

UML Class Diagram of the Interactive OOP Quiz Application (Python)

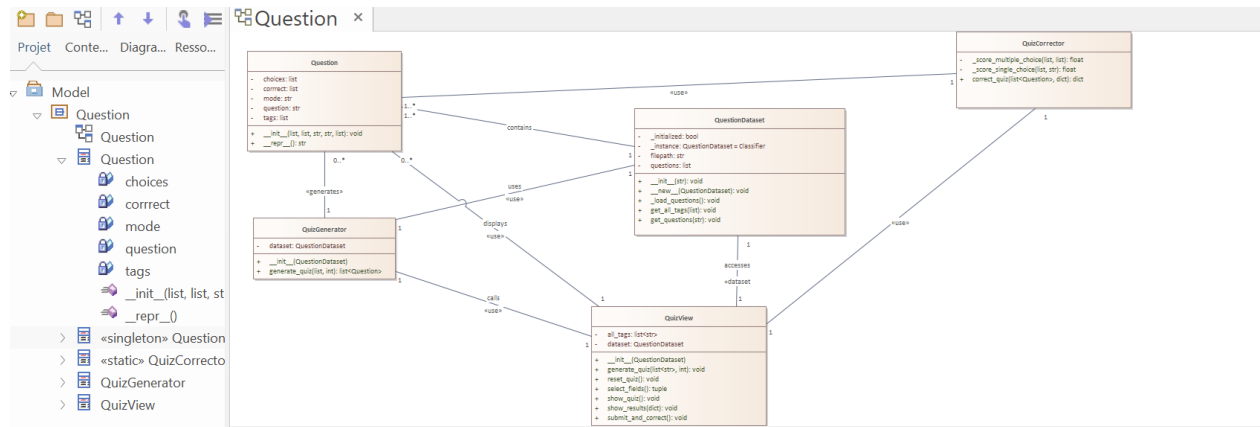


Figure 1 – Class Diagram of the Interactive Quiz Application

This UML class diagram, created with **Enterprise Architect**, represents the architecture of the interactive quiz generator built with Python and Streamlit.

The system is structured around five main classes:

- **Question** – Represents a quiz question with choices, correct answers, and tags.
- **QuestionDataset** – Singleton responsible for loading and managing all available questions.
- **QuizGenerator** – Builds custom quizzes based on selected tags and difficulty.
- **QuizCorrector** – Evaluates and scores user answers.
- **QuizView** – Manages the Streamlit interface and user interactions.

Design patterns:

- *Singleton* → used in QuestionDataset to ensure a single shared dataset instance.
- *Separation of Concerns / MVC-like architecture* → logic (models) and interface (view) are clearly separated.

The diagram also specifies the associations and cardinalities between classes, reflecting the object-oriented relationships within the system.