Java 15

Links :-

1. http://openjdk.java.net/projects/jdk/15/
2. https://cr.openjdk.java.net/~iris/se/15/latestSpec/apidiffs/overview-summary.html (API differences)
3. https://www.oracle.com/java/technologies/javase/15-relnote-issues.html#NewFeature

Sealed Classes and interfaces:-

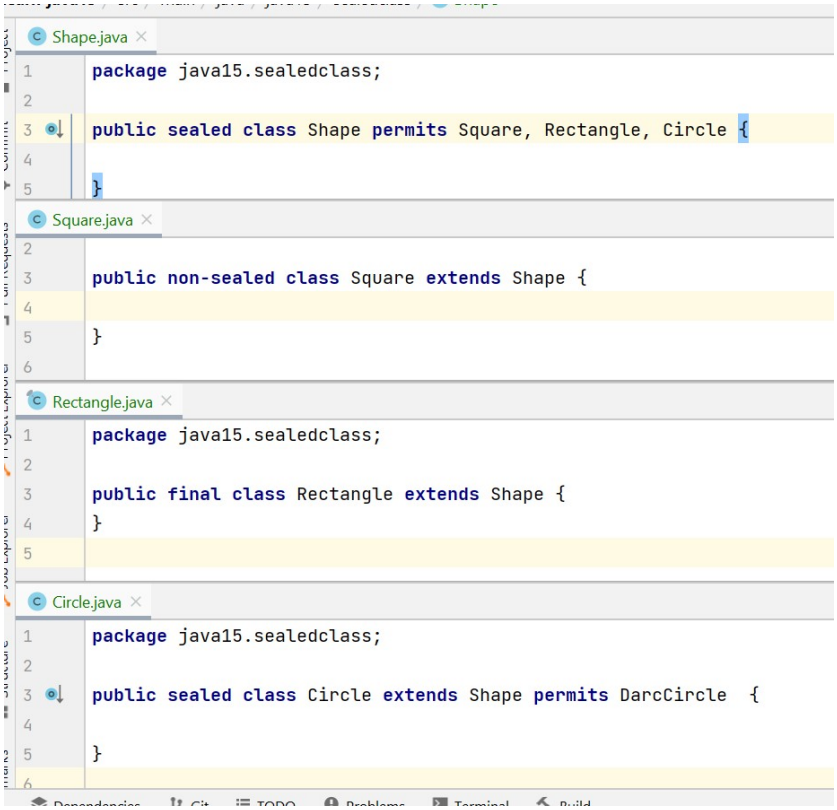
1. Main concept behind sealed class is to control the inheritance of classes. Means sealed classes and interfaces restricts which other classes and interfaces can extend or implement them.
2. Sealed classes and interfaces can be extended or implemented in the permitted classes and interfaces.
3. A class can be sealed by placing "sealed" modifier to its declaration.
4. We have to provide the list of classes and interfaces who can extends and implements them by help of "permits" clause. For ex:-

```
public sealed class Shape permits Square, Triangle, Rectangle {

}
```

5. A sealed classes must have sub classes.
6. Every permitted subclass must directly extend the sealed class.
7. Each sub class must be declared as final, sealed or non-sealed.
8. All super and sub classes of the hierarchy, should be in the same module and, in same package(If declared in unnamed module).
9. A sealed and non-sealed class can be declared as abstract class and can have abstract method(s).
10. Rest of the inheritance rules are same. This concept is just to control the inheritance or code reusability.

11. Example of sealed classes:-



Shape.java

```
package java15.sealedclass;

public sealed class Shape permits Square, Rectangle, Circle {

}
```

Square.java

```
public non-sealed class Square extends Shape {

}
```

Rectangle.java

```
package java15.sealedclass;

public final class Rectangle extends Shape {
}
```

Circle.java

```
package java15.sealedclass;

public sealed class Circle extends Shape permits DarcCircle  {

}
```

12. Sealed interfaces can work with records as well. Because records are implicit final.
13. We can not use sealed classes with records because record can not extend any class explicitly.
14. We can not directly extend the sealed class to any class other then its permitted list. But we can use its functionality by following way:-

```
Sealed Class -> non-sealed class -> Normal class
```

15. As per diagram, Normal class will have all the functionality of Sealed class. We can refuse it by making final sub class.
16. All the rules are same for sealed classes and interfaces. Classes should be extended and interfaces can be extended/implemented.

Enhancement in Record:-

1. We can use sealed interfaces with record type.

2. We can declare local records. For ex:-

```java
public class RecordMain {

    public static void main(String[] args) {

        String name = getStudentName();
        System.out.println(name);

    }

    private static String getStudentName() {

        record Student(String name) {
            // any data manipulation logic
        }

        return new Student( name: "Manish").name();
    }
}
```

3.