Department of Information Technology :: VRSEC III/IV B. Tech - VI th Semester 20IT6205C - INTRODUCTION TO DATA STRUCTURES A.Y: 2023-2024

Active Learning Method: Flipped classroom

A flipped classroom is an instructional strategy where traditional learning environments are reversed. In a flipped classroom, typical lecture and homework elements are inverted. Here's how it usually works:

Pre-Class Learning: Students are first introduced to new material outside of class, typically through videos, reading assignments, or online lectures. This allows students to learn at their own pace, pausing and rewatching as needed.

In-Class Activities: Classroom time is then dedicated to engaging in hands-on activities, problemsolving, discussions, and applying the knowledge they acquired during their pre-class learning. The teacher acts as a facilitator and provides guidance and support rather than delivering direct instruction.

Topics:

• Travelling Salesman problem with example.

The Traveling Salesman Problem (TSP) is a classic optimization problem in computer science and operations research. The goal of the problem is to find the shortest possible route that visits a given set of cities exactly once and returns to the origin city. Here's a detailed look at the TSP:

Problem Definition

- Input: A list of cities and the distances (or costs) between each pair of cities.
- **Output:** The shortest possible route that visits each city exactly once and returns to the starting city.

Example

Consider a TSP with four cities: A, B, C, and D. The distances between the cities are as follows:

An optimal solution would be a route such as $A \rightarrow B \rightarrow D \rightarrow C \rightarrow A$ with a total distance of 80 units.

Visualization

Here's a simple graph representation of the TSP:

css Copy code A /|\ B-+-C \|/ D

The goal is to find the shortest path that visits each node exactly once and returns to the starting node.

Conclusion

The Traveling Salesman Problem is a foundational problem in optimization and combinatorial mathematics. Despite its computational difficulty, it has inspired the development of various algorithms and techniques that are applicable to a wide range of practical problems.

Standard Operating Procedure (SOP)

Introduction:

Challenges of a Flipped Classroom:

- Access to Technology: Students need reliable access to the internet and devices for the pre-class learning component.
- Self-Discipline: Students must be self-motivated to complete the pre-class assignments.
- **Teacher Preparation:** Teachers need to prepare and curate quality pre-class materials and plan effective in-class activities.

Overall, the flipped classroom model aims to create a more interactive and student-centered learning environment.

ACTIVE LEARNING

Name of the Faculty: P. Rama Devi	Designation: Assistant Professor	Subject: Introduction to Data Structures
Year/ Semester: 3 rd Year, VI th Sem	Branch: EC	Topics:
		Travelling Sales man Problem
Name of the Activity:	Date:	No. of students attended: 35
Flipped Classroom	23-04-2024	

Objective of the Activity:

The flipped classroom model aims to create a more dynamic, interactive, and effective learning environment that better meets the needs of students and prepares them for future academic and professional challenges.

Execution Plan:

Time management: Class time: 50mins

- Student Explanation : 35 mins
- Teacher summary : 15 mins

Expected Outcomes:

The flipped classroom model has the potential to improve student outcomes, enhance engagement, and foster skill development. However, its success depends on careful planning, student buy-in, and addressing potential challenges related to technology access and student accountability.

No. of students attended: 35

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Attendance Posted Student List								
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1	218W1A04F6		KALISETTI ADITYA VARDHAN				×	
2	218W1A04F7		KARANAM RAMA SRIJA				×	
3	218W1A04G2		KOLLIPARA NAVYA SRI				×	
4	218W1A04G4		KOSURU TEJO ROHITH				~	
5	218W1A04G6		MADDURI RAMA PRASANTH				~	
6	218W1A04H0		MANCHA DIVYA POOJITHA				~	
7	218W1A04H2		MANDEM SRUJANASREE				×	
8	218W1A04H3		MANGALI RAGINI				×	
9	218W1A04H4		MATURI RAMYA SRI				×	
10	218W1A04H5		MOKKAPATI HARSHITHA				×	
11	218W1A04H8		PADALA GOWTHAM				×	
12	218W1A04H9		PASAM BALADITYA				×	
13	218W1A04I0		PASAM NARENDRA				×	
14	218W1A04I3		RAMAVATH RANGA NAIK				×	

15	218W1A04I6	SENNAMSETTI SIVA RAMA KRISHNA	~
16	218W1A04I8	SHAIKSHAFIYA	~
17	218W1A04J0	SUDABATHULA SAI TEJA	~
18	218W1A04J1	SUNKARA VIGNESH NAGA MANIKANTA	~
19	218W1A04J2	TATINENI NAVYA SRI RASHMITHA	~
20	218W1A04J7	ABDUL EREFAN BAIG	~
21	218W1A04J8	ALAMANDA KRANTHI KUMAR	×
22	218W1A04K0	ANNAVARAPU SAMUEL	×
23	218W1A04K2	AVULA CHANDRAKANTH	×
24	218W1A04K3	BHAVIRISETTY PRANAV PARASHURAM	×
25	218W1A04K4	BOLLA HARI SAI CHANDU	~
26	218W1A04K5	BURLA SURYA TEJA	×
27	218W1A04K9	GADUTHURI RAM VINAY BHARATH KUMAR	~
28	218W1A04L5	HARSHITHA TALAPALA	~
29	218W1A04L6	J JAYA RAMA KRISHNA SHABAREESH	~
30	218W1A04M2	KONGARA VINNU	×
31	218W1A04M6	KUNDETI SAI CHAND	×
32	218W1A04N0	MAMIDI HEMA VARSHINI	×
33	218W1A04N2	METTELA CHANDU	×
34	218W1A04N3	NADENDLA VENKATA SIVA SIDDARTHA	~
35	218W1A04N6	NARISETTI JASWANTH	~
36	218W1A04N9	PAIDISETTY SRI CHARAN	×
37	218W1A04O0	PINABAKALA BALA RAJU	×
38	218W1A04O3	PODURI KUMARSWAMI	~
39	218W1A04O6	PULLA SANDEEP KUMAR	×
40	218W1A04P3	THOTA KRUPA SAGAR	×
41	218W1A04P7	VASANTHALA HARSHINI SAI RAMA KATYAYANI	×
42	218W1A04P8	VEMAVARAPU SURYATEJA	~
43	228W5A0406	PODUGU YAMINI	~
44	228W5A0407	SANEGAVARAPU BINDU NIKITHA DEVI	~
45	228W5A0413	PONUGUPATI YAGNIKA	~
46	228W5A0415	BELLAMKONDA NAGA LAKSHMI	×
47	228W5A0416	IDDAMSETTI POONAM	~
48	228W5A0417	MECHARLA NAVEEN BABU	×
49	228W5A0418	PATCHIPULUSU VENKATA SUPRIYA	~
50	228W5A0419	PRATHIPATI SANDHYA	~
51	228W5A0420	SOLASUTTU BHAVANI	
52	228W5A0421	THADIBOINA GOWTHAM	×
53	228W5A0425	PEDASANAGANTI BHUVANA SRI HARIKA	
54	228W5A0427	SANGEPU BHUVANESHWAR	
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<u>Few Glimpsesof the Activity:</u>



This type of learning method is useful for students to clear their doubts by discussion, which leads to good Score at the semester end exam.