PyQt5 Problem-Solving Quiz

Quiz: PyQt5 Problem-Solving

This quiz evaluates your problem-solving skills and ability to apply PyQt5 concepts to real-world scenarios. Answer the following questions in detail.

Question 1: Debugging a Multithreaded Application (4 Marks)

You are given a PyQt5 application that uses 'QThread' to perform a background task. However, the application crashes when the thread is stopped. Identify the potential causes of the crash and provide a solution to fix it.

Question 2: Optimizing UI Performance (4 Marks)

A PyQt5 application with a large 'QTableWidget' is experiencing performance issues when loading thousands of rows. How would you optimize the performance of the UI? Provide specific techniques and code examples.

Question 3: Custom Signal Implementation (4 Marks)

You need to implement a custom signal in a PyQt5 application that emits a list of integers. Write the code to define the signal, connect it to a slot, and emit the signal with a sample list of integers.

Question 4: Dynamic Layout Management (4 Marks)

Explain how you would create a dynamic layout in PyQt5 that adjusts based on the number of widgets added at runtime. Provide an example of adding and removing widgets from a 'QVBoxLayout' dynamically.

Question 5: Advanced Event Filtering (4 Marks)

How would you implement an event filter in PyQt5 to intercept and handle specific events (e.g., mouse clicks) for multiple widgets? Provide a code example and explain how the event filter works.

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 ability to solve complex problems and apply advanced PyQt5 concepts in real-world scenarios. Good luck!