

PyQt5 Advanced Concepts Quiz

Quiz: Advanced PyQt5 Concepts

This quiz evaluates your understanding of advanced PyQt5 concepts, including signals and slots, multithreading, custom widgets, and event handling. Answer the following questions in detail.

Question 1: Signals and Slots (4 Marks)

Explain the difference between 'pyqtSignal' and 'pyqtSlot'. Provide an example of how you would use them to communicate between two custom widgets in a PyQt5 application.

Question 2: Multithreading with QThread (4 Marks)

Describe how you would use 'QThread' to perform a time-consuming task in the background without freezing the main UI. What are the potential pitfalls of using 'QThread', and how can you avoid them?

Question 3: Custom Widgets (4 Marks)

Create a custom widget in PyQt5 that combines a 'QSlider' and a 'QLabel'. The label should display the current value of the slider. Provide the code for the custom widget and explain how you would use it in a main application.

Question 4: Event Handling (4 Marks)

How does PyQt5 handle user events such as mouse clicks and key presses? Provide an example of how you would override the 'mousePressEvent' method in a custom widget to display a message when the user clicks on it.

Question 5: Advanced UI Design (4 Marks)

Explain how you would create a dynamic UI in PyQt5 that updates based on user input. Provide an example of a form where selecting an option in a 'QComboBox' updates the contents of a 'QTableWidget'.

Total Marks: 20

- Question 1: 4 Marks
- Question 2: 4 Marks
- Question 3: 4 Marks
- Question 4: 4 Marks
- Question 5: 4 Marks

Estimated Duration: 2 Hours

This quiz tests your deep understanding of advanced PyQt5 concepts and your ability to apply them in real-world scenarios. Good luck!