Implementing an animated wait note in QML and showing it while running time consuming JavaScript functions

This code snippet shows how to implement a wait note with a spinning animation in QML. The snippet also shows how to run heavy JavaScript functions at the same time using a `WorkerScript`, and then clear the wait note when the operations complete.

Overview

QML's NumberAnimation element and `rotation` property are used to create a spinning wait note without using animated GIF files. The wait note is implemented as a custom component defined in `WaitNote.qml`, so it can be created dynamically and destroyed when needed by using the Loader element. The main element of `WaitNote.qml` is MouseArea for disabling all the mouse events when the wait note is being shown. The image used in the animation is shown on the right.

Wait notes are meant to indicate that some long-running operations are being done. Usually these kinds of operations block the main GUI thread of the application and the animation cannot be played. This problem is avoided by using the WorkerScript element, which makes it possible to run JavaScript functions in a new thread.

When the JavaScript functions need to be run, the `WaitNote` component is loaded and a message is sent to the `WorkerScript` element. The `WorkerScript` element then runs the functions and when they are finished a message is sent back. When this message is received, the `WaitNote.qml` component is destroyed and the values returned by the functions are ready to be used.

Preconditions

Qt 4.7 or higher is installed.

Sources

WaitNote.qml

```
import QtQuick 1.0

MouseArea {
    id: waitNote

    anchors.fill: parent
    Image {
        anchors.centerIn: parent
        source: "waitNote.png"
        NumberAnimation on rotation {
            loops: Animation.Infinite
            from: 0
            to: 360
            duration: 1500 // Define the desired rotation speed.
        }
    }
}
```

Using of WaitNote.qml

```
import QtQuick 1.0
```


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```
Item {

    //...

    /* Call this function to run the time
       consuming JavaScript functions. */
    function runFunctions() {
        loader.source = "WaitNote.qml"
        worker.sendMessage({});
    }

    Loader {
        id: loader
        anchors.fill: parent
    }

    WorkerScript {
        id: worker
        source: "script.js"

        onMessage: {
            loader.source = "";
            // Now the returned values can be used.
            console.log(messageObject.returnValue);
        }
    }

    //...

}
```

scripts.js

```
function heavyFunction() {
    /* Long-running operations and calculations
       are done here. */
}

WorkerScript.onMessage = function(message) {
    var retVal = heavyFunction();
    WorkerScript.sendMessage({returnValue: retVal})
}
```

Postconditions

This code snippet demonstrated how to implement a wait note with a spinning animation in QML. The snippet also demonstrated how to play the animation and run heavy JavaScript functions at the same time.

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