

Improvement Report

Test Bank

Components Developed:

1. Case Study Simulation
 - Created interactive case study scenarios
 - Developed simulation interface for user interaction
 - Built decision-making pathways for different user choices
2. Interactive Exercises
 - Designed hands-on learning activities
 - Created step-by-step problem-solving modules
 - Implemented immediate feedback mechanisms
3. Knowledge Tests
 - Developed assessment modules with scoring system
 - Created multiple question formats (multiple choice, true/false, matching)
 - Built progress tracking and results display

New design:

The screenshot shows a course structure for 'Chapter 1: Software'. At the top, there's a dark header bar with the chapter title. Below it, the main content area has a light blue header for '1.1 WHAT IS SOFTWARE' with icons for a computer monitor, a person, and a lightbulb. Underneath are several items: a red 'PPT' button, a blue 'Study Guide' button, a blue 'Video' button, a blue 'Practice Area 1.1: What is Software?' button with a note 'Hidden from students', and a blue 'Practice Area 1.1: What is Software?' button with a checkmark. Another section header '1.2 TYPES OF SOFTWARE' is visible at the bottom.

Main page: <https://lexue.bit.edu.cn/course/view.php?id=16945§ion=34>

<https://lexue.bit.edu.cn/mod/quiz/view.php?id=514878>

<https://lexue.bit.edu.cn/mod/url/view.php?id=513390>

<https://lexue.bit.edu.cn/mod/url/view.php?id=513391>

<https://lexue.bit.edu.cn/mod/url/view.php?id=513398>

<https://lexue.bit.edu.cn/mod/url/view.php?id=513399>

<https://lexue.bit.edu.cn/mod/url/view.php?id=513400>

<https://lexue.bit.edu.cn/mod/url/view.php?id=513392>

<https://lexue.bit.edu.cn/mod/url/view.php?id=513403>

<https://lexue.bit.edu.cn/mod/hvp/view.php?id=515209>

<https://lexue.bit.edu.cn/mod/hvp/view.php?id=513365>

Case Study Simulation [Website/haven't published]

SDLC Stage Sorter

Drag and drop the Software Development Life Cycle stages into the correct order.

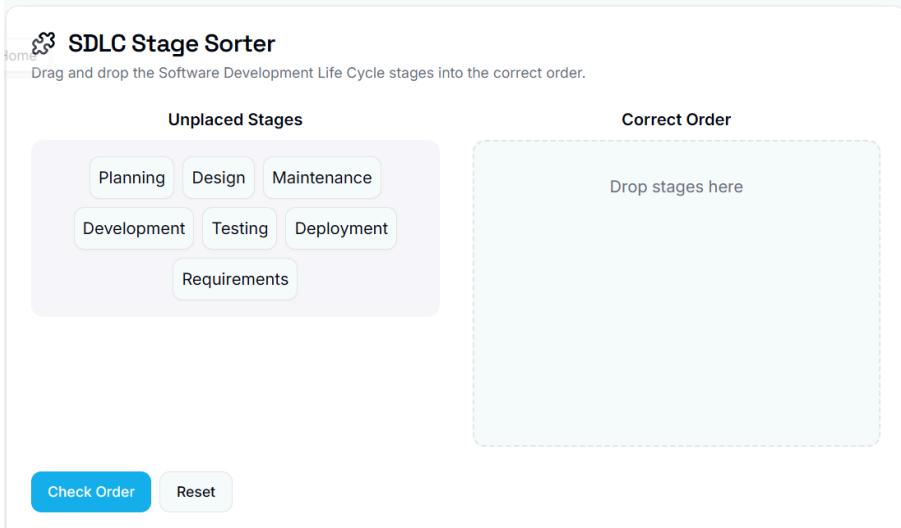
Unplaced Stages

Planning Design Maintenance
Development Testing Deployment
Requirements

Correct Order

Drop stages here

Check Order **Reset**



Recursion Call Stack Visualizer

See how the call stack works when calculating factorial(3) using recursion.

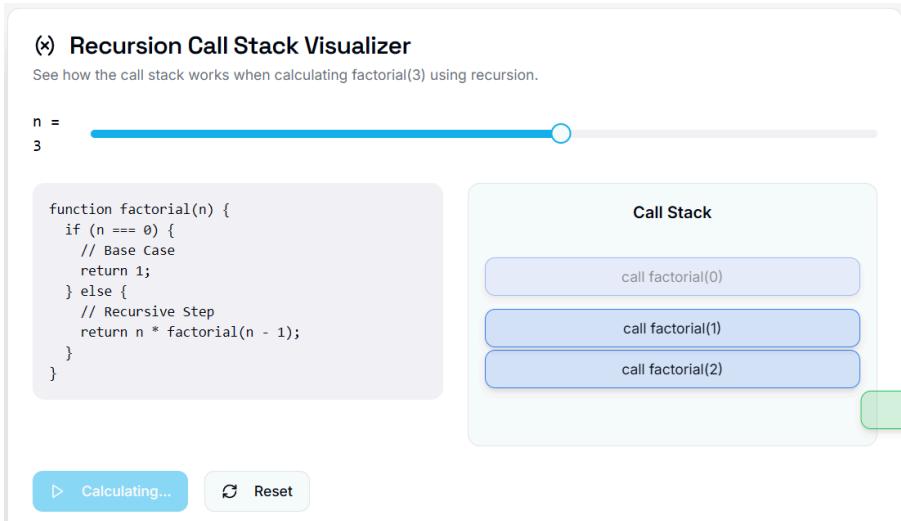
n = 3

```
function factorial(n) {
  if (n === 0) {
    // Base Case
    return 1;
  } else {
    // Recursive Step
    return n * factorial(n - 1);
}
```

Call Stack

call factorial(0)
call factorial(1)
call factorial(2)

Calculating... **Reset**



Hospital Management System

A simplified database simulation for managing patient records and appointments.

Patient Database

Add New Patient

Cancel

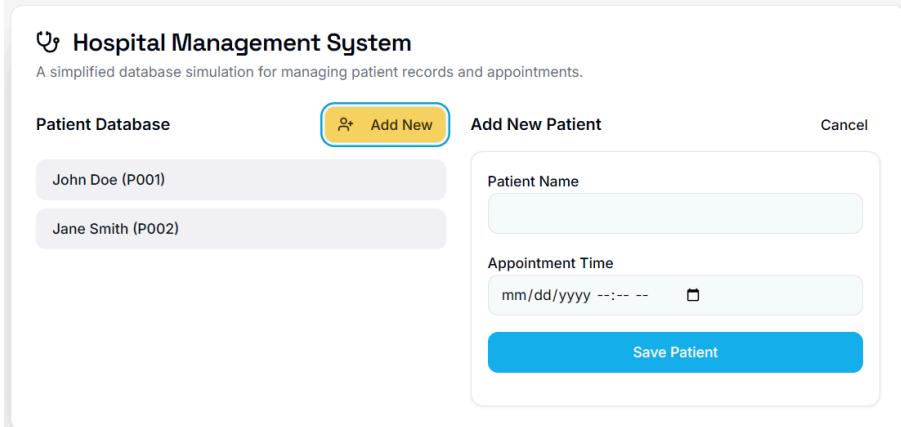
John Doe (P001)
Jane Smith (P002)

Patient Name

Appointment Time

mm/dd/yyyy --:-- --

Save Patient



🛒 E-commerce Platform Simulation

Explore how an e-commerce site works, including adding items to a cart and seeing personalized recommendations.

Products



Stylish Sneakers

\$79.99

Add to Cart



Wireless Headphones

\$129.99

Add to Cart



Modern Backpack

\$59.99

Add to Cart

⌚ Secure Banking App

A simple simulation of a mobile banking app, focusing on secure login and basic transactions.



Username

user123

Password

.....

→] Log In

🌯 Food Delivery System

Simulates the real-time order tracking of a food delivery app, powered by cloud services and APIs.

Your Order Status



Order Placed



Restaurant is Preparing



Rider is on the way



Delivered

Tracking Order...

⚙️ Logic Gate Simulator

Experiment with basic logic gates, the building blocks of digital circuits. Change the inputs and the gate type to see the output.

Input A Input B

→ XOR →

Output



DIAGNOSTIC Simple Expert System

Diagnose a simple ailment based on symptoms using a set of IF-THEN rules. This mimics a basic medical expert system.

Select Symptoms (Facts)

- Persistent Cough
- Fever
- Fatigue
- Headache

Diagnosis Result

Migraine

↳ Reasoning:

- System matched the following symptoms:
Headache, Fatigue.

Run Diagnosis

Reset

🔍 Search Algorithm Visualizer

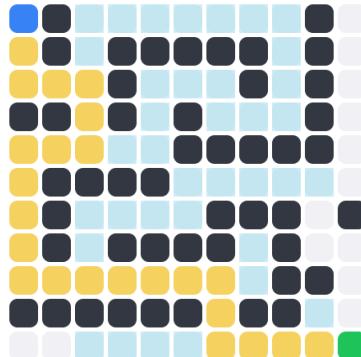
Visualize how Breadth-First Search (BFS) and Depth-First Search (DFS) explore a maze to find the goal.

Breadth-First Search (BFS) ▾

▶ Run Simulation

↻ Reset

● Start ● End ● Wall ● Visited ● Path



⚖️ Legal Reasoning Simulator

Determine voting eligibility by applying legal statutes as logical IF-THEN rules.

Set the Facts

- Is a Citizen?
 Is Registered to Vote?

Age: 17



Conclusion

Ineligible to Vote

Reasoning Steps:

- ✓ Person IS a citizen.
✗ Person is 17 years old, which is less than 18.

Evaluate

Reset

⌚ Fraud Detection System

A hybrid system where a software layer processes transactions and a symbolic AI layer applies fraud-detection rules.

Incoming Transactions

| Amount: \$50.25 | Location: Local | Time: Normal |
|--|-------------------------|-----------------|
| 🕒 Transaction appears normal. | | |
| Amount: \$6500.00 | Location: Local | Time: Normal |
| ⚠️ Flagged: High transaction amount for a local transfer. | | |
| Amount: \$120.00 | Location: Local | Time: Normal |
| 🕒 Transaction appears normal. | | |
| Amount: \$250.00 | Location: International | Time: Normal |
| 🕒 Transaction appears normal. | | |
| Amount: \$300.50 | Location: International | Time: Odd Hours |
| ⚠️ Flagged: Unusual international activity during odd hours. | | |

Run Fraud Detection Rules