



VIT[®]
Vellore Institute of Technology
(Deemed to be University under section 3 of UGC Act, 1956)

Computer Networks -SWE2002

Class ID : CH2022232500859

(6*10=60 marks)

Faculty In charge: P. Pankaja Lakshmi

Instructions for Lab Submission:

1. Each Program should contain :

- a) Problem definition
- b) Method
- c) Code(whenever necessary)
- d) For CPT (screenshot of the designed network)
- e) Output screenshot.
- f) With Name and register number.
- g) Submit as a PDF file in LMS
- h) Each assessment has more than one subdivision. Combine and submit as a single pdf file for each.

List of Experiments

Assessment -1

(Due Date:15-5-23)

- (a) Basic Network commands.
- (b) Simple message transfer using TCP Socket Programming.
- (c) Write a TCP socket program, the sum of random numbers generated by the server display in the client.
- (d) Write a program to implement a chat server and client in Java using TCP sockets.
- (e) Using TCP Sockets write a program to display the current date and time.

Assessment-2**(Due Date:23-5-23)**

- (a) Client is sending a message to the server. The server encodes the message and returns to the client.(Encoding is done by replacing the character by the ASCII value of the remainder using the formula($\text{ASCII}(\text{chr}) \bmod (n^{\text{th}} \text{prime})$)n-value is sent by the client)Write the program to implement the above.
- (b) Implement a TCP/IP socket-based ATM system. Server – to maintain the customer details (Name , Cardno, Pin, Balance). Client – when a customer wants to withdraw an amount, validate his login with pin and balance.
- (c) In an IPV4 packet the value of header length is 1000 in binary. Write a code to find how many bytes of options are being carried by this packet.

Assessment -3**(Due Date:6-6-23)**

- (a) Write a program to implement a simple message transfer from client to server using UDP sockets.
- (b) Write a UDP-based server code to get the date of birth of the client and calculate the age as of today. The client has to enter, the year, month, and day of birth.
- (c) Write a UDP-based server code to broadcast a message to the nodes in a LAN
- (d) Write a code to implement border gateway protocol(BGP)

Assessment -4**(Due Date:13-6-23)**

- (a) The generated polynomial for the CRC error detection scheme is X^5+X^3+1 . The data to be transferred from the server is 111011010011001. Write the code to find the data transferred from the sender.
- (b) Write the code for error correction techniques (i) Hamming distance and (ii) Reed-Solomon code.
- (c) An organization plans to send general instructions to the in charge of each department using a socket. Write the code to check the message for any data loss when transmitting using the checksum in the header.

Assessment -5**(Due Date:27-6-23)**

- (a) Design a Client-Server LAN with Mesh Topology using Cisco Packet Tracer and check the PDU transmission between the nodes.
- (b) Configure ARP using CPT
- (c) Design a network with OSPF using CPT
- (d) Configure DHCP using CPT

Assessment – 6**(Due Date:30-6-23)**

- (a) Establish a wired network for your startup concern and configure it with a suitable protocol and measure the performance.
- (b) Establish a wireless network for your startup concern and configure it with a suitable protocol and measure the performance.
- (c) Compare the performance of the above two scenarios.
- (d) Using Wireshark, Capture, Filter and inspect the packets for the above network.