2025-读写文件详解--零声教育

一、读写文本文件（QFile 类）

1、Qt 开发中的 QFile 类支持对文件进行读取、写入、删除、复制、重命名等相关操作，它既可以操作文本文件，也可以操作二进制文件。

Detailed Description

The QFile class provides an interface for reading from and writing to files.

QFile is an I/O device for reading and writing text and binary files and resources. A QFile may be used by itself or, more conveniently, with a QTextStream or QDataStream.

The file name is usually passed in the constructor, but it can be set at any time using setFileName(). QFile expects the file separator to be '/' regardless of operating system. The use of other separators (e.g., '\') is not supported.

You can check for a file's existence using exists(), and remove a file using remove(). (More advanced file system related operations are provided by QFileInfo and QDir.)

The file is opened with open(), closed with close(), and flushed with flush(). Data is usually read and written using QDataStream or QTextStream, but you can also call the QIODevice-inherited functions read(), readLine(), readAll(), write(). QFile also inherits getChar(), putChar(), and ungetChar(), which work one character at a time.

The size of the file is returned by size(). You can get the current file position using pos(), or move to a new file position using seek(). If you've reached the end of the file, atEnd() returns true.

创建 QFile 类的对象，常用的构造函数有：

- QFile::QFile();
- QFile::QFile(const QString &name);

Member Function Documentation

QFile::**QFile**()

Constructs a QFile object.

QFile::**QFile**(const **QString** &*name*)

Constructs a new file object to represent the file with the given *name*.

QFile::**QFile**(**QObject** **parent*)

Constructs a new file object with the given *parent*.

QFile::**QFile**(const **QString** &*name*, **QObject** **parent*)

Constructs a new file object with the given *parent* to represent the file with the specified *name*.

`[virtual]` QFile::**~QFile**()

Destroys the file object, closing it if necessary.

2、Qt 官方提供相关技术查阅如下：

QFile Class

The QFile class provides an interface for reading from and writing to files. More...

Header: #include <QFile>

qmake: QT += core

Inherits: QFileDevice

Inherited By: QTemporaryFile

- List of all members, including inherited members
- Obsolete members

Note: All functions in this class are reentrant.

Reading Files Directly

The following example reads a text file line by line:

```
QFile file("in.txt");
if (!file.open(QIODevice::ReadOnly | QIODevice::Text))
    return;

while (!file.atEnd()) {
    QByteArray line = file.readLine();
    process_line(line);
}
```

The QIODevice::Text flag passed to open() tells Qt to convert Windows-style line terminators ("\r\n") into C++-style terminators ("\n"). By default, QFile assumes binary, i.e. it doesn't perform any conversion on the bytes stored in the file.

二、读写二进制文件（QDataStream 类）

1、QTextStream 类读写文本文件，提供很多读写文件相关的方法，还可以设定写入到文件中的数据格式，比如对齐方式等等。

创建 QDataStream 对象常用的构造函数为：

- QDataStream::QDataStream(QIODevice *d);

2、QDataStream 类的用法和 QTextStream 非常相似，主要区别在于 QDataStream 用于读写二进制文件。

3、Qt 官方提供相关技术查阅如下：

QTextStream Class

The QTextStream class provides a convenient interface for reading and writing text. More...

Header: #include <QTextStream>

qmake: QT += core

- List of all members, including inherited members

Note: All functions in this class are reentrant.

Public Types

enum **FieldAlignment** { AlignLeft, AlignRight, AlignCenter, AlignAccountingStyle }

enum **NumberFlag** { ShowBase, ForcePoint, ForceSign, UppercaseBase, UppercaseDigits }

flags **NumberFlags**

enum **RealNumberNotation** { ScientificNotation, FixedNotation, SmartNotation }

enum **Status** { Ok, ReadPastEnd, ReadCorruptData, WriteFailed }

QDataStream Class

The QDataStream class provides serialization of binary data to a QIODevice. More...

Header: #include <QDataStream>

qmake: QT += core

- List of all members, including inherited members
- Obsolete members

Note: All functions in this class are reentrant.