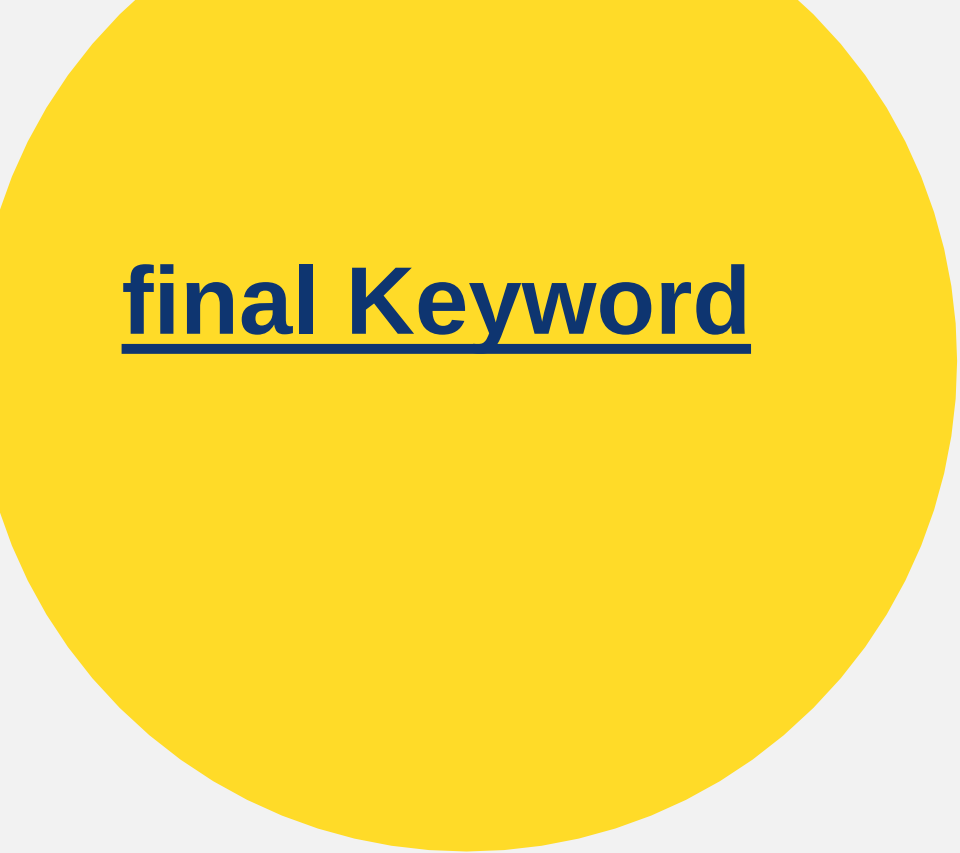
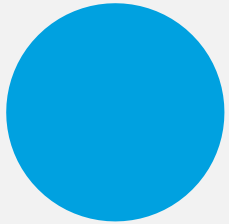
Final Keyword

Agenda

1 **final keyword**

final Keyword





Keyword final

- The **final** keyword used in context of behavioral restriction on:
  - variables
  - methods
  - classes
- Using final on variables to make them behave as constants which we have seen in earlier module.
- When a variable is made final – it can be initialized only once either by
  - Declaration and initialization

    final int x=10;
  - Using constructor
- System allows you to set the value only once; after which it can't be changed.

Quiz

What will be the output for the below code ?

```
public class Sample {
        final double pi;
        public Sample()
    {
     pi = 3.14;
    }
    public Sample(double pi)
    {
     this.pi = pi;
    }

    }
```

```
public static void main() {
          Sample ob = new
     Sample(22/7)

          System.out.println(ob.
     pi);
     }
```

The Role of the Keyword final in Inheritance

- The **final** keyword has two important uses in the context of a class hierarchy. These uses are highlighted as follows:

- Using final **to Prevent Overriding**
  - While method overriding is one of the most powerful feature of object oriented design, there may be times when you will want to prevent **certain critical methods in a superclass** from being overridden by its subclasses.
  - This can be achieved by declaring such critical methods as final.

Keyword final with methods- Example

/* Example for final methods*/

```
class GBase {
public final void display(String s){
   System.out.println(s);
}
}
class Sample extends GBase{
     public void display(String s) {
     System.out.println(s);
     }
   public static void main(String args[]) {
           Sample ob = new Sample();
           ob.display("TRY ME");
   }
 }
```

Output:

Compile Time Error : **Cannot override the final method from GBase**

The Role of the Keyword final in Inheritance (Contd.).

Sometimes you will want **to prevent a class from being inherited.**

- This can be achieved by preceding the class declaration with final.
- Declaring a class as final implicitly declares all of its methods as final too.

- It is illegal to declare a class as both abstract and final since an abstract class.

final methods- Example

```
final class GBase {
   public void display(String s){
   System.out.println(s);
   }
}
class Sample extends GBase{
      public void display(String s)
      {
            System.out.println(s);
      }
      public static void main(String args[]) {
       Sample ob = new Sample();
      ob.display("TRY ME");
   }
}
```

Output: Explain Why this CTE occurs?

Compile Time Error :
The type Sample cannot subclass the final class GBase

Quiz

What will be the output for the below code ?

```
class abstract GBase{
public final void testBase(){
System.out.println(“Hello World”);
}
}
```

Thank You