Student Portfolio

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Year / Sem/ Section: 2/3/AL1

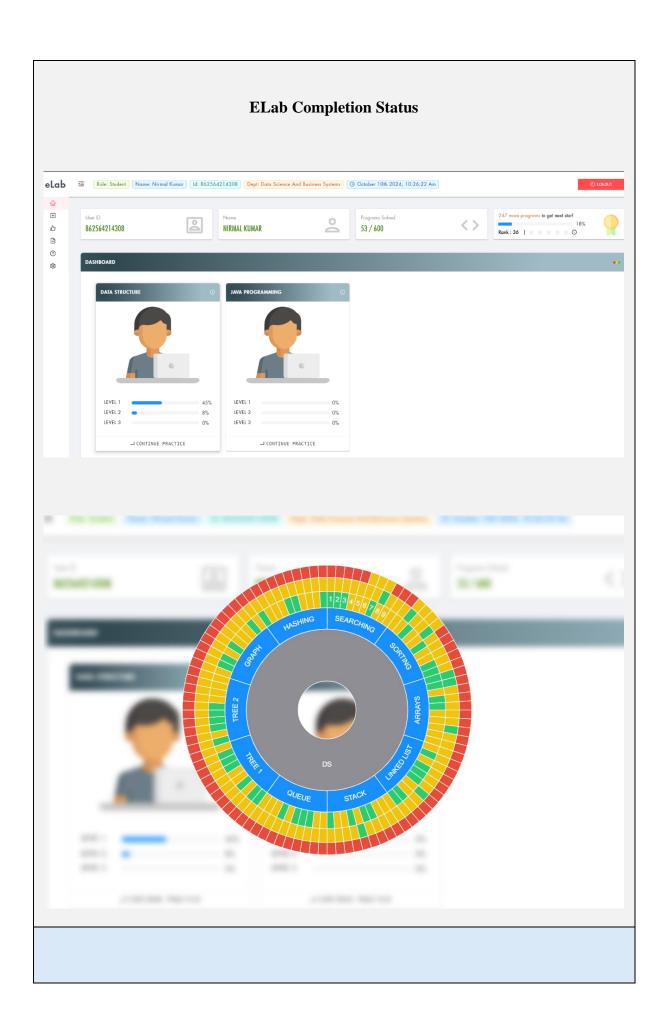
Subject Title: 21CSC201J Data Structures and Algorithms

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Lab Experiment Completion status

Name of Section Year & Semester 21CSC2011-DATA STRUCTURES AND ALGORITHMS LABORATORY SUBTOTAL (20) SUBTOTAL (20) SIGNATURE SUBTOTAL (20) SIGNATURE SUBTOTAL (20) Marks) SIGNATURE SUBTOTAL (20) SIGNATURE SUBTOTAL (20) SIGNATURE SUBTOTAL (20) SUBTOTAL (20) SUBTOTAL (20) Marks) SIGNATURE SUBTOTAL (20) SUBTOTAL (20)	Name of Section Year & Semester 21CSC2011 - DATA STRUCTURES AND ALGORITHMS LABORATORY SUB TOTAL (10) TITLE SUB TOTAL (10) TOTAL (20 Marks) 1 Signature 2 Supplementation of Struct 2 2 2 1 6 15:5 2 17:2 3 Matrix Multipheation 2 25 2 2 1 8 17:5 2 17:2 4 Array implementation of Jist 2 2 1 8 18 18 18 5 Implementation of Jist 2 2 2 1 6 1 1 5 5 1 1 1 5 1 1 1 1 1 1 1 1 1 1			Name of the student Reg.Number									
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SOLVED REAL WORLD PROBLEM / CONCEPTUAL TASK

N -Queens problem using Stack

Stack

The stack is used to manage the placement of queens on the board. It follows the Last In, First Out (LIFO) principle, making it suitable for backtracking.

• 2D Array / List of Lists:

To represent the chessboard and queen placements.

Tracking Arrays:

To efficiently check column and diagonal conflictsAlgorithmic Design: Choosing and implementing appropriate data structures based on operational needs (insertion, deletion, sorting).

• Backtracking Approach:

Backtracking is a systematic method for exploring all possible configurations by incrementally building a solution and undoing (backtracking) decisions when they lead to dead ends. In the N-Queens problem, we place queens one by one in each row and check if the current placement is valid.

Report link:

https://docs.google.com/document/d/1ChXW5p8ZfyFmcAlsfzJmP7pZYAbtZUON/edit?usp=drivesdk&ouid=114956001730272846701&rtpof=true&sd=true

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Enter the number of queens (N): 4
Solutions for 4 queens:
. Q . .
. . . Q
Q . . .
. . Q .
. . Q .
Q . . .
. . Q .
Process returned 0 (0x0) execution time : 2.510 s
Press any key to continue.
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CERTIFICATIONS (Coursera/ed	ax/etc.)
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Include any online courses, workshops, or certifications related to Dat Structures and algorithms, problem-solving



Certificate no: UC-f3b3faa2-e6fa-463d-95f7-36b472f7c0fc
Certificate url: ude.my/UC-f3b3faa2-e6fa-463d-95f7-36b472f7c0fc
Reference Number: 0004

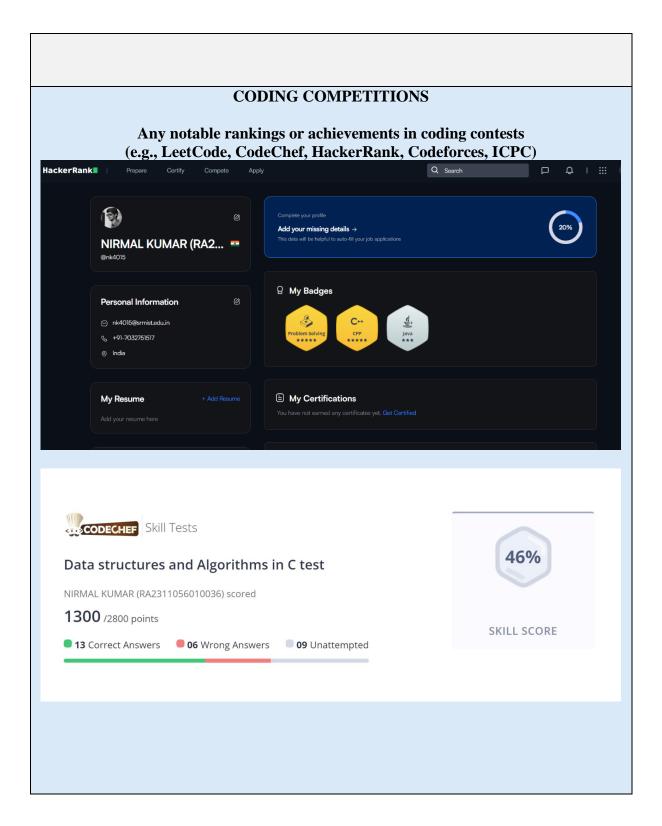
CERTIFICATE OF COMPLETION

Data Structures in C++

Instructors Raja Mehmood

Nirmal Kumar Akkinapalli

Date March 30, 2024 Length 14.5 total hours



Signature of the Student

A. Nirmal Kumar