



DEPARTMENT OF IT :: VRSEC
17IT3503: COMPUTER NETWORKS
A.Y. 2021-22



Case-Study based Learning

Standard Operating Procedure (SOP)

Introduction:

Many students are more inductive than deductive reasoners, which mean that they learn better from examples than from logical development starting with basic principles. The use of case studies can therefore be a very effective classroom technique. A major advantage of teaching with case studies is that the students are actively engaged in figuring out the principles by abstracting from the examples. This develops their skills in:

- Problem solving
- Analytical tools, quantitative and/or qualitative, depending on the case
- Decision making in complex situations
- Coping with ambiguities

Teacher gives the case studies to be solved on the topic after the topic has discussed in the class. Students then split into small groups. Students can be given support through this activity to achieve higher grades, learn at a deeper level, retain information longer, acquire greater communication and teamwork skills, and gain a better understanding of the environment in which they can be able to work as professionals.

ACTIVE LEARNING

Name of the Faculty: Dr.N.Neelima, K.Pranathi	Designation: Assistant Professor	Subject: Computer Networks
Year/ Semester: III/I	Section: A,B	Topic: Computer Networks
Name of the activity: Case-Study based learning	Date: 30-12-2021	No. of students attended: 70

Objective of the activity:

- Understand the applicability and impact of these solutions in different contexts, in order to better structure the development of networking solutions
- Understanding the well-researched and compelling narrative about the network , that need to make a decision for packets transmission
- Identify suitable protocols for transferring data

Execution Plan:

- Forming student groups (3 students)
- Solving the Case study
- Demonstrations by each group: 30mins
- Course coordinator summary : 5mins

Students have to solve the following sample case studies

1. Case-Study 1: Suppose the network layer provides the following service. The network layer in the source host accepts a segment of maximum size 1,200 bytes and a destination host address from the transport layer. The network layer then guarantees to deliver the segment to the transport layer at the destination host. Suppose many network application processes can be running at the destination host.(Batch-4)
 - a. Design the simplest possible transport-layer protocol that will get application data to the desired process at the destination host. Assume the operating system in the destination host has assigned a 4-byte port number to each running application process.
 - b. Modify this protocol so that it provides a “return address” to the destination process.
 - c. In your protocols, does the transport layer “have to do anything” in the core of the computer network

Case-Study 2: Implement Sending and Receiving Data between Mobile and Data Logger: The goal of this case study is to develop Mobile application using Bluetooth API to communicate with Data Logger and to receive the data and display on the screen. Special option should be created for the user to send the received data to web server. Main issue of using Bluetooth is to replace cables and low cost

Case-Study3: In this case study, you will develop a Web proxy. When your proxy receives an HTTP request for an object from a browser, it generates a new HTTP request for the same object and sends it to the origin server. When the proxy receives the corresponding HTTP response with the object from the origin server, it creates a new HTTP response, including the object, and sends it to the client. This proxy will be multi-threaded, so that it will be able to handle multiple requests at the same time.

For this assignment, the companion Web site provides the skeleton code for the proxy server. Your job is to complete the code, and then test it by having different browsers request Web objects via your proxy

Case-Study3: Suppose that a data warehouse consists of the four dimensions date, spectator, location, and game, and the two measures count and charge, where charge is the fare that a spectator pays when watching a game on a given date. Spectators may be students, adults, or seniors, with each category having its own charge rate. (a) Draw a star schema diagram for the data warehouse. (b) Starting with the base cuboid [date, spectator, location, game], what specific OLAP operations should you perform in order to list the total charge paid by student spectators at GM Place in 2010? (c) Bitmap indexing is useful in data warehousing. Taking this cube as an example, briefly discuss advantages and problems of using a bitmap index structure.

Case-Study4: BitTorrent is a communication protocol for peer-to-peer file sharing, which enables users to distribute data and electronic files over the Internet in a decentralized manner. To send or receive files, a person uses a Bit Torrent client on their Internet-connected computer. When you download a web page like this one, your computer connects to the web server and downloads the data directly from that server. Each computer that downloads the data downloads it from the web page's central server. This is how much of the traffic on the web works. Implement the Bit Torrent protocol

Expected Outcomes:

The students can be able to

- Understand the applicability and impact of these solutions in different contexts, in order to better structure the development of networking solutions
- Understanding the well-researched and compelling narrative about the network, that need to make a decision for packets transmission
- Identify suitable protocols for transferring data

Assessment of the effectiveness of the activity:

Table 1:Assessment of the effectiveness of the activity

Group. No	Regd. No of the Student	Marks Scored in Assignment-2	Marks Scored in Sessional-2	Impact/ Outcome
1	198W1A1284	7.5	10	Improved
	198W1A1287	8	10	Improved
	208W5A1210	6	9	Improved
2	198W1A1278	8.5	9	Improved
	198W1A1292	10	9	Improved
	198W1A12A6	8	9	Improved
3	198W1A1277	8.5	10.5	Improved
	198W1A12A4	7.5	8	Improved
	198W1A12C7	9	8.5	Improved
4	198W1A1272	8	9	Improved
	198W1A12B3	7	8	Not improved
	198W1A12C6	7.5	9	Improved
5	198W1A1279	8	12	Improved
	198W1A1297	9	7.5	Improved
	198W1A12B2	7.5	11.5	Improved
6	198W1A1282	6.6	7	Improved
	198W1A12C4	7	9.5	Improved
	208W5A1212	7	10	Improved
7	198W1A1265	9.5	10	Improved
	198W1A1285	8.5	8.5	Improved
	198W1A12B6	8	10.5	Improved
8	198W1A1269	9	8.5	Not Improved
	198W1A1271	9	8	Not Improved
	198W1A1293	8.5	8.5	No change
9	198W1A1266	10	8	Not improved
	198W1A1289	9.5	8.5	Not improved
	198W1A12C0	8.5	8	Not improved
10	198W1A1280	8	8.5	Improved
	198W1A1283	8	7.5	Not improved
	198W1A12C8	6.5	7.5	Improved
11	198W1A1273	7.5	8	Improved
	198W1A12A1	9.5	7.5	Not improved
	198W1A12A2	9	8.5	Not improved
12	198W1A12B7	7	11.5	Improved
	198W1A12B9	6.5	8	Not improved
	198W1A12C5	9	11	Improved
13	198W1A1275	7	7.5	Improved
	198W1A12A7	9	11	Improved
	198W1A12B5	8.5	11	Improved
14	198W1A1298	8	10.5	Improved

	198W1A12A9	8	10	Improved
	198W1A12C2	8.5	9.5	Improved
15	198W1A1276	8	8	No change
	198W1A12A8	6	7.5	Improved
	208W5A1208	6	7.5	Improved
16	198W1A1267	10	9.5	Not improved
	198W1A12B1	7	5	Not improved
	198W1A12B4	9.5	7.5	Not improved
17	198W1A1274	10	8	Not improved
	198W1A1295	9	8	Not improved
	198W1A1296	9	7.5	Not improved
18	198W1A12A5	7.5	9.5	Improved
	198W1A12B0	8	11	Improved
	198W1A12C3	6.5	9	Improved
19	198W1A1281	8	9.5	Improved
	198W1A1286	8	9	Improved
	198W1A12B8	8	8.5	Improved
20	198W1A1270	8.5	8.5	No change
	198W1A1291	8	8	No change
	198W1A1294	7.5	8	Improved
21	198W1A12A3	7.5	11	Improved
	198W1A12C1	7	10	Improved
	208W5A1211	9	11	Improved
22	198W1A1268	10	8	Not improved
	198W1A1299	9	8.5	Not improved
	198W1A12A0	7.5	7	Not improved
23	198W1A1288	9	8	Improved
	198W1A1290	9	7.5	Improved
	208W5A1207	4	7	Improved
	208W5A1209	5	7	Improved

Students Performance	No of Students	Percentage
Improvement/No change	51	73%
Not Improvement	19	27%

Impact before and after the Activity

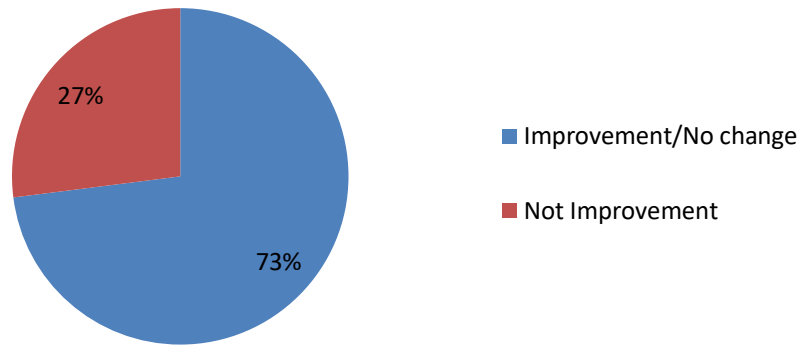


Fig 1: Impact before and after the activity