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CSE 210: Programming with Classes

Week05: Design Activity

**Program Specification:**

The Scripture Memorizer program is designed to help users memorize scriptures by gradually hiding words from the scripture text. The program allows the user to either memorize a random scripture from the Book of Mormon or enter their own custom scripture.

**User Inputs:**

1. Option 1: Memorize a random scripture from the Book of Mormon.
2. Option 2: Enter a custom scripture (reference and text).

**Output:** The program displays the scripture, including the reference and the full text. The user is prompted to press Enter to hide some words or type 'quit' to exit. Upon pressing Enter, the program hides a few random words in the scripture and clears the console screen. The scripture is displayed again with the hidden words represented by underscores. The process continues until the user types 'quit' or all the words in the scripture are hidden.

**Program End:** The program ends when the user types 'quit' or all the words in the scripture are hidden.

**Class Design:**

1. **Scripture:**
   * Responsibilities: Stores the reference and text of the scripture, hides words, and provides the formatted scripture for display.
   * Behaviors:
     + HideRandomWords(): Hides random words from the scripture text.
     + GetFormattedScripture(): Returns the formatted scripture with hidden words.
2. **Reference:**
   * Responsibilities: Keeps track of the book, chapter, and verse information.
   * Attributes:
     + Book (string): Stores the name of the book.
     + Chapter (int): Stores the chapter number.
     + VerseStart (int): Stores the starting verse number.
     + VerseEnd (int): Stores the ending verse number (for verse ranges).
3. **Word:**
   * Responsibilities: Stores the text of a word and its visibility status.
   * Attributes:
     + Text (string): Stores the text of the word.
     + IsHidden (bool): Stores the visibility status of the word.
4. **ScriptureGenerator:**
   * Responsibilities: Generates a random scripture from the Book of Mormon.
   * Behaviors:
     + GenerateRandomScripture(): Generates a random scripture by selecting a reference and text from pre-defined arrays.

Please refer to the separate class files provided earlier for the implementation details of each class.

**Constructor Design:**

1. **Scripture:**
   * Constructor:
     + Scripture(string reference, string text): Accepts the scripture reference and text as parameters. It splits the text into words, creates Word objects for each word, and stores them in a list.
2. **Reference:**
   * Constructors:
     + Reference(string book, int chapter, int verseStart): Accepts the book name, chapter number, and starting verse number as parameters to create a single-verse reference.
     + Reference(string book, int chapter, int verseStart, int verseEnd): Accepts the book name, chapter number, starting verse number, and ending verse number as parameters to create a verse range reference.
3. **Word:**
   * **Constructor:**
     + Word(string text): Accepts the word text as a parameter and initializes the IsHidden attribute to false.
4. **ScriptureGenerator:**
   * **Constructor:** No constructor is needed for this class.

These class definitions and constructors aim to fulfill the program requirements and establish a clear structure for the Scripture Memorizer program.