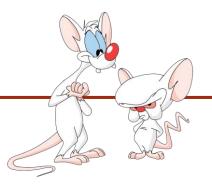
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Week 8-2: OCD9 edu_assist_pro

Giulia Alberini, Fall 2020

WHAT ARE WE GOING TO DO IN THIS VIDEO?



Java interface carsignment Project Exam Help

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The Java Comparable interface is used to define an ordering on objects of user-definionment Project Exam Help

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• Why would you want that? Well, if y ist of objects from a given class you might want to be at edu_assist_pro

Comparable is part of java.lang package and contains only one method named compareTo (Object).

```
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public i T>{
    int chttps://eduassistpro.github.io/
} Add WeChat edu_assist_pro
```

https://docs.oracle.com/javase/7/docs/api/java/lang/Comparable.html

Some of the methods from certain Java classes use compareTo() in their implementation. To function correctly, they assume to be working with comparable generic types Examples:

sort() from Arrays. https://eduassistpro.github.io/

Some of the methods from certain Java classes use compareTo() in their implementation. To function correctly, they assume to be working with comparable generic types Examples: Diect Exam Help

sort() from Collectio https://eduassistpro.github.io/

String IMPLEMENTS Comparable

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https://docs.oracle.com/javase/7/docs/api/java/lang/String.html

CLASSES THAT IMPLEMENT Comparable

Character, Integer, Florible, BigInteger, etc. all implement Comp

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You cannot compare objects of ses using the "<" operator. Instead use compareTo().

HOW TO IMPLEMENT Comparable

- * Add implements Comparable in the definition of the class.

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- Implement compahttps://eduassistpro.github.io/

```
public class T implements Comparable<T>{
   public int compareTo(T o) {...}
}
```

REQUIREMENT FOR IMPLEMENTING compareTo()

Consider two variable t1 and t2 or type T. Then,

```
Assignment Project Exam Help int , if t1 < t2
t1.compareTo(t2https://eduassistpro.github.io/t2)
Add WeChat edu_assist_pf@t2>t2
```

The relation should also be anticommutative and transitive.

Highly recommended:

```
(t1.compareTo(t2) == 0) == (t1.equals(t2))
```

EXAMPLE - CIRCLE

 Sometimes deciding how to compare elements of a given type can be straightforward.

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Let's think about the data

```
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public class Circ
priAddeWeathat edu_assist_pro
:
}
```

• How should we implement compareTo() and equals() in order to establish a natural ordering between elements of type Circle?

EXAMPLE - CIRCLE

• How should we implement compareTo() and equals() in order to establish a natural ordering between elements of type Circle?
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We could simply compare their radius (or their area).

CIRCLE - compareTo()

```
public class Circle extends Shape implements Comparable<Circle>{
  private double radius = 5;
  public int compareToAGsisighment Project Exam Help
      if (this.radius < c.r
         return -1;
                           https://eduassistpro.github.io/
      else if (this.radius
         return 0;
                           Add WeChat edu_assist_pro
      else
         return 1;
  public boolean equals(Object obj) {
      return obj instanceof Circle && ((Circle) obj).radius == this.radius;
```

EXAMPLE - ORC

 Other times, is not so straightforward. Suppose we have created a new data type Orc.

Assignment Project Exam Help type?

How should we compare

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Base on their name? On their height? On their weapon? On who is scarier?

ORC-compareTo() TAKE 1

```
public class Orc implements Comparable<Orc> {
  private String name;
  private int height; Assignment Project Exam Helpsame height to be equal.
  private Weapon w;
  return -1; Add WeChat edu_assist_prompareTo() violates the Java else if (this.height == o.heigh
        return 0;
       else {
        return 1;
```

- Note that in this case we probably don't want to consider two Orcs with the
- implementation of
 - Such violation should be clearly indicated using the following language: "Note: this class has a natural ordering that is inconsistent with equals."

ORC - compare To () TAKE 2

```
public class Orc implements Comparable<Orc> {
   private String name;
   private Integer height Assignment Project Exam Help
   private Weapon w;
   public int compareTo(Orc o
      int result = this.w.com https://eduassistpro.github.jo/
      if(result==0) {
          result = this.height Add WetChat edu_assist_pro
      if(result == 0) {
          result = this.name.compareTo(o.name);
      return result;
```

- We can also use compareTo() to compare multiple characteristics.
- Generally, it is better to reuse existing code than to write our own.
 Thus, in this case, we can use the compareTo() methods from other classes to.

TO RECAP

- Comparable defines a natural ordering.
 Assignment Project Exam Help
- If you define a new dhttps://eduassistpro.githukeisense to you, then you should implement Compar ne a natural ordering on objects of such type.



Assignment Project Exam Help In the next

Iterable https://eduassistpro.github.io/