Object Oriented Programming with Java (Subject Code: BCS-403)

Unit 3

Lecture 26

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- Text Blocks
- Records
- Sealed Classes

Text Blocks in Java 15

- In earlier releases of the JDK, embedding multi-line code snippets required a tangled mess of explicit line terminators, string concatenations, and delimiters.
- Text blocks eliminate most of these obstructions, allowing you to embed code snippets and text sequences more or less as-is.
- A text block is an alternative form of Java string representation that can be used anywhere a traditional double-quoted string literal can be used.

Text blocks begin with a “”” (3 double-quote marks) observed through non-obligatory whitespaces and a newline.

```
/ Using a literal string
String text1 = "Geeks For Geeks";

// Using a text block
String text2 = """
                Geeks For Geeks""";
```

Example of text blocks

```
public class MyMain {
public static void main(String[] args) {
String text1="""
                hii
                     how are you
Welcome to ABES Engineering College""";
System.out.println(text1);
}
}
```

The object created from text blocks is java.lang.String with the same properties as a regular string enclosed in double quotes.

This includes the presentation of objects and the interning.

Example of Text Blocks

```
public class MyMain {
public static void main(String[] args) {
// Using a literal string
String text1 = "ABES Engineering COllege";
// Using a text block
String text2 = """
ABES Engineering COllege""";
// Both text1 and text2 are strings of equal
value
System.out.println(text1.equals(text2)); // true
System.out.println(text1==text2);
}
}
```

Records

Records are a better choice than classes in situations where you are primarily storing data and not defining any behavior.

Why Records are good for storing data

- With a Record, you can define the data fields in one line of code, instead of having to define a constructor and getter/setter methods for each field in a class. This makes your code shorter, easier to read, and less prone to errors.
- Records have a built-in equals() and hashCode() method, which makes it easy to compare two instances of a Record based on their values

Data Transfer Objects (DTOs)

Records are a good fit for DTOs, which are used to transfer data between different parts of an application.

With records, you can define DTOs with just a few lines of code, reducing the amount of boilerplate code you need to write.

```
public record PersonDTO(String firstName, String lastName, int age) {}
```

Immutable objects

- Records are immutable by default, making them a good choice for classes that should not be modified after instantiation.
- With records, you don’t need to write any code to make the class immutable — it’s done for you automatically.

```
public record Temperature(double value, String unit) {}
```

Person Record

```
public record Person(String name, int age) {}
```

Sealed Class in Java

- A sealed class is a technique that limits the number of classes that can inherit the given class.
- This means that only the classes designated by the programmer can inherit from that particular class, thereby restricting access to it.
- when a class is declared sealed, the programmer must specify the list of classes that can inherit it.
- The concept of sealed classes in Java was introduced in Java 15.

Steps to Create a Sealed Class

- Define the class that you want to make a seal.
- Add the “sealed” keyword to the class and specify which classes are permitted to inherit it by using the “permits” keyword.

Example of Sealed Class

```
sealed class Human permits Manish, Vartika, Anjali
{
   public void printName()
   {
      System.out.println("Default");
   }
}
```

```
non-sealed class Manish extends Human
{
public void printName()
   {
       System.out.println("Manish Sharma");
   }
}
sealed class Vartika extends Human
{
   public void printName()
   {
       System.out.println("Vartika Dadheech");
   }
}
```

```
final class Anjali extends Human
{
   public void printName()
   {
       System.out.println("Anjali Sharma");
   }
}
```

Child classes of a sealed class must be sealed, non-sealed, or final.