

CLEAN CODE

1. Modularization:

- Explanation: The script is modularized into functions, making the code more readable and maintainable. Each quiz is a separate function (``run_quiz``), and the main logic for quiz selection and user interaction is kept in the ``__main__`` block.

- Example: The ``run_quiz`` function encapsulates the logic for running a quiz. This makes it easy to understand and modify the quiz behavior independently of other parts of the code.

2. Descriptive Variable and Function Names:

- Explanation: Variable and function names are descriptive and convey their purpose, enhancing code readability.

- Example: Variable names like ``CORRECT_MARKS``, ``INCORRECT_PENALTY``, and function names like ``run_quiz`` clearly indicate their roles in the code.

| | |
|-----|---|
| 106 | <code># Define constants for marks</code> |
| 107 | <code>CORRECT_MARKS = 5</code> |
| 108 | <code>INCORRECT_PENALTY = 1</code> |

3. Consistent Formatting and Indentation:

- Explanation: The code follows consistent formatting and indentation, adhering to Python conventions (PEP 8). This promotes a visually clean and organized codebase.

- Example: The consistent use of four spaces for indentation and the proper placement of newlines contribute to code readability.

4. Error Handling:

- **Explanation:** The code includes error handling mechanisms for user input, preventing crashes and providing feedback on invalid inputs.

- **Example:** The use of try-except blocks in parsing user input ensures that the program gracefully handles potential errors, such as non-integer inputs or index errors.

```
139     try:
140         choice_index = int(choice) - 1
141         selected_topic = list(quiz_data.keys())[choice_index]
142     except (ValueError, IndexError):
143         print("Invalid choice. Please enter a number between 1 and 5.")
144         continue
145
```

5. Comments for Clarification:

- **Explanation:** The script includes comments to explain the purpose and functionality of certain code blocks, enhancing understanding for anyone reading the code.

- **Example:** Comments like `# Define constants for marks` and `# Invalid input. Skipping question.` provide additional context for the reader.