

## Welcome Back!

Enter your credentials to access your dashboard.

Email

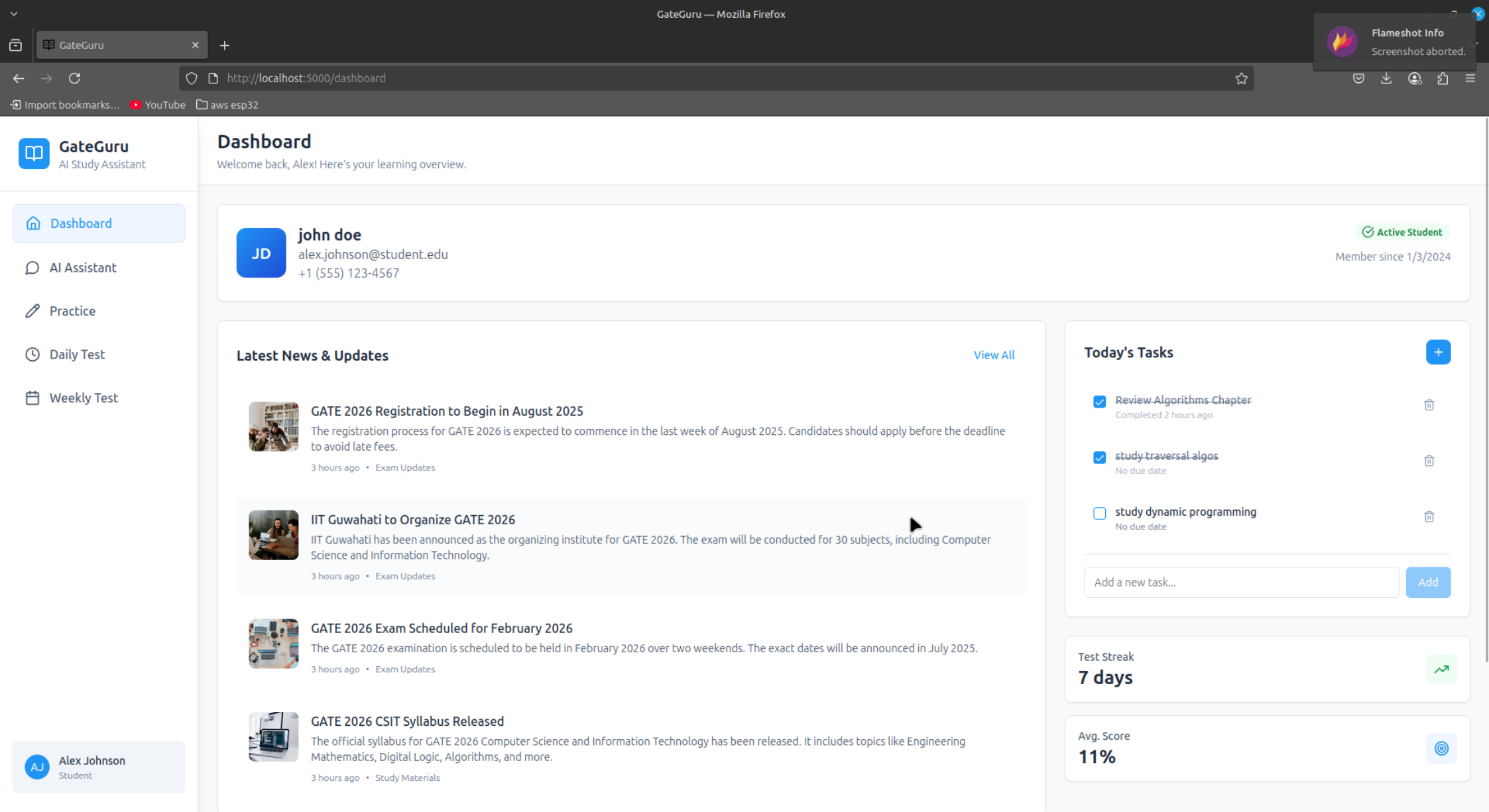
alex.johnson@student.edu






Password

.....

Log In

Don't have an account? [Sign Up](#)



-  Dashboard
-  AI Assistant
-  Practice
-  Daily Test
-  Weekly Test

## Dashboard

Welcome back, Alex! Here's your learning overview.



**john doe**  
alex.johnson@student.edu  
+1 (555) 123-4567

✓ Active Student

Member since 1/3/2024

### Latest News & Updates

[View All](#)



#### GATE 2026 Registration to Begin in August 2025

The registration process for GATE 2026 is expected to commence in the last week of August 2025. Candidates should apply before the deadline to avoid late fees.

3 hours ago • Exam Updates



#### IIT Guwahati to Organize GATE 2026

IIT Guwahati has been announced as the organizing institute for GATE 2026. The exam will be conducted for 30 subjects, including Computer Science and Information Technology.

3 hours ago • Exam Updates



#### GATE 2026 Exam Scheduled for February 2026

The GATE 2026 examination is scheduled to be held in February 2026 over two weekends. The exact dates will be announced in July 2025.

3 hours ago • Exam Updates



#### GATE 2026 CSIT Syllabus Released

The official syllabus for GATE 2026 Computer Science and Information Technology has been released. It includes topics like Engineering Mathematics, Digital Logic, Algorithms, and more.

3 hours ago • Study Materials

### Today's Tasks



✓ Review Algorithms Chapter  
Completed 2 hours ago



✓ study traversal algos  
No due date



☐ study dynamic programming  
No due date



Add a new task...

Add

Test Streak

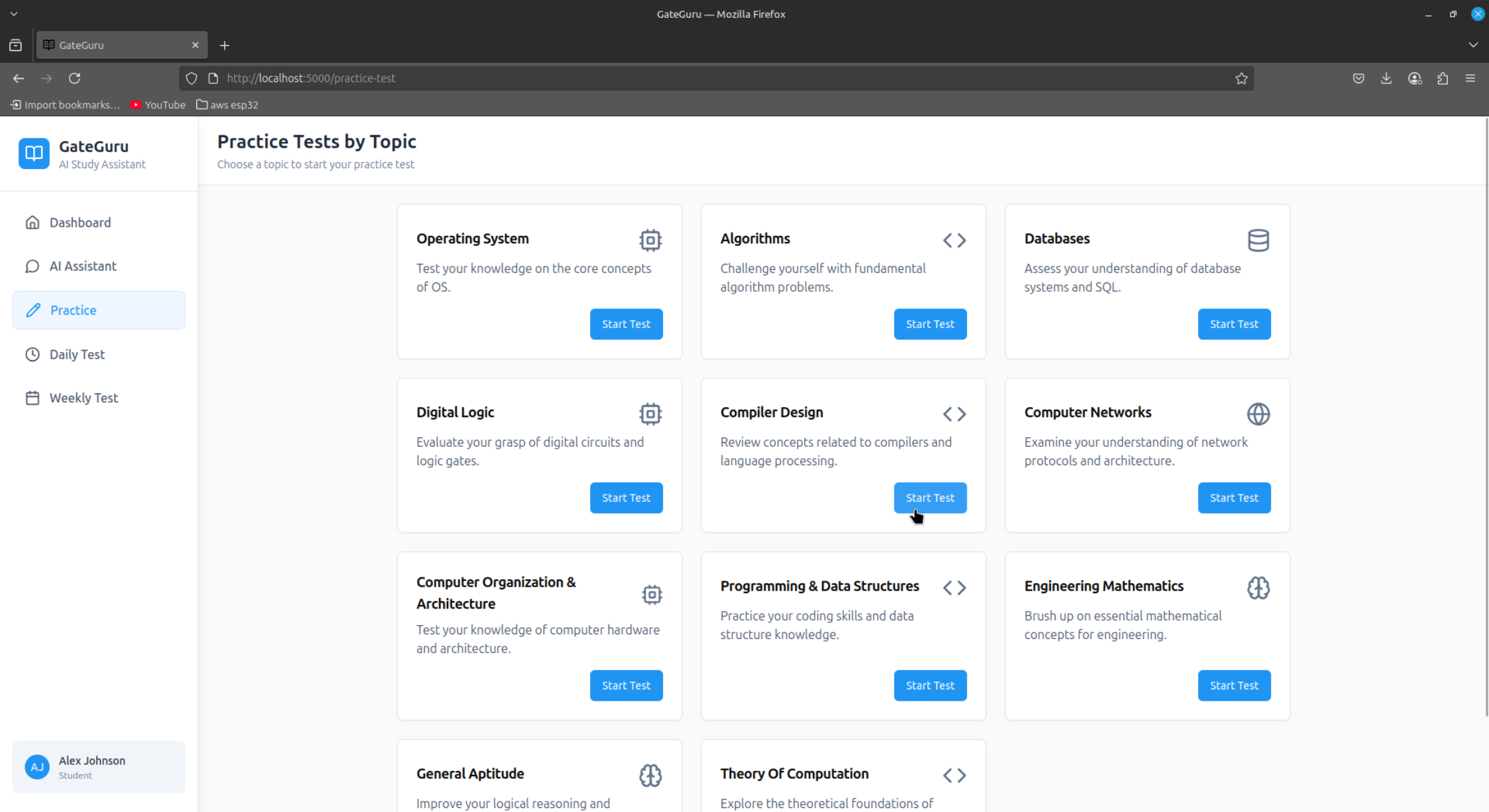
7 days








Avg. Score

11%






-  Dashboard
-  AI Assistant
-  Practice
-  Daily Test
-  Weekly Test


## Practice Tests by Topic

Choose a topic to start your practice test

**Operating System**


Test your knowledge on the core concepts of OS.

Start Test

**Algorithms**


Challenge yourself with fundamental algorithm problems.

Start Test

**Databases**


Assess your understanding of database systems and SQL.

Start Test

**Digital Logic**


Evaluate your grasp of digital circuits and logic gates.

Start Test

**Compiler Design**


Review concepts related to compilers and language processing.

Start Test

**Computer Networks**


Examine your understanding of network protocols and architecture.

Start Test

**Computer Organization & Architecture**


Test your knowledge of computer hardware and architecture.

Start Test

**Programming & Data Structures**


Practice your coding skills and data structure knowledge.

Start Test


**Engineering Mathematics**

Brush up on essential mathematical concepts for engineering.

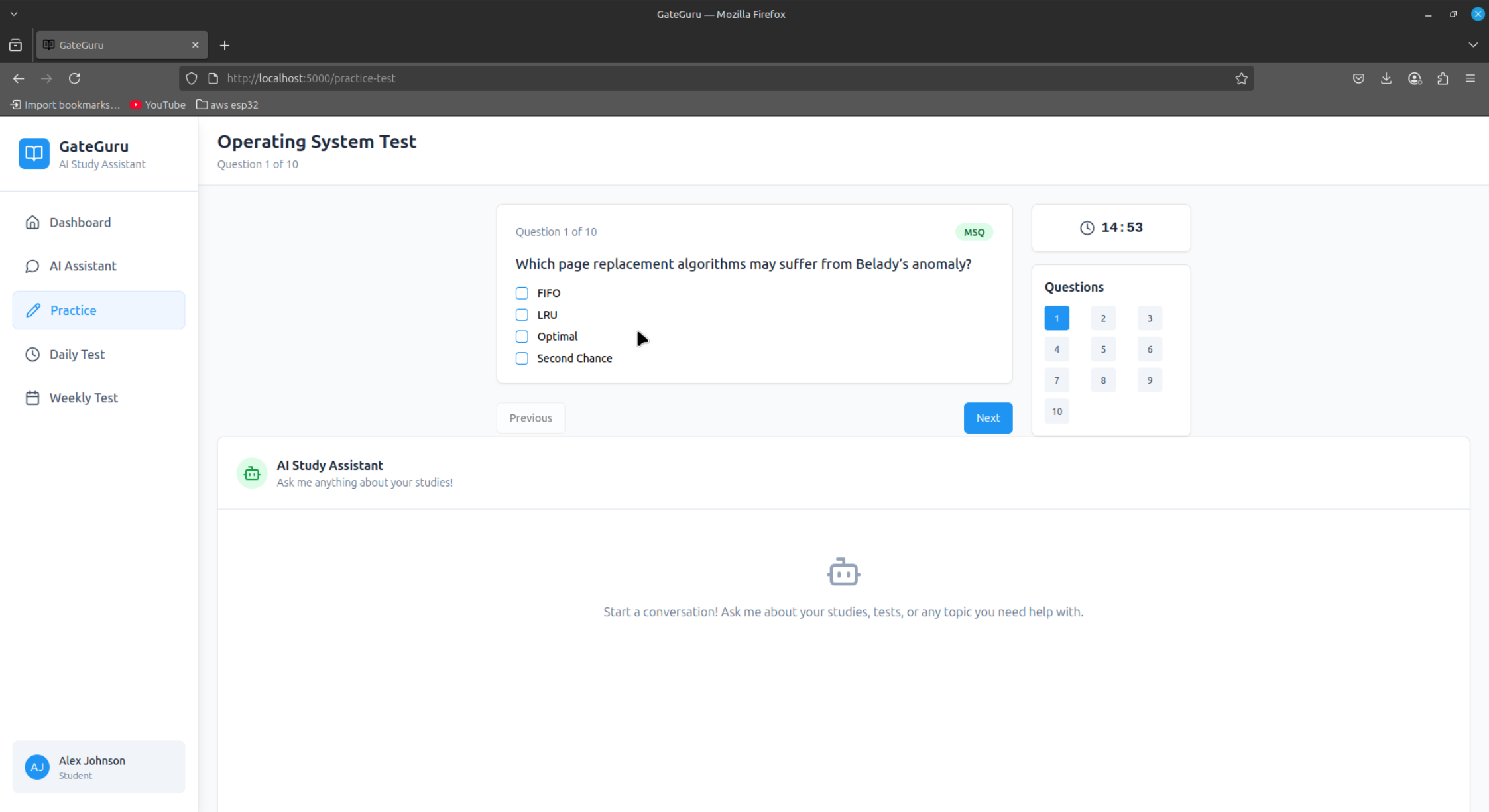
Start Test

**General Aptitude**

Improve your logical reasoning and

**Theory Of Computation**

Explore the theoretical foundations of



## Operating System Test

Question 1 of 10

Question 1 of 10

MSQ

Which page replacement algorithms may suffer from Belady's anomaly?

- ☐ FIFO
- ☐ LRU
- ☐ Optimal
- ☐ Second Chance

Previous

Next

🕒 14:53

### Questions

- |    |   |   |
|----|---|---|
| 1  | 2 | 3 |
| 4  | 5 | 6 |
| 7  | 8 | 9 |
| 10 |   |   |



**AI Study Assistant**

Ask me anything about your studies!



Start a conversation! Ask me about your studies, tests, or any topic you need help with.



**Alex Johnson**  
Student



Transaction(s) must be rolled back? R1(X) W1(Y) R2(X) R2(Y) R3(Y)  
ABORT(T1)

- ☐ Only T2
- ☐ Only T3
- ☐ Both T2 and T3
- ☐ Neither T2 nor T3

Previous

Next

Questions

1	2	3
4	5	6
7	8	9
10		



AI Study Assistant

Ask me anything about your studies!

explaining Question: A schedule of 3 transactions T1, T2, T3 is shown. T1 aborts. Which other transaction(s) must be rolled back? R1(X) W1(Y) R2(X) R2(Y) R3(Y) ABORT(T1)



Okay, let's focus on the question: Which page replacement algorithms can suffer from Belady's anomaly?

As explained previously, Belady's anomaly is a situation where increasing the number of available memory frames leads to an *increase* in page faults. This is counterintuitive, as one would expect more frames to reduce page faults.

The main algorithm known to suffer from Belady's anomaly is **FIFO (First-In, First-Out)**. FIFO replaces the oldest page in memory regardless of its future use. This simple strategy can lead to situations where adding more frames forces the replacement of a page that would have been needed shortly, resulting in more page faults.

While less common, some variations of LFU (Least Frequently Used) and even some implementations of LRU (Least Recently Used) can, under specific reference strings, exhibit Belady's anomaly. This is because neither LFU nor all implementations of LRU perfectly predict future page usage.

Optimal page replacement and certain stack-based algorithms (like a variation of LRU designed to avoid Belady's anomaly) are guaranteed not to suffer from this problem.

To solidify your understanding, let's consider a specific example illustrating FIFO's vulnerability to Belady's anomaly. Are you ready to work through an example?

Type your message...



GateGuru

+

← → ↺

🔒 http://localhost:5000/weekly-test

☆

🔖 Import bookmarks... 📺 YouTube 📁 aws esp32

🔥

Flameshot Info

Screenshot aborted.

🔒 ⬇️ 🗑️ 📄 ☰

📖

GateGuru

AI Study Assistant

🏠 Dashboard

💬 AI Assistant

✍️ Practice

🕒 Daily Test

📅 Weekly Test

AJ Alex Johnson

Student

Weekly Test

Question 1 of 45

Question 1 of 45

MSQ

System of linear equations:  $x + ky = 1$   $kx + y = -1$  Which of the following is/are correct?

☐ Exactly one k for which no solution exists

☐ Infinite k for which no solution exists

☐ Exactly one k for which unique solution exists

☐ Exactly one k for which infinite solutions exist

Previous

Next

🕒 44:53

Questions

1	2	3
4	5	6
7	8	9
10	11	12
13	14	15
16	17	18
19	20	21
22	23	24
25	26	27
28	29	30
31	32	33
34	35	36
37	38	39
40	41	42
43	44	45

GateGuru

AI Study Assistant

Dashboard

AI Assistant

Practice

Daily Test

Weekly Test

AJ

Alex Johnson

Student

Question 1 of 45

MCQ

A schedule of 3 transactions T1, T2, T3 is shown. T1 aborts. Which other transaction(s) must be rolled back? R1(X) W1(Y) R2(X) R2(Y) R3(Y) ABORT(T1)

☐ Only T2

☐ Only T3

☐ Both T2 and T3

☐ Neither T2 nor T3

Previous

Next

🕒 14:53

Questions

1

2

3

4

5

6

7

8

9

10

Flameshot Info

Screenshot aborted.



GateGuru

AI Study Assistant

## AI Assistant

Get instant help and answers to your study questions

Dashboard

AI Assistant

Practice

Daily Test

Weekly Test



Alex Johnson

Student



AI Study Assistant

Ask me anything about your studies!

what is the diff between process and thread



The key difference between a process and a thread lies in their resource allocation and execution context. Both are units of execution, but they differ significantly in their independence and overhead.

**Process:**

**Independent memory space:** Each process has its own dedicated memory space, including code, data, and stack. This isolation is crucial for security and stability; a crash in one process generally doesn't affect others.

**Heavyweight:** Creating and managing processes involves significant overhead due to the need to allocate and manage this independent memory space and other resources. Context switching between processes is also relatively slow.

**Inter-process communication (IPC):** Processes need mechanisms like pipes, sockets, or shared memory to communicate, as they don't share memory directly. This adds complexity.

**Multiple threads possible:** A single process can contain multiple threads.

**Thread:**

**Shared memory space:** Threads within the same process share the same memory space. This allows for faster communication and data sharing between them.

**Lightweight:** Creating and managing threads is less resource-intensive compared to

Type your message...





adavalilith/idk

Get API key | Google AI Stud

Neo4j Aura

Untitled4.ipynb - Colab

Cluster0 Data | Cloud: Mong

cloud.mongodb.com/v2/66d44dd6e605cd76285ce7ca#/metrics/replicaSet/683969b0d9a7cc2952266291/explorer/gate\_csit\_app

Import bookmarks... YouTube aws esp32

Atlas

Lalith's Org -...

Access Manager

Billing

All ClustersGet HelpLalith

Project 0

Data ServicesCharts

Overview

DATABASE

Clusters

SERVICES

Atlas Search

Stream Processing

Triggers

Migration

Data Federation

SECURITY

Quickstart

Backup

Database Access

Network Access

Advanced

Goto

+ Create Database

Search Namespaces

game\_challenge

gate\_csit\_app

attempts

chats

news

questions

todos

topics

users

sample\_mflix

gate\_csit\_app

LOGICAL DATA SIZE: 62.98KBSTORAGE SIZE: 276KBINDEX SIZE: 220KBTOTAL COLLECTIONS: 7

CREATE COLLECTION

Collection Name	Documents	Logical Data Size	Avg Document Size	Storage Size	Indexes	Index Size	Avg Index Size
attempts	11	1.31KB	122B	36KB	1	36KB	36KB
chats	6	9.54KB	1.59KB	44KB	1	36KB	36KB
news	4	1.7KB	436B	20KB	1	20KB	20KB
questions	111	49.24KB	455B	68KB	1	36KB	36KB
todos	3	431B	144B	36KB	1	36KB	36KB
topics	11	579B	53B	36KB	1	36KB	36KB
users	1	206B	206B	36KB	1	20KB	20KB

System Status: All Good

©2025 MongoDB, Inc. StatusTermsPrivacyAtlas BlogContact Sales

Neo4j Aura — Mozilla Firefox

adavilalith/idk x Get API key | Google AI Stud x Neo4j Aura x Untitled4.ipynb - Colab x Cluster0 Data | Cloud: Mong x +

console-preview.neo4j.io/tools/explore

Import bookmarks... YouTube aws esp32

neo4j aura MVSREC / New project

Feedback

L

Developer hub

Data services

Instances

Import

Graph Analytics

Data APIs

Tools

Query

Explore

Operations

Metrics

Logs

Project

Users

Billing

Settings

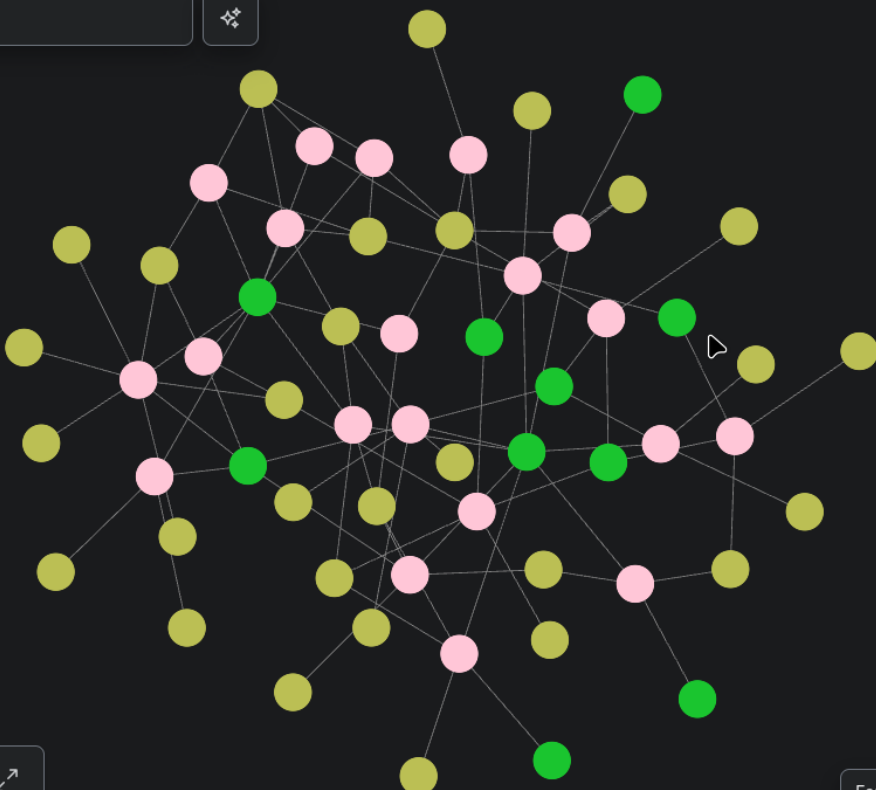
Learning

Instance: Free instance Database: neo4j User: Aura (adavilalith11@gmail.com)

Default Perspective

Export

Search



All (149) Selected (0)

Force-based layout

Nodes

Relationships

Filter categories

All

In Scene

Off Scene

Concept

29

Operation

Property

Question


20

Topic

10

## Data services

### Instances

 Import

## ⌘ Graph Analytics

## 🔗 Data APIs

## Tools

 Query

Explore

## Operations

Metrics

Logs

## Project

Users

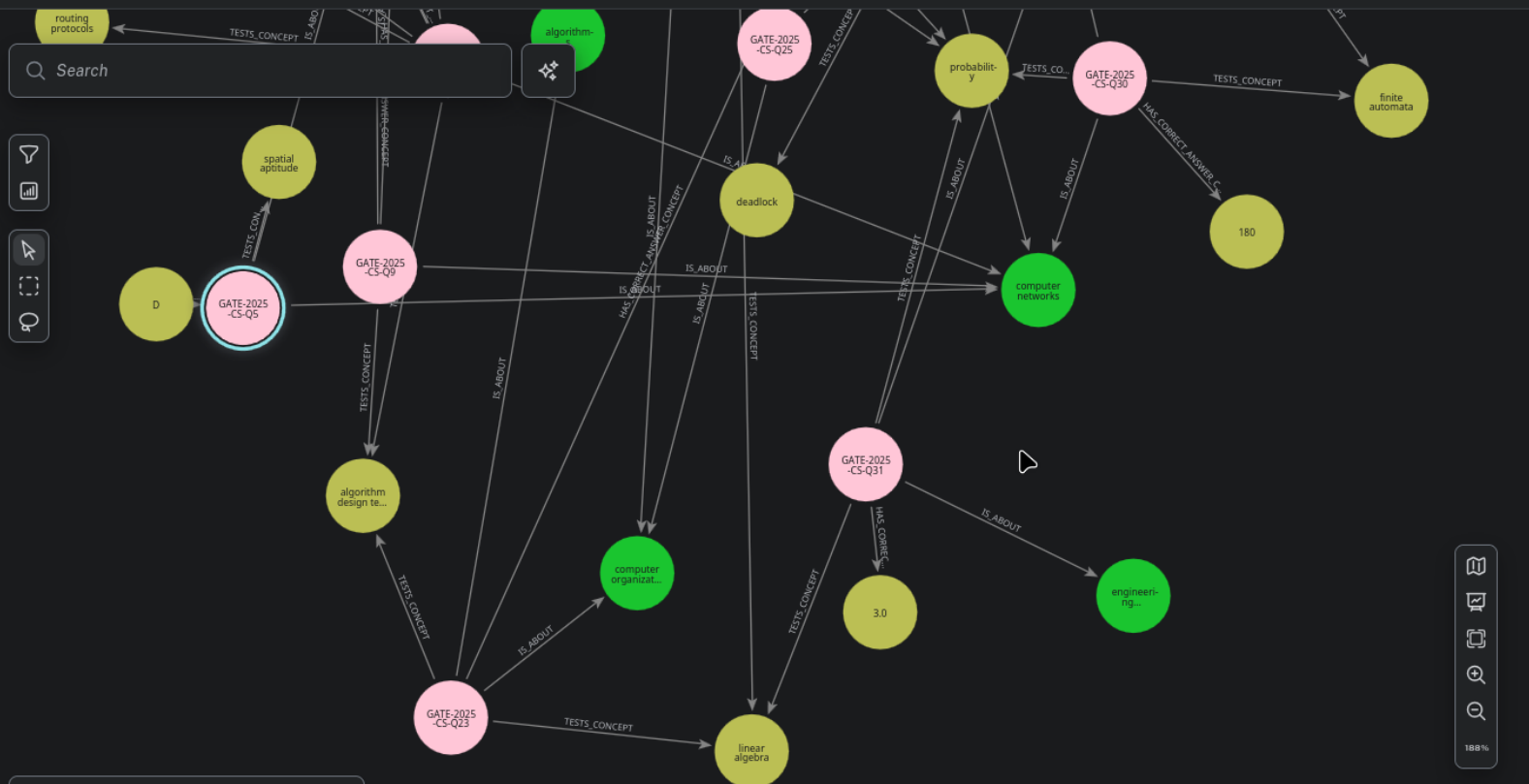
Billing

 Settings

Learning >

### Default Perspective

Export



Nodes Relationships

## Relationships

☒ All ☐ In Scene ☐ Off Scene

Concept 29

Operation

Property

Question 20

Topic 10

All (149)      Selected (1) 

Selected (1) ↗

Force-based layout  