

DATE: 25/09/2020

**Event Coordinators:**

1. Chhaya Narvekar
2. Sushama Khanvilkar

**Date & Place:**

Online using Google Meet

24th September 2020

Xavier Institute of Engineering

**Department:**

Information Technology  
& Computer Engineering

**No of participant:**

118

An online guest lecture was organized for S.E. (IT) and S.E.(COMP) on the topic “*Role of Data Structures in Problem Solving*” and it was delivered by Dr. Ujwala H. Bharambe PhD (IITB) who works as an **Assistant Professor Thadomal Shahani Engineering College, Mumbai.**

The guest lecture was conducted using Google meet on 24<sup>st</sup> September 2020 and was organized by Ms. Chhaya Narvekar from I.T Department and Ms. Sushama Khanvilkar from Computer Department.

Total 118 students attended the guest lecture and the objective of the guest lecture was to provide an insight to the second year students about how data structures are applicable in the different domains for problem solving in real time and help them to understand importance of data structures.

The speaker shared her views on ‘Understanding the problem to be solved, How to design an algorithm for a particular problem, Steps of problem solving and related references’. She emphasized on optimality for problem solving.

The students were quite astonished at the way available for problem solving with data structures. Overall, the session was interesting and motivating for students to study data structures.

**Student Feedback and Benefits:** The students found the session very informative, helpful and excellent. It was a knowledge gaining session about data structures and its applications.

Ms. Chhaya Narvekar  
Assistant Professor  
I.T Dept.

Ms. Sushama Khanvilkar  
Assistant Professor  
COMP Dept.

Dr. Y. D. Venkatesh  
Principal

# Images of the guest lecture

• Problem-solving is not a science, but part art and part skill. It is one of the skills most worth developing.

• How to Design Algorithms

1. Do I really understand the problem?
2. Can I find a simple algorithm or heuristic for my problem?
3. Is my problem in the catalog of any standard algorithmic problems ?
4. Are there special cases of the problem that I know how to solve?
5. Which of the standard algorithm design paradigms are most relevant to my problem?

Ujwala B

00:01:30 01:11:01

### How to Select Appropriate Data Structure ?

• In choosing the right data structure for your application, ask yourself the following questions:

- How many items will you have in your data structure?
- Do you know the relative frequencies of insert, delete, and search operations?
- Can we assume that the access pattern for keys will be uniform and random?
- Is it critical that individual operations be fast, or only that the total amount of work done over the entire program be minimized?

Ujwala B

00:04:14 00:04:17

• With its 50 million users and 7 million drivers (source), one of the most important things that is critical to Uber's functioning is the ability to match drivers with riders in an efficient way. The problem starts with locations.

Uber baked

(A) (B)

Ujwala B

00:04:44 00:04:47

### References

- Skiena, S.S., 2008. The Algorithm Design Manual Second Edition.
- <https://dev.to/javinpaul/50-data-structure-and-algorithms-problems-from-coding-interviews-4lh2>
- <https://www.hackerearth.com/blog/developers/7-steps-to-improve-your-data-structure-and-algorithm-skills/>
- <http://sofia.cs.vt.edu/cs1114-ebooklet/chapter4.html>
- <https://adrianmeija.com/data-structures-for-beginners-graphs-time-complexity-tutorial/>
- <https://www.freecodecamp.org/news/i-dont-understand-graph-theory-1c96572a1401/>

Ujwala B

01:09:54 01:09:57

REC You are presenting

Meeting details

Participants:

- Ujwala B
- Sahana Khantolkar
- Manish Joshi
- Rohit Purohit
- Appi Anand
- Sahana Khantolkar
- MAT Instruktur
- Sorany Doolker

Sahana Khantolkar

01:11:12 00:01:19