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JD

Daily Streak

Keep learning to maintain your streak!

3

S M T W T

In Progress

Mathematics

65% complete

Calculus 101

Computer Science

30% complete

Python Programming

Humanities

15% complete

Art History

Continue Learning

Introduction to Calculus
Calculus 101
15 min

Python Data Structures
Python Programming
12 min

Renaissance Art Overview
Art History
20 min

Profile

JD

Jamie Doe

jamie.doe@example.com

8

Courses In Progress

12

Completed Courses

48

Hours Studied

15

Achievements

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Alex Johnson

Bio

Computer Science student at State University

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Categories

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Mathematics

Calculus 101

12 lessons

Computer Science

Python Programming

8 lessons

Humanities

Art History

10 lessons

Science

Chemistry Fundamentals

14 lessons

Business

Introduction to Economics

9 lessons

Mathematics

Linear Algebra

11 lessons

Course Details

Mathematics

Calculus 101

Prof. Jane Smith

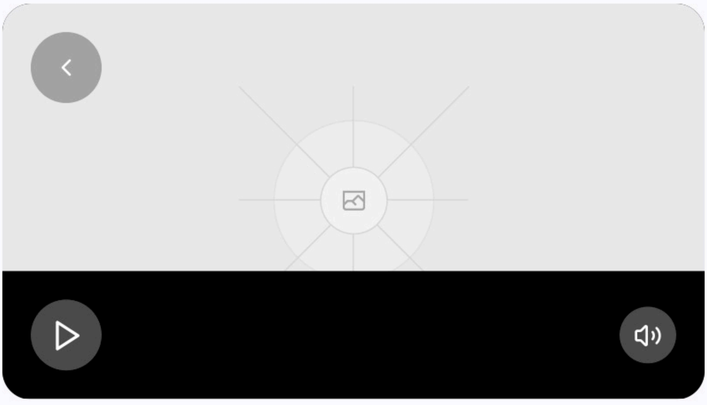
Learn the fundamentals of calculus, from limits and derivatives to integrals and applications. This comprehensive course covers all the essential topics needed to build a strong foundation in calculus.

Course Progress 2 of 12 lessons completed

Resume Course

Course Content

1. Introduction to Limits — 15 min
2. Continuity and Differentiability — 20 min
3. Introduction to Calculus — 25 min
4. Derivatives and Rules — 30 min
5. Applications of Derivatives — 35 min
6. Introduction to Integration — 25 min
7. Techniques of Integration — 30 min
8. Applications of Integration — 35 min
9. Improper Integrals — 20 min
10. Differential Equations — 25 min
11. Sequences and Series — 30 min
12. Final Review — 40 min



Calculus 101 Lesson 3 of 12

2 completed 10 remaining

Introduction to Calculus

15 min read

This introductory lesson covers the basic concepts of calculus including limits, derivatives, and integrals.

Calculus is a branch of mathematics that focuses on studying rates of change and accumulation. It provides a framework for modeling systems where there is change, and for predicting future behavior based on current conditions.

There are two main branches of calculus: differential calculus and integral calculus. Differential calculus is concerned with rates of change and slopes of curves, while integral calculus focuses on accumulation of quantities and areas under or between curves.

One of the fundamental concepts in calculus is the limit. A limit is the value that a function approaches as the input approaches some value. Limits are essential for defining derivatives and integrals.

The derivative of a function represents the rate at which the function is changing at a given point. Geometrically, it can be interpreted as the slope of the tangent line to the function's graph at that point.

The integral of a function, on the other hand, represents the accumulation of quantities. It can be interpreted geometrically as the area under the curve of the function.

Test Your Knowledge

Knowledge Check

Calculus 101 — Lesson 3 of 12

2 completed — 10 remaining

Back to Lesson

Question 1 of 5

What is the derivative of $f(x) = x^2$?

A $f'(x) = x$

B $f'(x) = 2x$

C $f'(x) = 2$

D $f'(x) = x^2$

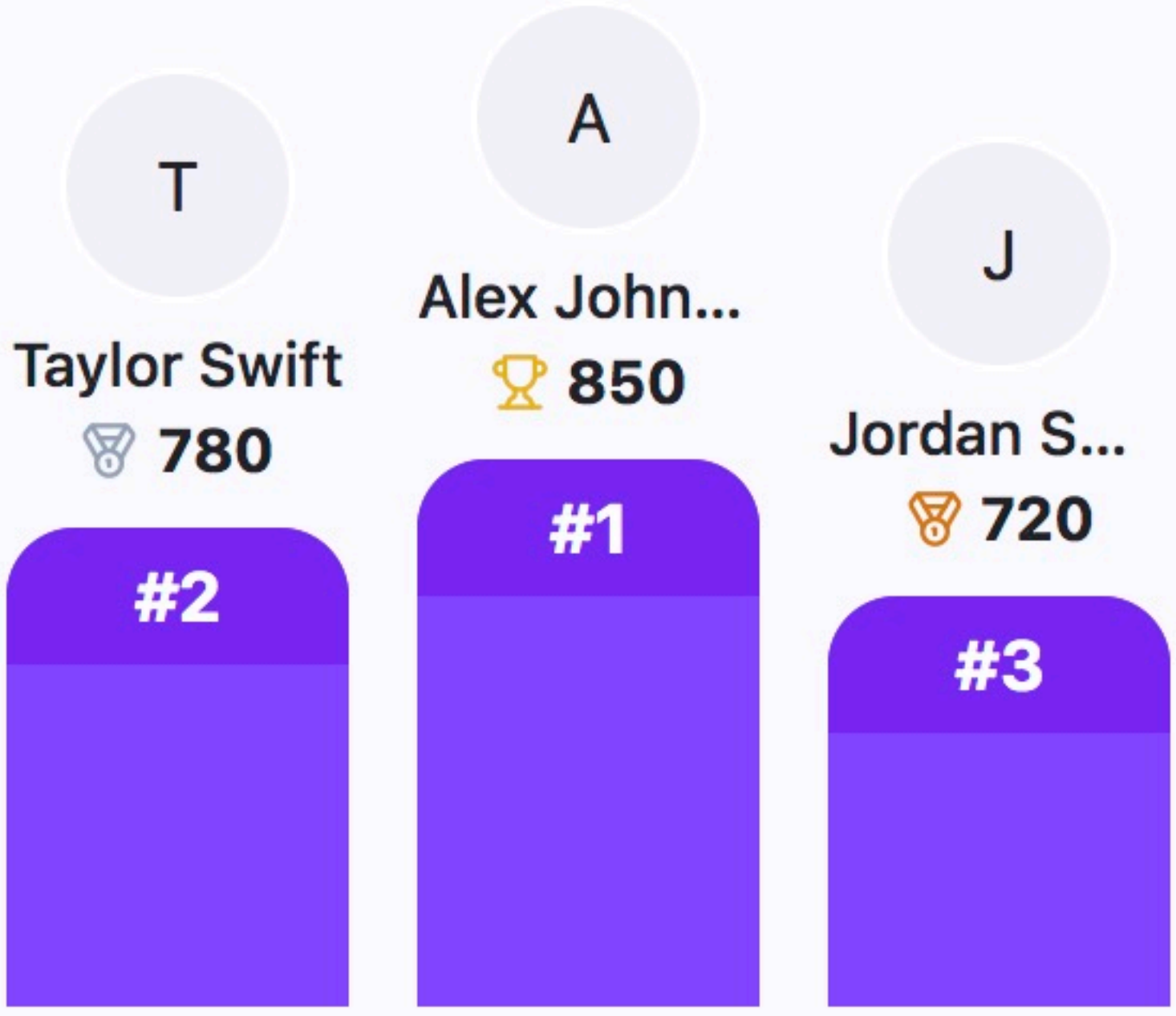
Previous

Check Answer

Leaderboard

See how you rank among other learners

This Week | All Time



4	M	Morgan Stanley	650
5	J	Jamie Rodriguez You	610
6	C	Casey Williams	590
7	R	Riley Thompson	560
8	Q	Quinn Martinez	530

Admin Dashboard

Export Report

Total Users

1,247

+12% from last month

Active Courses

24

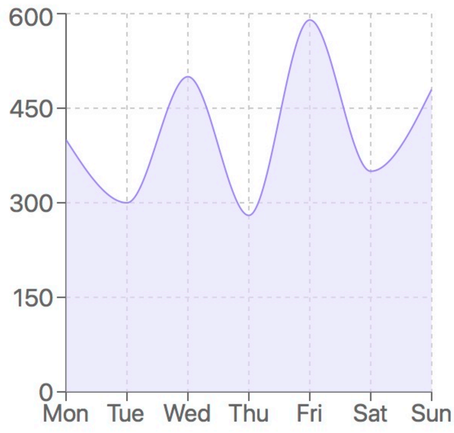
+3 new this month

Quiz Completion

68%

+5% from last month

User Activity (Last 7 Days)



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Course Overview

+ Add Course

Featured	Course Name	Enrolled	C
○	Introduction to Computer Science	247 students	
○	Data Structures and Algorithms	183 students	
○	Web Development Fundamentals	315 students	
○	Machine Learning Basics	156 students	