Polymorphism

Polymorphism is of 2 types

1. Static polymorphism
    - If which function is called is known at compile time, then it is called as static polymorphism.
    - If a class contains multiple functions with same name but different number of parameters, or different types of parameters are there then it is called function overloading. It helps in static polymorphism.
    - If return type of overloaded function may be different, it is still called as function overloading.
    - If we are creating a reference of child class, which is pointing to same class object, then also it is static polymorphism.

2. Dynamic polymorphism
   If which function is called is known at Run time then it is called as dynamic polymorphism.

Function overriding

1. If a parent class has one function may be abstract or normal function, and if the child class contains a function with same signature, then it is called as function overriding.
2. In function overriding security can be reduced, protected can be changed to public in child

```
class A{
     protected void f1(){
       SYSOUT("in A f1")
     }
    public void f2(){
  }
public void f4(){
}
}
```

```
class B extends A{
     public  void f1(){ //this is allowed
          SYSOUT("in B f1")
     }
Public void f3(){
    Sysout("in f3");
 }

   public void f2(){
      super.f2();
  }
}
Class TestB{
     public static void main(String[] args){
        A ob=new B();
       Ob.f1();
      Ob.f4();
       Ob.f3()  // error to call it use ((B)ob).f3()
  }
}
```

In java there are many modifiers

private, protected, public , default , static, final

In java final keyword is used to create constants,

1. A variable can be final, its value cannot be changed once initialized.

2. A final variable can be initialized at the time of declaration or inside the constructor;

```
public class MyClass {
    private final int i;
    public MyClass() {
        i=23;
    }

}
```

```
public class MyClass {
    private final int i=23;


}
```

3. A class can be final, it cannot be extended.
4. A function can be final, it cannot be overridden.