

## JavaFX Panels

HBox  
VBox  
StackPane  
TilePane  
FlowPane  
BorderPane

## JavaFX Components

Button            MediaView  
ToggleButton    ToggleGroup  
CheckBox        DateChooser  
Slider          TextField  
RadioButton     Rectangle  
Label           Circle

## JavaFX Animations

Transition       Path  
Timeline        MoveTo  
FadeTransition   QuadCurveTo  
PathTransition   LineTo  
SequentialTransition ArcTo  
ParallelTransition

### Node

```
//Centrare un elemento in un contenitore
elemento.setAlignment(Pos.CENTER)
```

### BorderPane

```
//Spaziatura elementi
BorderPane.setMargin(element, new Insets(10));
```

### TilePane

```
//Imporre il numero di colonne
tilePane.setPrefColumns(0);
```

### Button

```
//Far estendere la larghezza del pulsante a tutto
button.setPrefWidth(Double.MAX_VALUE);
```

### HBox

```
//Far si che un elemento del HBox si ridimensioni
//sempre per occupare tutto lo spazio
button.setMinWidth(0);
button.setMinHeight(0);
button.setMaxWidth(Double.MAX_VALUE);
HBox.setHgrow(button, Priority.ALWAYS);
```

```
//Far si che due elementi del HBox si dividano
//tutto lo spazio orizzontale
HBox.setHgrow(button1, Priority.ALWAYS);
HBox.setHgrow(button2, Priority.ALWAYS);
```

```
//Reagire al ridimensionamento
widthProperty().addListener(
    new ChangeListener<Number>() { ... }
);
```

### PathTransition

```
MoveTo moveTo = new MoveTo();
moveTo.setX(0.0f);
moveTo.setY(50.0f);
HLineTo hLineTo = new HLineTo();
hLineTo.setX(70.0f);
```

```
QuadCurveTo quadCurveTo = new QuadCurveTo();
quadCurveTo.setX(120.0f);
quadCurveTo.setY(110.0f);
quadCurveTo.setControlX(100.0f);
quadCurveTo.setControlY(50.0f);
```

```
LineTo lineTo = new LineTo();
lineTo.setX(175.0f);
lineTo.setY(105.0f);
```

```
ArcTo arcTo = new ArcTo();
arcTo.setX(50.0f);
arcTo.setY(50.0f);
arcTo.setRadiusX(50.0f);
arcTo.setRadiusY(50.0f);
```

```
Path path = new Path();
path.getElements().add(moveTo);
path.getElements().add(quadCurveTo);
path.getElements().add(...);
```

### Alert

```
//Mostrare un messaggio di errore modale
Alert alert = new Alert(Alert.AlertType.ERROR);
alert.setTitle("Titolo");
alert.setContentText("Contenuto");
alert.showAndWait();
```

### TextInputDialog

```
//Richiedere all'utente un testo
TextInputDialog dialog = new TextInputDialog("default");
dialog.setTitle("Title");
dialog.setContentText("Content");
Optional<String> result = dialog.showAndWait();
```

### Transition

```
//Animazione che fa apparire il testo progressivamente
final Animation animation = new Transition() {
    {setCycleDuration(Duration.millis(2000));}

    protected void interpolate(double frac) {
        final int length = content.length();
        final int n = Math.round(length * (float) frac);
        text.setText(content.substring(0, n));
    }
};
```

### Timeline

```
//Esempio utilizzo
Timeline timeline = new Timeline();
timeline.getKeyFrames().addAll(
    new KeyFrame(Duration.ZERO, // set start position
        new KeyValue(ball.translateXProperty(), 0),
        new KeyValue(ball.translateYProperty(), 0)
    ),
    new KeyFrame(new Duration(2000), // end position at 2s
        new KeyValue(ball.translateXProperty(), 200),
        new KeyValue(ball.translateYProperty(), 100)),
    new KeyFrame(new Duration(4000), // end position at 4s
        new KeyValue(ball.translateXProperty(), 200),
        new KeyValue(ball.translateYProperty(), 0))
);
timeline.play();
```

### Events hierarchy

