

# LLM Mentor Backend

## API Documentation

### FastAPI Application - 16 Endpoints

**Framework:** FastAPI (Async)

**Default LLM:** DeepSeek (configurable per request)

**CORS:** Enabled for all origins

**RAG Integration:** SearchRagManager for enhanced responses

#### Common Request Parameters:

- model\_provider (string, default: "deepseek")
- model\_name (string, default: "deepseek-chat")

## 1. [GET] /list-llm-models

Lists all available LLM models configured in the application.

#### Inputs:

None

#### Outputs:

```
{"models": [{ "model_name": "string", "model_provider": "string" }]}
```

## 2. [POST] /chat-with-tutor

Chat with AI tutor to answer learner questions and provide personalized tutoring using RAG-enhanced responses.

#### Inputs:

messages (string, required): JSON array of chat messages  
learner\_profile (string, optional): Learner profile info  
model\_provider (string): LLM provider (default: deepseek)  
model\_name (string): Model name (default: deepseek-chat)

#### Outputs:

```
{"response": "tutor response string"}
```

## 3. [POST] /refine-learning-goal

Refine and improve a learning goal based on learner information to make it more specific and actionable.

#### Inputs:

learning\_goal (string, required): Initial learning goal  
learner\_information (string, optional): Info about the learner  
model\_provider, model\_name (strings): LLM config

**Outputs:**

Refined learning goal object with improved specificity

#### 4. [POST] /identify-skill-gap-with-info

Identify skill gaps based on learning goal and learner information provided as text.

**Inputs:**

learning\_goal (string, required): Target learning goal  
learner\_information (string, required): Learner background  
skill\_requirements (string, optional): Pre-identified requirements  
model\_provider, model\_name (strings): LLM config

**Outputs:**

Combined skill gaps and skill requirements object

## 5. [POST] /identify-skill-gap

Identify skill gaps by uploading a CV/resume PDF file. Extracts text from PDF and analyzes against the learning goal.

### Inputs:

goal (string, form): Learning goal  
cv (file, form): PDF file of learner's CV  
model\_provider, model\_name (strings, form): LLM config

### Outputs:

```
Combined skill gaps and skill requirements with cv_path
```

## 6. [POST] /create-learner-profile-with-info

Initialize a learner profile from text information including background, goals, and identified skill gaps.

### Inputs:

learning\_goal (string, required): Learner's goal  
learner\_information (string, required): Background info  
skill\_gaps (string, required): Identified skill gaps  
model\_provider, model\_name (strings): LLM config

### Outputs:

```
{"learner_profile": {...profile object}}
```

## 7. [POST] /create-learner-profile

Initialize learner profile from an uploaded CV file path. Extracts text from PDF at specified path.

### Inputs:

learning\_goal (string, required): Learner's goal  
skill\_requirements (string, required): Required skills  
skill\_gaps (string, required): Identified gaps  
cv\_path (string, required): Path to stored CV  
model\_provider, model\_name (strings): LLM config

### Outputs:

```
{"learner_profile": {...profile object}}
```

## 8. [POST] /update-learner-profile

Update learner profile based on interactions, session information, and behavioral data.

### Inputs:

learner\_profile (string, required): Current profile  
learner\_interactions (string, required): Interaction data  
learner\_information (string, optional): Updated info  
session\_information (string, optional): Session details  
model\_provider, model\_name (strings): LLM config

### Outputs:

```
{"learner_profile": {...updated profile}}
```

## 9. [POST] /schedule-learning-path

Generate a personalized learning path schedule with specified number of sessions.

### Inputs:

learner\_profile (string, required): Learner profile  
session\_count (integer, required): Number of sessions  
model\_provider, model\_name (strings): LLM config

### Outputs:

Learning path object with scheduled sessions

## 10. [POST] /reschedule-learning-path

Adjust existing learning path based on feedback, progress, and new requirements.

### Inputs:

learner\_profile (string, required): Learner profile  
learning\_path (string, required): Current path  
session\_count (integer, optional): New count (-1 = unchanged)  
other\_feedback (string, optional): Additional feedback  
model\_provider, model\_name (strings): LLM config

### Outputs:

Updated learning path object

## 11. [POST] /explore-knowledge-points

Explore and identify knowledge points for a specific learning session.

### Inputs:

learner\_profile (string, required): Learner profile  
learning\_path (string, required): Learning path  
learning\_session (string, required): Current session

### Outputs:

List of knowledge points to explore

## 12. [POST] /draft-knowledge-point

Draft learning content for a single knowledge point with optional RAG search enhancement.

### Inputs:

learner\_profile (string, required): Learner profile  
learning\_path (string, required): Learning path  
learning\_session (string, required): Session info  
knowledge\_points (string, required): All points  
knowledge\_point (string, required): Point to draft  
use\_search (boolean, required): Use RAG search

### Outputs:

{"knowledge\_draft": {...draft content}}

### 13. [POST] /draft-knowledge-points

Draft learning content for multiple knowledge points with optional parallelization.

**Inputs:**

learner\_profile (string, required): Learner profile  
learning\_path (string, required): Learning path  
learning\_session (string, required): Session info  
knowledge\_points (string, required): Points to draft  
use\_search (boolean, required): Use RAG search  
allow\_parallel (boolean, required): Parallelize drafting

**Outputs:**

```
{"knowledge_drafts": [...draft contents]}
```

### 14. [POST] /integrate-learning-document

Integrate drafted knowledge content into a cohesive learning document.

**Inputs:**

learner\_profile (string, required): Learner profile  
learning\_path (string, required): Learning path  
learning\_session (string, required): Session info  
knowledge\_points (string, required): Knowledge points  
knowledge\_drafts (string, required): Drafted content  
output\_markdown (boolean, optional): Markdown output

**Outputs:**

```
{"learning_document": {...integrated doc}}
```

### 15. [POST] /generate-document-quizzes

Generate quizzes based on learning document content with configurable question types.

**Inputs:**

learner\_profile (string, required): Learner profile  
learning\_document (string, required): Content for quizzes  
single\_choice\_count (int, default=3)  
multiple\_choice\_count (int, default=0)  
true\_false\_count (int, default=0)  
short\_answer\_count (int, default=0)

**Outputs:**

```
{"document_quiz": {...quiz object}}
```

### 16. [POST] /tailor-knowledge-content

Create comprehensive personalized learning content with optional quizzes. Combines multiple steps into one endpoint.

**Inputs:**

learner\_profile (string, required): Learner profile  
learning\_path (string, required): Learning path

learning\_session (string, required): Session info  
use\_search (boolean, default=true): RAG enhancement  
allow\_parallel (boolean, default=true): Parallelize  
with\_quiz (boolean, default=true): Include quiz

**Outputs:**

```
{"tailored_content": {...complete content}}
```

## Common Response Codes

Code	Description
200 OK	Successful response with JSON data
400 Bad Request	Validation error (e.g., invalid message format)
500 Internal Server Error	{"detail": "Error message describing what went wrong"}