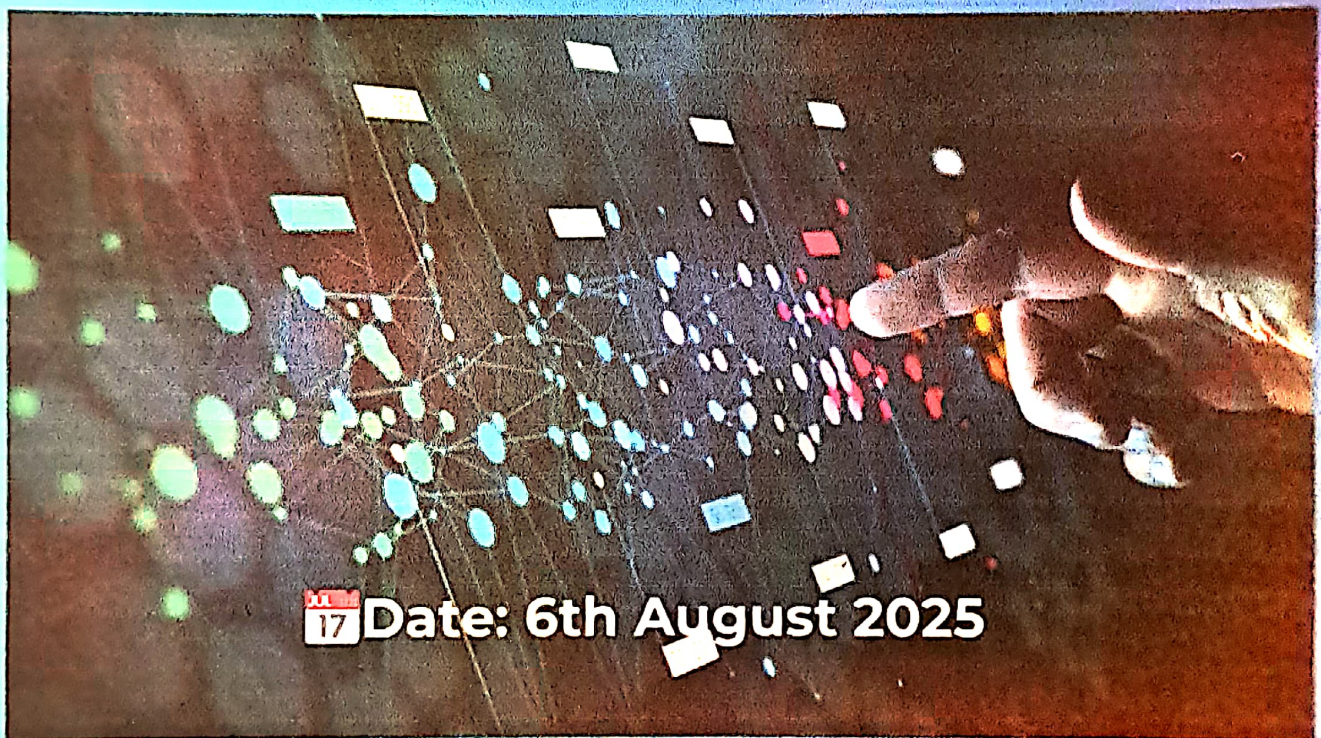


Department of MCA

Organizes Seminar

Advanced Algorithmic Techniques: From Backtracking to NP-Completeness



 **Date: 6th August 2025**

Dr Prathiba V Kalburgi
HOD

Dr Pushpa H
Principal

REF: MSRCASC/MCA/25-26/007

Date:01/08/2025

CIRCULAR

DEPARTMENT OF MCA

The department is organizing a seminar series on "**Advanced Algorithmic Techniques: From Backtracking to NP-Completeness**" on 6th August 2025. The sessions will be presented by the students of 2nd semester MCA, showcasing their understanding and insights into key database management system concepts. The event coordinator for the program is

Prof. Lt. Lakshitha H S Murthy.



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Report on Seminar "Advanced Algorithmic Techniques: From Backtracking to NP-Completeness"

Program Date: 5th August 2025
Organized by: Prof. Lt. Lakshitha H S Murthy
Venue: MCA Class Room

Overview

"Advanced Algorithmic Techniques: From Backtracking to NP-Completeness" seminar was organized by the Department of Computer Applications. The session focused on advanced algorithmic strategies such as backtracking, branch and bound, graph algorithms, and NP-completeness. These concepts are crucial for solving complex computational problems and for understanding theoretical computer science at a deeper level.

Topics Covered

1. **Backtracking** – General method and applications: N-Queens problem, Sum of Subsets problem, Graph coloring, and Hamiltonian cycles.
2. **Branch and Bound** – Concepts with applications: Traveling Salesman Problem and Knapsack problem.
3. **Dynamic Programming** – Applications including All Pairs Shortest Path, Reliability Design, and Optimal Binary Search Trees.
4. **Graph Algorithms** – Breadth First Search (BFS), Depth First Search (DFS), Spanning Trees, Connected and Bi-Connected Components, and Articulation Points.
5. **NP-Hard and NP-Complete Problems** – Basic concepts, non-deterministic algorithms, NP-complete classes, and Cook's Theorem.

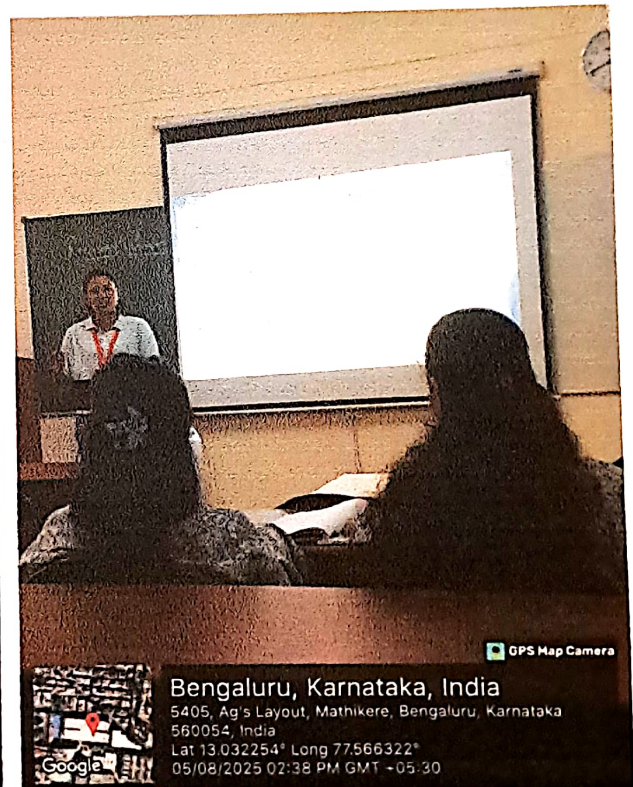
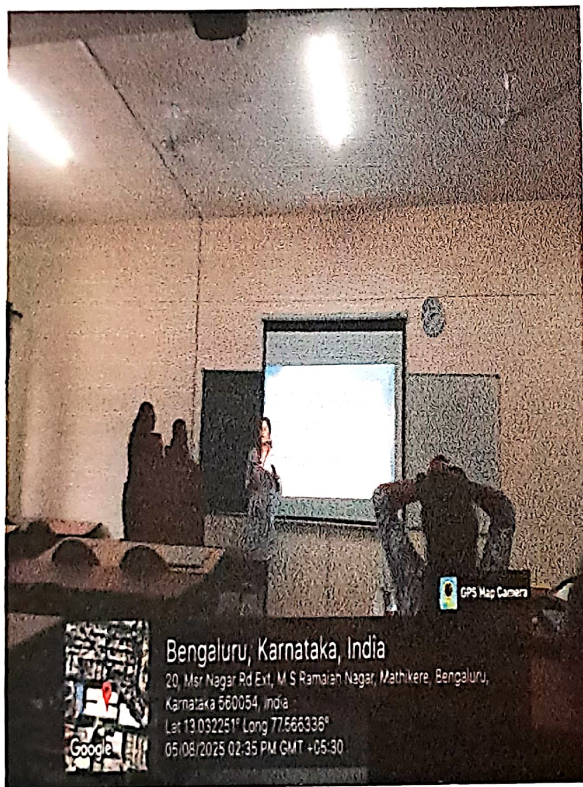
Benefits to Students

- Identify and analyze different time and space complexities of algorithms.

- Understand and apply parallel algorithms and greedy algorithms for optimization.
- Solve computational problems using tree traversals, backtracking, dynamic programming, and branch-and-bound strategies.
- Explore NP-hard and NP-complete problems and learn techniques for analyzing non-deterministic algorithms.
- Strengthen problem-solving and analytical skills for academic research and industry applications.

Conclusion

The seminar on the DAA provided students with in-depth knowledge of advanced algorithmic paradigms. The topics delivered strong theoretical foundations as well as practical problem-solving skills applicable to academic research and industry-level applications.



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M S Ramaiah College of Arts, Science and Commerce

Department of MCA

Advanced Algorithmic Techniques: From Backtracking to NP-Completeness

Students Attendance - 6th August 2025

Sl. No	Regno	Name	Signature
1	P18MB24S126001	Chandana C S	Chandana C.S
2	P18MB24S126002	M Sabah Farhath	M Sabah Farhath
3	P18MB24S126003	Aishwarya H S	Aishwarya H.S
4	P18MB24S126004	Annapurna J	Annapurna J
5	P18MB24S126005	SHREERAKSHA	Shreeraksha
6	P18MB24S126006	Chandana R	Chandana R
7	P18MB24S126007	Pramod M J	Pramod M.J
8	P18MB24S126008	Vinay Narasimha Sangam	V.N. Sangam
9	P18MB24S126009	Prashanth E	Prashanth E
10	P18MB24S126010	Tarun R	Tarun R
11	P18MB24S126011	Raghavendran A	R. Raghavendran
12	P18MB24S126012	Naveen B	Naveen B
13	P18MB24S126013	Dhanush Gowda N	Dhanush Gowda N
14	P18MB24S126014	Rachana R	Rachana R
15	P18MB24S126015	Lavender Nithisha M	Lavender Nithisha M
16	P18MB24S126016	Varsha S	Varsha S
17	P18MB24S126017	Shreyash Bhardwaj	Shreyash Bhardwaj
18	P18MB24S126018	Goutham	Goutham
19	P18MB24S126019	Pavana D Y	Pavana D Y
20	P18MB24S126020	Chandana G	Chandana G
21	P18MB24S126021	Poojitha Shetty J	Poojitha Shetty J
22	P18MB24S126022	Hari Haran M	Hari Haran M
23	P18MB24S126023	Shubhakar Gowda H S	Shubhakar Gowda H S
24	P18MB24S126024	Bhagavathi Sharma L S	Bhagavathi Sharma L S
25	P18MB24S126025	Sanjana H Kurtakoti	Sanjana H Kurtakoti
26	P18MB24S126026	Chandan S	Chandan S
27	P18MB24S126027	Abdul Rahman	Abdul Rahman
28	P18MB24S126028	Maqbool	Maqbool
29	P18MB24S126029	Goutham Shanubhogar	Goutham Shanubhogar
30	P18MB24S126030	S M Hajiali	S M Hajiali

Sl. No	Regno	Name	Signature
31	P18MB24S126031	Gavimani R	
32	P18MB24S126032	AKASH DUTTA	Akash
33	P18MB24S126033	Nikhil C M	Nikhil C M
34	P18MB24S126034	Spoorthi Gopalakrishna	
35	P18MB24S126035	Mahesh Singh Garia	
36	P18MB24S126036	Harshitha B S	Harshitha B S
37	P18MB24S126038	Chaitanya V	
38	P18MB24S126039	Harsh Vardhan	Harsh
39	P18MB24S126040	Harshitha S	Harshitha S
40	P18MB24S126041	Sanjana S	
41	P18MB24S126042	Soujanya S P	
42	P18MB24S126043	Manoj N	Manoj N
43	P18MB24S126044	C Sai Deepak	C. Sai Deepak
44	P18MB24S126045	J Jaswanth	J. Jaswanth
45	P18MB24S126046	T Rudrateja	
46	P18MB24S126047	Adithya A	
47	P18MB24S126048	Shivaram Krishna	Shivaram
48	P18MB24S126049	Syed Urbaaz	
49	P18MB24S126050	Keshav	
50	P18MB24S126051	Ananya K	
51	P18MB24S126052	Chandana K C	
52	P18MB24S126053	DEEKSHA	
53	P18MB24S126054	T Md Sohail	T Md Sohail
54	P18MB24S126055	Nandani Kutare	
55	P18MB24S126056	Akash Kumar	Akash
56	P18MB24S126057	Grishma C D	Grishma
57	P18MB24S126058	Muhammad Vazil V C	
58	P18MB24S126059	Suraj Umbrey R	Suraj
59	P18MB24S126060	Prajwal Shivasharanappa Biradar	Prajwal

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