WORLD HISTORY QUIZ APP

By Terence Lee

Contents

Brief Description of Application

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Purpose

A simple .NET Window Forms (Console) application of a world history quiz. The quiz is a 10-question quiz in multiple-choice format.

Language Used

Microsoft Visual Basic .NET (VB.NET)

Frameworks

LINQ

Tools

Visual Studio

Application Architecture and Design

Architecture Pattern Used

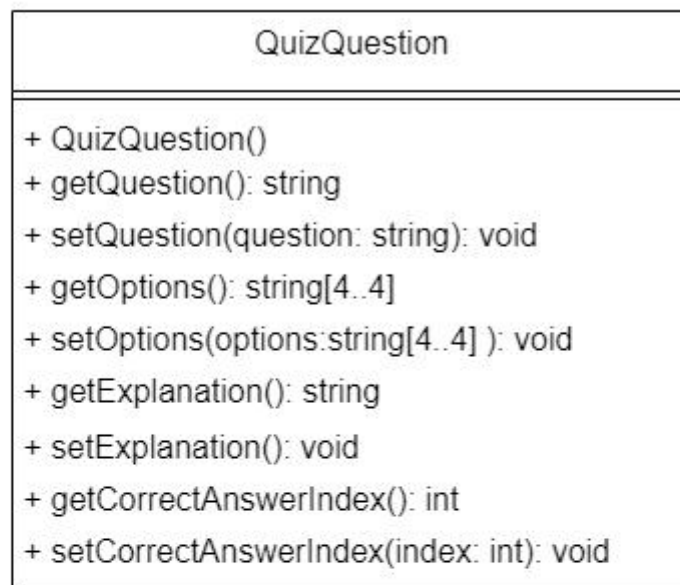Model-View-Controller (MVC) Architectural Pattern

Design Pattern Used

Adapter pattern to encapsulate the XML file parsing logic. The quiz data file used in this program is a XML file containing the questions and answers.
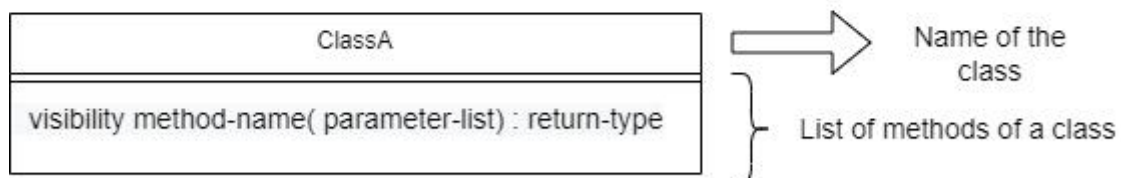
UML Class Diagram (Design)

QuestionQuestion class

A model class contain the question, options and correct answer of a quiz question. It contains basic setters and getters.

UML Class Diagram of QuizQuestion

QuizQuestion
+ QuizQuestion() + getQuestion(): string + setQuestion(question: string): void + getOptions(): string[4..4] + setOptions(options:string[4..4]): void + getExplanation(): string + setExplanation(): void + getCorrectAnswerIndex(): int + setCorrectAnswerIndex(index: int): void

Legend

ClassA
visibility method-name(parameter-list) : return-type

Name of the class

List of methods of a class

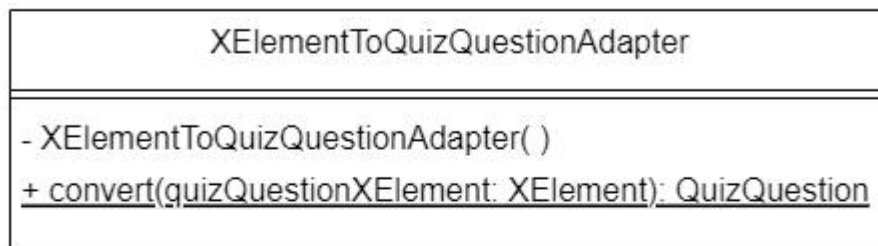| + | represent public visibility |
| - | represent private visibility |
| underlinedMethod() | represent static method |

Format of Parameter List: argument-name: data-type
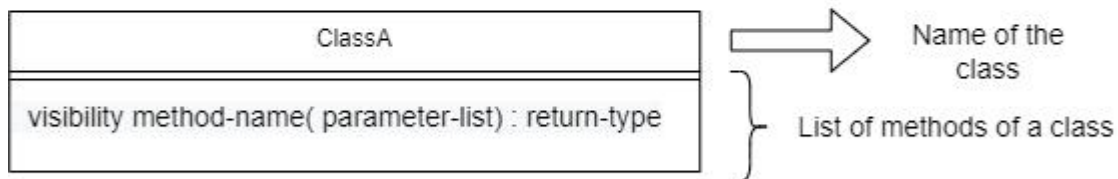
XElementToQuizQuestionAdapter class

An adapter class that converts an instance of XElement (a C# raw mapping of an XML file) into an instance of QuizQuestion (model of a quiz question).

This class applies the **Adapter Design Pattern**.

UML Class Diagram of XElementToQuizQuestionAdapter

XElementToQuizQuestionAdapter
- XElementToQuizQuestionAdapter( )
+ convert(quizQuestionXElement: XElement): QuizQuestion

Legend

ClassA
visibility method-name(parameter-list) : return-type

→ Name of the class

List of methods of a class

+   represent public visibility

-     represent private visibility

underlinedMethod()   represent static method

Format of Parameter List: argument-name: data-type

Application Pseudocode

Try:

Read the quiz-data.xml file containing all quiz questions and answers into a list of QuizQuestion

Prompt and ask user all the questions in the list of QuizQuestion

Based on the number of questions that the user get correct, display the user score

Catch:

Display error message of reading the quiz-data.xml file

EndTry

Application Screenshots

Figure 1 below: How the application looks like when first launched

```
-------- World History Quiz By Terence Lee --------
Thank you for taking interest in this quiz

This quiz has a total of 10 multiple-choice questions
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Question 1 of 10:
During the First World War, which country signed the Peace Treaty (1917) with Germany

[A] England
[B] USA
[C] Russia
[D] Austria

Enter answer [A,B,C or D]:
```

Figure 2 below: Application showing that the user got the correct answer, and application displaying the relevant explanation

```
Question 1 of 10:
During the First World War, which country signed the Peace Treaty (1917) with Germany

[A] England
[B] USA
[C] Russia
[D] Austria

Enter answer [A,B,C or D]: A
The answer is correct!
The correct answer is [A]

Explanation:
In December 1917, Germany agreed to an armistice and peace talks with Russia, and Lenin sent Leon Trotsky to Brest-Litov
sk in Belarus to negotiate a treaty. The talks broke off after Germany demanded independence for Russian holdings in Eas
tern Europe, and in February 1918 fighting resumed on the eastern front. They signed the Peace Treaty.

Enter any key to continue to next question...
```

Figure 3 below: Application showing that the user got the wrong answer, and application displaying the relevant explanation

```
Question 2 of 10:
In which year, America joined the Second World War

[A] 1939
[B] 1940
[C] 1941
[D] 1942

Enter answer [A,B,C or D]: A
The answer is incorrect
The correct answer is [C]

Explanation:
The United States did not enter the war until after the Japanese bombed the American fleet in Pearl Harbor, Hawaii, on D
ecember 7, 1941.

Enter any key to continue to next question...
```

Figure 4 below: Application showing that the user overall score after completing the last quiz question.

```
Question 10 of 10:
Who was the US President during World War II

[A] Winston Churchill
[B] Joseph Stalin
[C] Franklin D Roosevelt
[D] Harry S Truman

Enter answer [A,B,C or D]: A
The answer is incorrect
The correct answer is [C]

Explanation:
President Franklin Delano Roosevelt and Vice President Henry A. Wallace won the election of 1940, and were at the helm o
f the nation as it prepared for and entered World War II.

Enter any key to continue to next question...

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Your overall score is 7/10
Thank you for spending your time in this quiz

-------- End of World History Quiz By Terence Lee --------
```

Figure 5 below: Application showing error message if the xml file quiz-data.xml is not found.

```
Failed to load the xml quiz-data.xml file. The program will now terminate
```