On the right, a variable 'obj' is declared as type A. An arrow labeled 'dec' points from 'obj' to class A, with a circled '1' below it. Another arrow labeled 'inc' points from class A up to class B, with a circled '2' below it. A third arrow points from class B down to class C.

Polymorphism : → The process by which a same type can behave differently under different circumstances, is called polymorphism.

Praveen

Classroom → Student
Food Court → Customer
Home → Son

Poly → many morph
 ↳ forms or shapes

Role or character changes.

Types of polymorphism :

Static	Compile Time	Overloading
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Same Class

Dynamic	Run Time	Overshadowing	Multiple classes
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```
static void show();    main() {  
}  
{  
    A::show();
```

A % show ()

Overriding : →

Overriding

RBI → roi 8%

ICICI IDBI Canara SBI HDFC

roi → roi → roi → roi → roi

(override) +
the keyword is used.

<u>Father</u>	Building	Hotel	<u>visit</u>
<u>Son</u>	Building	Gym	<u>override</u>
Part	Building	Police	(C)

→ Daughter | Building | Boutique

Different Classes

Overriding

Sharing → What is happening (functionality)

Showing → What is happening (functionality)

Hiding → How it is happening (implementation)

Hiding the implementation details & only showing the functionality to the "end user" is called Prototyping. For better User Exp.

Data Abstraction

- * Abstraction (pure virtual functions) ***
- * Exception Handling (PBC, SBC)

- * DMA (CPP (new & delete))
- * Standard Template Library (W3Schools)
- * DSA Problems

* DSA Roadmap → 20275