III Year II Semester

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Code: 17CS651

MEAN STACK-I
(Skill course lab-I)

Experiment 1: (HTML Tags)
   a. Create a webpage with HTML describing your department. Use paragraph and list tags.
   b. Apply various colors to suitably distinguish key words. Also apply font styling like italics, underline and two other fonts to words you find appropriate. Also use header tags.
   c. Insert an image and create a link such that clicking on image takes user to other page.

Experiment 2: (Sign in and Signup Form)
   a. Design a Sign in and Signup form with validation using HTML

Experiment 3: (Table formatting)
   a. Design a mark sheet and display all your marks with subjects in a tabular format.
   b. Create a table to show your class time-table.
   c. Design a webpage to List a table of content and navigate within the pages.

Experiment 4: (Different ways to write Cascading Style Sheets)
   a. Design a web page using Inline Style Sheet
   b. Design a web page using Internal Style Sheet
   c. Design a web page using External Style Sheet

Experiment 5: (class selector, id, CSS Back ground properties)
   a. Design a web page using CSS and use class selector and id observe the difference
   b. Design a webpage using CSS Overriding rules
   c. Design a webpage using CSS background, border, margins, padding etc..,

Experiment 6: (Web page creation using HTML and CSS)
   a. To create a web page that displays college information using various Style sheets.

Experiment 7: (Different ways to write Java Script using HTML and JavaScript)
   a. Create a webpage embedding javascript (Both internal and external) in html

Experiment 8: (Registration form validation using HTML, CSS and JavaScript)
   a. Design a registration form and validate its field by using javascript

Experiment 9: (Scientific Calculator using HTML, CSS and JavaScript)
   a. To design the scientific calculator and make event for each button using javascript.

Experiment 10: (Introduction to Angular JS)
   a. Design a sample web page using Angular JS, and prints "Hello Angular" message in the browser window (Learn about script tag and angular directives ng-app, ng-model, Angular JS expression).

Experiment 11: (Introduction to Angular JS)
   a. Design a sample web page using Angular JS directives such as ng-bind and ng-controller**,** ng-init, grepeat, ng-if, ng-readonly, ng-disabled.

Experiment 12: ($scope and $rootScope)
   a. Design a sample web page using Angular JS shows the difference between $scope and $rootScope

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INTERNET OF THINGS
(Skill course lab-I)

1. Home automation using IOT
2. Smart Irrigation using IOT
3. IOT using Raspberry Pi
4. Smart building using IOT & PIR.
5. IOT using Arduino board
6. Automated Street light using IOT
7. Smart water Monitoring using IOT
8. Weather Monitoring System
9. An Investigation on a Mobile Robot in a ROS Enabled Cloud Robotics Environment.
10. A Cloud-based Internet of Things Platform for Ambient Assisted Living
11. Internet of Robotic Things: Concept, Technologies, and Challenges.
12. Experimental Evaluation of Uni cast and Multicast CoAP Group   Communication.

CAMPUS CONNECT PROGRAM
(Skill course lab-I)

TASK 1
Aquaman is the first movie that is being screened in nehru Memorial Hall. Some of the seats in the hall are designated as Free Seats and the remaining seats in the hall are designated as Paid Seats. There are 2 types of Paid Seats --- Class A Seats and Class B Seats. Given the total number of free seats, number of Class A and Class B seats, write a program to find the percentage of each type of seats.

TASK 2
The seats in the nehru Memorial Hall are arranged in a 2-D grid fashion in m rows and n columns. The seats are numbered starting from 1 in row-wise order. You are searching for your friend Rita. Rita has messaged you that she is sitting in seat number X. Can you find the row and column number in which Rita is sitting?

TASK 3
This program must calculate how many tiles are needed to tile a floor. The tiles are 8 inches by 8 inches. Tiles can be used as a whole or a part of the tile can be used. Only one usable piece can be cut from a tile. That is, if a piece is cut from a tile, the rest of the tile must be thrown away. The program accepts the length and width of the room and returns how many whole tiles are used and how many part tiles are used. The length is given in inches.

TASK 4
 Every day few of the customers are given a lucky gift. Lucky gift is given to a customer when his / her bill number ends with the last digit of that day number or when the bill number is a multiple of the day number. Can you help Gita in deciding whether a customer gets the lucky gift or not?

TASK 5
Sita owns the valuable customer card in the Personalised Gifts store. Sita purchases 3 gift articles priced at Rs.r1, Rs.r2 and Rs.r3. As a valuable customer she can avail one of the 2 offers --- 20% discount on each of the 3 items purchased or she can go for an offer where she will get 1 item of the lowest cost free. Which of the 2 offers would be beneficial for Sita? Can you please help her out?

TASK 6
Peter and Billy are great fans of even numbers, that's why they want to divide the watermelon in such a way that each of the two parts weighs even number of kilos, at the same time it is not obligatory that the parts are equal. But the difference between the 2 parts should be minimal. The boys are extremely tired and want to start their meal as soon as possible, that's why you should

help them and find out, if they can divide the watermelon in the way they want. For sure, each of them should get a part of positive weight.

TASK 7
Atul Gawande
Dr. Hippocrates wants AtulGawande to be more intelligent in scaling the images, so that he can identify things even if it is zoomed-in or zoomed-out. So he plans to give some input images to AtulGawande and ask him to create patterns for the images in different sizes. He found out that giving flag images would help him get trained better. Now help AtulGawande to create patterns Write a program to generate the Vietnam country flag pattern. In Vietnam flag, Red color should be
represented by "~" symbol. Star should be represented by "*" symbol.

TASK 8
Patrick started to play card game - V. In this game, Patrick has to pick one card from the shuffled cards. If the card number is a Kaprekar number, then he wins the game. Patrick is unaware of Kaprekar number. Patrick decided to ask the manager about this number. The manager explains to him that consider a n-digit number k. Square it and add the right n digits to the left n or n-1 digits. If the resultant sum is k, then k is called a Kaprekar number.For example, 9 is a Kaprekar number since 92 = 81 & 8+1=9. 297 is a Kaprekar number since 2972 = 88209 & 88+209 = 297.Write a program to help Patrick to find whether a card number he picked is a Kaprekar number or not.

TASK 9
A maths teacher asks her students to give 3 examples for positive odd numbers. When the student specifies a correct answer, his/her score is incremented by 1. When the student specifies a positive even number, his/her score is decremented by 0.5. When the student specifies a negative number, he/she will not be given any more chances to correct his or her mistake and his/her score will be decremented by 1. So a student's turn comes to an end when he/she has correctly specified 3 positive odd numbers or when the student has specified a negative number.Few students didn't know the difference between odd numbers and even numbers and they made many mistakes and so it was difficult for the teacher to maintain the scores. The teacher asks for your help.Can you please help her by writing a program to calculate the score?

TASK 10
Given a sorted array and a value x, the ceiling of x is the smallest element in array greater than or equal to x, and the floor is the greatest element smaller than or equal to x. Assume than the array is sorted in non-decreasing order. Write a program to find floor and ceiling of x. Example: Let the input array be {1, 2, 8, 10, 10, 12, and 19} For x = 0: Floor does not exist in array, Ceil = 1 For x = 1: Floor = 1, Ceil = 1 For x = 5: Floor = 2, Ceil = 8 For x = 20: Floor = 19, Ceil does not exist in array.Assume: The array elements are positive.

TASK 11
Alice and Bob like games. And now they are ready to start a new game. They have placed n chocolate bars in a line. Alice starts to eat chocolate bars one by one from left to right, and Bob from right to left. For each chocololate bar the time, needed for the player to consume it, is

known (Alice and Bob eat them with equal speed). When the player consumes a chocolate bar, he immediately starts with another. It is not allowed to eat two chocolate bars at the same time, to leave the bar unfinished and to make pauses. If both players start to eat the same bar simultaneously, Bob leaves it to Alice as a true gentleman.How many bars each of the players will consume?

TASK 12
You are given two vectors $v1=(x1,x2,...,xn)$ and $v2=(y1,y2,...,yn)$. The scalar product of these vectors is a single number, calculated as $x1y1+x2y2+...+xnyn$.Suppose you are allowed to permute the coordinates of each vector as you wish. Choose permutations such that the scalar product of your two new vectors is the smallest possible, and output that minimum scalar product.

TASK 13
The terrorist leader has just sent an urgent message to the his team, but the message has been distorted by subspace interference. All of the strings "th" have been replaced with "iiing". Your job is to unscramble the message.

TASK 14
Given a pair of words (the first is the correct spelling and the second is the contestant's spelling of the word) determine if the word is spelled correctly. The degree of correctness is as follows: CORRECT if it is an exact match ALMOST CORRECT if no more than 2 letters are wrong WRONG if 3 or more letters are wrong

TASK 15
The Committee for Tidy Language has declared the string "FOO" to be untidy. They have therefore decided to replace it by "OOF". However, this can create new instances of "FOO". You are to write a program that goes through a string of characters as many times as necessary, replacing each instance of "FOO" by "OOF" until no more instances exist.