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| **Inheritance** |
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|  | Inheritance is a process of creating new classes from existing classes to achieve reusability. |
|  | The class which is being inherited is known as 'Super class' and the class which inherits the other class is known as 'Sub class' |
|  | this allows all subclasses to inherit all properties of their parent classes. |
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|  | Inheritance represents the IS-A relationship |
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|  | There are different types of inheritance: |
|  | 1.Single Inheritance : only one super class |
|  | 2.Multiple Inheritance : many super classes |
|  | 3.Hierarchial Inheritance : one super class and and many subclasses |
|  | 4.Multi-level Inheritnace : class derived from a derived class |
|  | 5.Hybrid Inheritance : more than two types of forms(Multiple + MultiLevel) |
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|  | Benfits of Inheritance: we may have many benfits : |
|  | Software ReUse : When we inherit from class we no need to write the behaviour of super class. |
|  | Code Sharing : When two classes are inheriting same super class then the super class code can be shared in both the subclasses. |
|  | Improved Reliability : When we use inheritance repeatedly, we will have lesser bugs in that code because we are going through it every time we use inheritance |
|  | Consistency : when two classes inherit same super class then we can assure that same behaviour in all cases. |
|  | Rapid Prototyping : When we are developing a system with reusable components then we will get a chance to focus on new requirements. |
|  | Polymorphis : Inheritance allows subclasses to create high-level reusable components that can be specific need fit different applications by changes in their low level parts. |
|  | Infomation Hiding : while implementing inheritance we no need to understand the super class. We just need to understand the nature of the component and its interface for accessing. |
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|  | Costs of inheritance : |
|  | Execution Speed : The execution time for specialized methods in sub-classes is more faster than methods inherited from super class. |
|  | Program size : The use of any software library imposes a size penalty interms of speed and memory. |
|  | Program Complexity : Over use of inheritance will make code complexity. |
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