

Personalized Quiz Developer

An intelligent PDF-based quiz generation system that automatically creates personalized assessments from educational content.

Overview

Personalized Quiz Developer is an advanced tool that uses natural language processing and semantic analysis to extract key concepts from PDF documents and generate customized quizzes. The system creates contextually relevant questions, tracks user performance, and provides detailed analytics on learning progress.

Features

- **Intelligent PDF Processing:** Automatically extracts content sections and key concepts from uploaded documents
- **Smart Question Generation:** Creates contextually relevant questions based on document content
- **Multiple Question Types:** Supports definition-based and factual questions
- **Adaptive Distractors:** Generates plausible incorrect answer options based on content
- **Immediate Feedback:** Provides explanations and correct answers during quiz sessions
- **Performance Analytics:** Tracks progress across sections and question types
- **Comprehensive Reporting:** Generates detailed reports with actionable insights

Installation

```
# Clone the repository  
git clone https://github.com/yourusername/personalized-quiz-developer.git  
cd personalized-quiz-developer
```

```
# Create and activate virtual environment (optional but recommended)  
python -m venv venv  
source venv/bin/activate # On Windows: venv\Scripts\activate
```

```
# Install required packages  
pip install -r requirements.txt  
  
# Download required NLP model  
python -m spacy download en_core_web_sm
```

Requirements

The following packages are required:

- sentence-transformers
- faiss-cpu
- transformers
- torch
- pdfplumber
- fpdf
- numpy
- scikit-learn
- spacy

A requirements.txt file is included for easy installation.

Usage

Running the Application

```
python quiz_generator.py
```

Main Menu Options

1. Load and process a PDF
 - Enter the path to your PDF file
 - The system will process the document and extract key concepts
2. Generate a new quiz
 - Choose how many questions you want (5-20)
 - Take the interactive quiz with immediate feedback
 - Review your performance report

3. View previous quiz results

- Browse previous quiz sessions
- Check detailed performance analytics
- Track improvement over time

4. Exit

- Quit the application

How It Works

1. Content Processing:

- PDFs are parsed into logical sections
- NLP techniques identify key factual statements and definitions
- Content is vectorized for similarity matching

2. Question Generation:

- System creates questions based on important concepts
- Multiple question types are generated based on content type
- Plausible distractors are created from related content

3. Quiz Delivery:

- Questions are presented in an interactive format
- User responses are recorded and evaluated
- Immediate feedback is provided

4. Performance Analysis:

- Results are stored with embeddings for retrieval
- Statistics are calculated across sections and question types
- Progress tracking identifies knowledge gaps

Example Report

== Quiz Report (ID: 20240513_152207) ==

Date: 2024-05-13 15:22:07

Total Questions: 10

Correct Answers: 8

Final Score: 80.0%

Detailed Results:

==== Section: Introduction to Machine Learning ===

Section Score: 4/5 (80.0%)

Q: According to the section on Introduction to Machine Learning, which of the following best defines supervised learning?

Your Answer: Supervised learning is a type of machine learning where algorithms learn from labeled training data to make predictions or decisions.

Correct Answer: Supervised learning is a type of machine learning where algorithms learn from labeled training data to make predictions or decisions.

Result: ✓ Correct

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Performance by Question Type:

Definition: 5/6 (83.3%)

Fact: 3/4 (75.0%)

Contributing

Contributions are welcome! Please feel free to submit a Pull Request.

1. Fork the repository
2. Create your feature branch (`git checkout -b feature/amazing-feature`)
3. Commit your changes (`git commit -m 'Add some amazing feature'`)
4. Push to the branch (`git push origin feature/amazing-feature`)

5. Open a Pull Request

Acknowledgements

- This project uses several open-source libraries and models
 - Special thanks to the developers of Sentence-Transformers, Spacy, and other included packages
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Created with by **[GANGI JATHIN]**