const express = require('express');

const cors = require('cors');

const bodyParser = require('body-parser');

// Create Express app

const app = express();

// Middleware

app.use(cors());

app.use(bodyParser.json());

// API Routes

app.post('/api/explain-concept', async (req, res) => {

try {

const { question } = req.body;

// Simple mock implementation for demo

let explanation = "";

let confidence = 0.8;

// Keyword matching

if (question.toLowerCase().includes('cell membrane')) {

explanation = "The cell membrane is a thin, flexible barrier that surrounds all living cells. It's made primarily of phospholipids arranged in a bilayer, along with proteins and cholesterol. Its main function is to regulate what enters and leaves the cell, maintaining the cell's internal environment.";

confidence = 0.95;

} else if (question.toLowerCase().includes('photosynthesis')) {

explanation = "Photosynthesis is the process by which plants, algae, and some bacteria convert sunlight, water, and carbon dioxide into glucose (sugar) and oxygen. It occurs in chloroplasts, which contain chlorophyll pigments that capture light energy.";

confidence = 0.92;

} else if (question.toLowerCase().includes('mitochondria')) {

explanation = "Mitochondria are often called the 'powerhouses of the cell' because they generate most of the cell's supply of ATP (adenosine triphosphate), the energy currency of cells.";

confidence = 0.89;

} else {

explanation = `I'll try to explain about "${question}". This concept relates to biology, but I don't have specific information about it in my current knowledge base.`;

confidence = 0.4;

}

// Add a slight delay to simulate processing

setTimeout(() => {

res.json({

questionId: Date.now().toString(),

explanation,

confidence

});

}, 500);

} catch (error) {

console.error("Error explaining concept:", error);

res.status(500).json({ error: "Failed to generate explanation" });

}

});

app.get('/api/practice-questions/:unitId', (req, res) => {

try {

const { unitId } = req.params;

// Mock data for demo

const questions = [

{

id: "q1",

text: "Which organelle is responsible for energy production in the cell?",

options: [

"Mitochondria",

"Nucleus",

"Golgi apparatus",

"Cell membrane"

],

correctAnswer: 0

},

{

id: "q2",

text: "What is the primary function of the cell membrane?",

options: [

"Energy production",

"Protein synthesis",

"Control what enters and exits the cell",

"Cell division"

],

correctAnswer: 2

},

{

id: "q3",

text: "Which structure contains the cell's genetic material?",

options: [

"Lysosome",

"Nucleus",

"Mitochondria",

"Endoplasmic reticulum"

],

correctAnswer: 1

}

];

res.json(questions);

} catch (error) {

console.error("Error fetching practice questions:", error);

res.status(500).json({ error: "Failed to fetch practice questions" });

}

});

// Start server

const PORT = process.env.PORT || 3000;

app.listen(PORT, () => {

console.log(`Server running on port ${PORT}`);

});