Beginner's Qt XML Exam

Introduction to XML with Qt

Exam Instructions

- Complete all 4 exercises
- Time: 30 minutes per exercise
- Use Qt's XML classes (QXmlStreamReader/QXmlStreamWriter)
- No prior XML knowledge required

1 Exercise 1: Creating a Simple XML File

Create a Qt application that:

- Has a "Create XML" button
- Generates this XML structure when clicked:

```
<patient>
    <name>Alice</name>
    <age>5</age>
</patient>
```

- Saves it as "patient.xml"

Questions to Consider:

- Which Qt class should you use to write XML files?
- How do you properly close the file after writing?

2 Exercise 2: Reading an XML File

Extend your application to:

- Add a "Load XML" button
- Read the "patient.xml" file
- Display the name and age in QLabels

Questions to Consider:

- What's the difference between QXmlStreamReader and QDomDocument?

- How do you handle errors while reading XML?

3 Exercise 3: Working with Attributes

Modify your XML structure to include attributes:

```
<patient id="101" vaccinated="yes">
    <name>Alice</name>
    <age>5</age>
</patient>
```

Tasks:

- Update your writer to include attributes

- Update your reader to extract attributes

- Display the ID and vaccination status

Questions to Consider:

- When should you use attributes vs child elements?

- How do you read an attribute's value?

4 Exercise 4: Multiple Records in XML

Modify your application to handle multiple patients:

```
<patients>
    <patient id="101">
        <name>Alice</name>
        <age>5</age>
    </patient>
    <patient id="102">
        <name>Bob</name>
        <age>7</age>
    </patient>
</patients>
```

Tasks:

- Add a QListWidget to display patient names

- Implement loading all patients

- Add functionality to save multiple patients

Questions to Consider:

- How do you loop through multiple XML elements?

- What happens if the XML structure is invalid?

Qt XML Classes Covered

- `QXmlStreamWriter` - For writing XML

- `QXmlStreamReader` - For reading XML

- `QFile` - File handling

- `QDomDocument` - Alternative DOM approach

Tips for Beginners

- Start with simple XML structures

- Always check for file operation success

- Use `QXmlStreamReader` for most cases

- Test with small files first