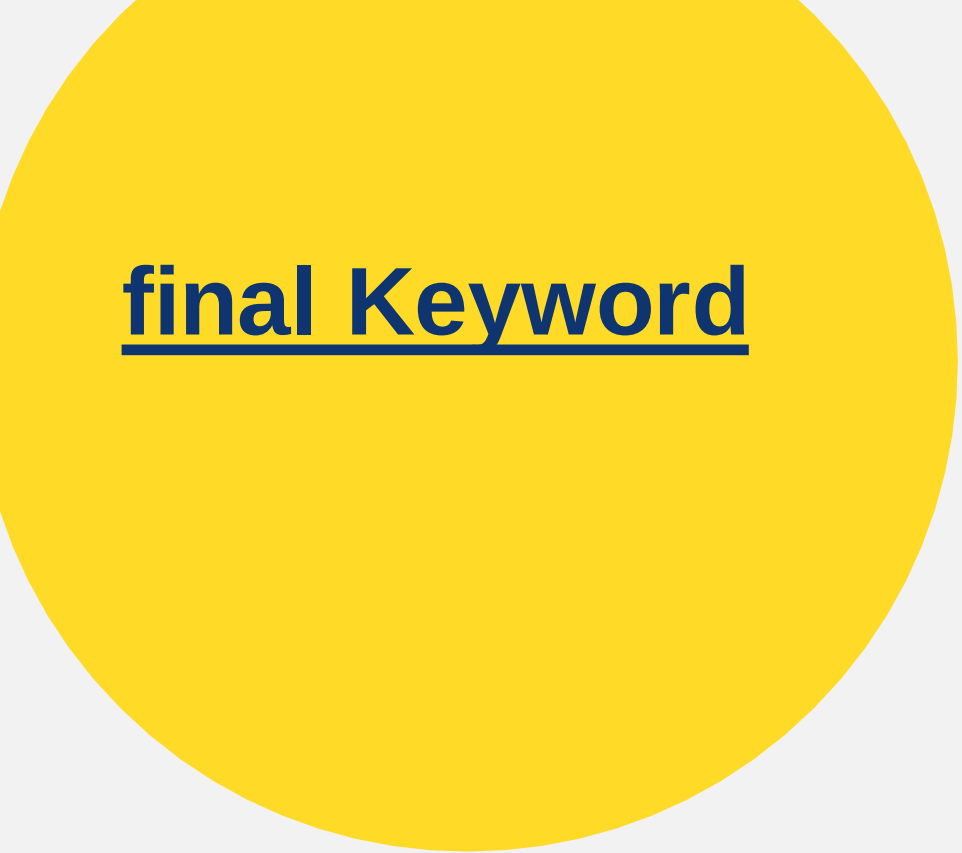
Final Keyword

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.
  - Rather, you would want the subclasses to use the methods as they are defined in the superclass.
  - 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.).

Using final to Prevent Inheritance

- 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 is incomplete by itself and relies upon its subclasses to provide concrete and complete implementations.

Keyword final with methods- Example

/* Example for final methods*/

```
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:

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”);
}
}
```


Assignment

Thank You