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Slint Toolkit GUI Training

2 days (14 hours)

Overview

Slint is a modern GUI toolkit for creating fast, lightweight interfaces in Rust, C++, or via bindings. It is suitable for desktop applications and especially for embedded/IoT projects where performance and memory footprint matter.

This training guides you through designing a UI with the declarative .slint language, connecting the view to the code (callbacks, properties, models), and structuring a maintainable application. You'll learn to prototype quickly, then scale the interface (reusable components, styles, resources).

The approach is hands-on: step-by-step workshops, demos, and refactoring exercises. Deliverables: a complete mini-project (screens, navigation, forms, lists), a project skeleton ready for expansion, and a checklist of best practices (architecture, performance, packaging).

Like all our training courses, this one will introduce you to **the latest stable version** of the technology and its new features.

Objectives

- Install and configure a Slint project with Rust or C++.
- Build screens in .slint (layouts, widgets, styles).
- Link the UI and business logic (properties, callbacks, models).
- Manage navigation, states, and form validation.
- Compile, test, and package the application for distribution.

Target Audience

- Rust developers looking to create a modern GUI.

- C++ developers working on desktop tools.
- Embedded/IoT engineers with a need for lightweight GUIs.
- Tech leads looking for an alternative to Qt in certain cases.

Prerequisites

- Solid programming fundamentals (structures, functions, modules).
- Basic knowledge of Rust or C++ (your choice).
- Understanding of UI concepts (events, state, components).
- Experience using a terminal and a dependency manager.

Technical prerequisites

- PC with at least 8 GB of RAM (16 GB recommended).
- Linux, macOS, or Windows (WSL2 accepted).
- Tools: Rust toolchain (cargo) or C++ compiler, Slint (CLI/SDK).
- Editor: VS Code, IntelliJ, CLion, or equivalent.

Slint Toolkit GUI Training Program

[Day 1 - Morning]

Getting started with Slint: concepts, the .slint language, and tools

- Slint positioning: cross-platform GUI, embedded, desktop, performance
- Installing the toolchain: Rust or C++, Slint CLI, IDE integration
- Understanding the structure of a .slint file: components, properties, callbacks
- First screen: basic elements (Text, Button, Image), compilation, and execution
- Hands-on workshop: creating a “Hello UI” application with a button and a counter.

[Day 1 - Afternoon]

Layouts, styling, and reusable components

- Building the interface: VerticalLayout, HorizontalLayout, Grid, constraints, and alignments
- Themes and styles: colors, fonts, states (hover/pressed), visual properties
- Creating reusable components: Component API, simple slots, encapsulation
- Resource management: images, icons, paths, packaging
- Hands-on workshop: building a “Settings” screen with reusable components (toggle, card, header).

[Day 2 - Morning]

Interactions, data binding, and data models

- Data binding: properties, two-way binding, expressions, and conversions
- Events: callbacks, focus management, keyboard/mouse/touch interactions
- Lists and loops: for, ListView, templates, and delegates
- Validation and UI states: fields, errors, conditional activation/deactivation
- Hands-on workshop: building a to-do list with add/delete, filtering, and item counting.

[Day 2 - Afternoon]

Integration with Rust/C++: business logic, architecture, and deployment

- UI & backend connection: exposing properties/callbacks, calls from Rust/C++
- State management: structuring (lightweight MVVM), UI/business logic separation, logic testing
- Asynchronous operations and long-running tasks: timers, threads, safe UI updates
- Build & distribution: profiles, optimization, cross-compilation, minimal packaging
- Hands-on workshop: finalize a “Dashboard” mini-app (list + detail) with simple persistence and release build.

Target Companies

This training is intended for both individuals and companies, large or small, wishing to train their teams in a new advanced IT technology or to acquire specific business knowledge or modern methods.

Entry-level assessment

The pre-training assessment complies with Qualiopi quality standards. Upon final registration, the learner receives a self-assessment questionnaire that allows us to evaluate their estimated proficiency in various types of technologies, as well as their expectations and personal goals regarding the upcoming training, within the limits imposed by the selected format. This questionnaire also allows us to anticipate certain connection or internal security issues within the company (intra-company or virtual classroom) that could pose challenges for monitoring and ensuring the smooth running of the training session.

Teaching Methods

Practical Course: 60% Practical, 40% Theory. Training materials distributed in digital format to all participants.

Organization

The course alternates between theoretical input from the trainer, supported by examples and reflection sessions, and group work.

Assessment

At the end of the session, a multiple-choice questionnaire is used to verify that the skills have been properly acquired.

Certificate

A certificate will be issued to each trainee who has completed the entire training program.