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**Module java**

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SimpleCount

#### Technical choice

#### JavaFX (FXML and SceneBuilder)

### JavaFX performs well

JavaFX leverages a high-performance hardware-accelerated graphics pipeline to give you complex UI rendering that performs well. High performance is especially crucial for 3D applications.

### 2. JavaFX has properties and binding

JavaFX properties are similar to the familiar JavaBeans properties with getters and setters. However, JavaFX properties are observable and encapsulate an event-delivery mechanism. With a single statement, you can specify binding relationships that are more concise and less error-prone than traditional event listeners.

### 3. JavaFX can be styled with CSS

As of JavaFX 8, all JavaFX controls are styled with the Modena style sheet, which replaces the initial default style. You can provide your own CSS styling as well. Since CSS is a well-entrenched standard recognized by UI designers, you can easily have your UI styled by designers.

### 4. JavaFX scenes can be defined with FXML

FXML is an XML markup language that lets you define JavaFX scene graphs. JavaFX controller classes manage dynamic content and event handlers. This division of FXML and controller class helps to separate the view and controller.

### 5. JavaFX Scene Builder is a great tool for creating JavaFX UIs

JavaFX Scene Builder is a stand-alone program that builds JavaFX UIs via drag-and-drop. Scene Builder also provides control-specific dialogs to customize components. Scene Builder generates FXML, and, like CSS, can be used by UI designers.

### 6. JavaFX is based on a scene graph model that is superior to models used by Java 2D and Swing

With JavaFX, you define UI elements in terms of a hierarchical structure (a *scene graph*) and specify transforms to position elements relative to one another. The scene graph model makes transformations such as animations and effects easy to achieve. This means you can use JavaFX to create UIs that are compelling and engaging with much less effort than would be required in Swing.

#### BigDecimal

### Advantages and Inconvenients

A BigDecimal is an exact way of representing numbers. A Double has a certain precision. Working with doubles of various magnitudes (say d1=1000.0 and d2=0.001) could result in the 0.001 being dropped alltogether when summing as the difference in magnitude is so large. With BigDecimal this would not happen. The disadvantage of BigDecimal is that it's slower, and it's a bit more difficult to program algorithms that way (due to + - \* and / not being overloaded).

#### JavaDoc

### Advantages

Besides producing professional-looking documentation, javadoc also has these advantages:

* Because the program documentation is right in the program itself, it's much easier to keep it up to date.
* It's easy to recreate the documentation when the program is changed.
* When working in a group, it's a really convenient way to see how to use the code written by others
* The majority of Java programmer use Javadoc (and not Doxygen).

#### MVC pattern

### 1. Separation of concerns:

- The separation the three components, allows the re-use of the business logic across applications.

- Multiple User Interfaces can be developed without concerning the codebase

### 2. Developer specialization and focus:

- The developers of UI can focus exclusively on the UI screens without bogged down with business logic.

- The developer of Model / business can focus exclusively on the business logic implementations, modifications, updations without concerning the look and feel and it has nothing to with business logic.

### Parallel development by separate teams:

- Business logic developers can build the classes, while the UI developers can involve in designing UI screens simultaneously, resulting the interdependency issues and time conservation.

- UI updations can be made without slowing down the business logic process

- Business logic rules changes are very less that needs the revision / updations of the UI.