



Hope Foundation's
International Institute of Information Technology (I²IT)
Hinjawadi, Pune- 411057

Department of Information Technology

Activity Report

Guest Lecture

Academic Year: 2020-21

Semester: I

Name of Event: Guest Lecture

Date of Conduction: 15th September 2020

Time: 10:00 AM to 12:00 PM

Targeted Audience: SE IT

Number of Participants: 65

Venue: Online

Topic: “Foundations of Data Structures”

Resource Person: Dr Abhijat Vichare

Coordinator: Prof. Manjusha Amritkar

Objectives:

To introduce the new concepts of data structures this will be helpful in the future

Outcomes:

Students will be able to apply the fundamentals of data structures.

Activity Description:

Data structures are one of the most important parts of the computer world, still each time the same thing is learnt and taught by many. We often forget to look at these structures differently. This time, in an Online Guest Lecture, Dr. Abhijat Vichare, an ACM India eminent speaker, taught the 2nd year IT students a different way of looking at data and data structures.

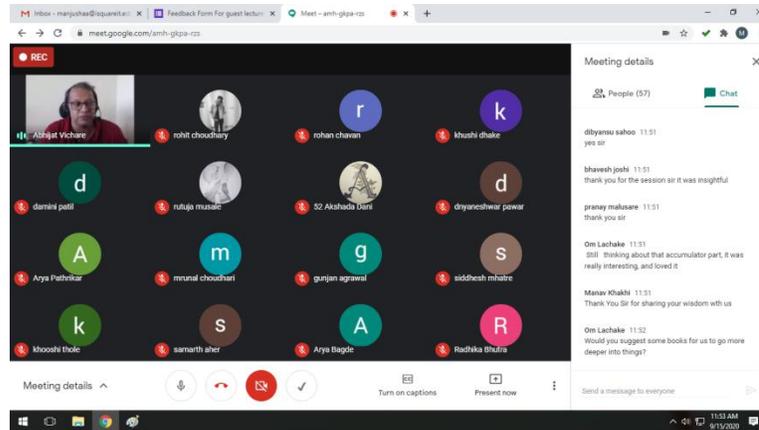
Started with the most basic explanation about what data is, why structuring it is important, moving to the Abstraction of this data, going deep till the bits and bytes, explaining the concept of the standardization, and the basics in simple terms.

Aggregation, a bunch of data types brought together to create a new type; Containers, strategies or methods to contain this data, like Lists, Trees, Graphs etc and Constraints ,conditions imposed on using the types, aggregations or containers, like FIFO(queue) ,LIFO(stack) ,etc. , are just other ways for explaining Data Structures into more simpler terms. This being just the thing needed to get the students on their feet, the best was saved for the last.

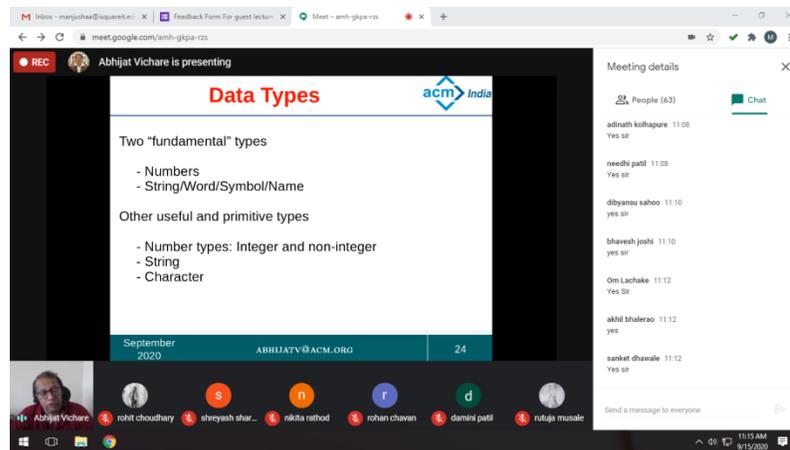
Lists, the linear container, were the focus of this lecture by Mr. Abhijat. More than theoretical, a mathematical approach was being taken to make the students understand the recursive structure of the list container, rather than the sequential structure that we all habitually make use of. The idea to use the recursive functions, for calculations, like, sum, product, etc. was just using smaller functions where we could get the desired results. Making one BIG accumulator, in his words, which combines all these functions, and just passing the required parameters, would be an interesting approach to this recursive list structure. This explanation, being an interesting and also a difficult to understand way of recursion, left the students wondering and thinking about it. Opening some different approaches to

the Data Structures rather than frequently used forms definitely made some impact on the students and the teachers as well.

Activity Photos:



Dr. Abhijit Vichare with students



Dr. Abhijit Explaining fundamentals

REC Abhijet Vichare is presenting

Structuring Data: Containers acm India

Strategies for "containing" data.

Key Ideas:

Linear: Lists
Key operation: Given current container, find the next container.
Implementation: Programming language supported - Array, Programmer supported - Linking information. Linking information is either aggregated or not aggregated. Former - typical linked list.

Hierarchical: Trees
Key operation: Given current container, find all the "child" containers.
Implementation: Array based, or linking information based.

Arbitrary: Graphs
Key operation: Given current container, find all the "adjacent" containers.
Implementation: List of adjacent containers or "Matrix" based.

September 2020 ABHIJATV@ACM.ORG 35

Meeting details

People (42) Chat

adinath kolhapure 11:08
Yes sir

neehi patil 11:08
Yes sir

dibyansu sahu 11:10
yes sir

bhavesb joshi 11:10
yes sir

Om Lachake 11:12
Yes Sir

akhil bhalariao 11:12
yes

sanket dhawale 11:12
Yes sir

Send a message to everyone

Meeting details ^

Turn on captions Abhijet Vichare is presenting

11:18 AM 9/15/2020

Dr Abhijet explaining containers