# LAB MANUAL



# FACULTY OF ENGINEERING

## TMU, MORADABAD

### Session: 2020-21

# Manuals/ Assignments Index

## Session 20-21 (Odd Sem. )

| S. No. | Course | Course Code | Subject | Status |
|---|---|---|---|---|
| 1 | B.Tech. (CS) | ECS355 | Data Structure using C(Lab) | Yes |
| 2 | B.Tech. (CS) | ECS356 | Data Base Management System (Lab) | Yes |
| 3 | B.Tech. (CS) | EEC 351 | Digital Logic Circuit Lab | Yes |
| 4 | B.Tech. (CS) | ECS552 | Analysis and Design Algorithm (Lab) | Yes |
| 5 | B.Tech. (CS) | ECS554 | Java Programming (Lab) | Yes |
| 6 | B.Tech. (CS) | ECS555 | Computer Network(Lab) | Yes |
| 7 | B.Tech. (CS) | ECS 751 | Web Technology (Design and Architecture using ·NET) (Lab) | Yes |
| 8 | B.Tech. (CS) | ECS 752 | Cryptography and Network Security (Lab) | Yes |

## Session 20-21 (Even Sem. )

| S. No. | Course | Course Code | Subject | Status |
|---|---|---|---|---|
| 1 | B.Tech. (CS) | ECS456 | Java Programming (Lab) | Yes |
| 2 | B.Tech. (CS) | ECS453 | Computer Based Numerical & Statistical Techniques (Lab) | Yes |
| 3 | B.Tech. (CS) | ECS455 | OS Lab with Software Engineering (Lab) | Yes |
| 4 | B.Tech. (CS) | ECS651 | Artificial Intelligence (Lab) | Yes |
| 5 | B.Tech. (CS) | ECS653 | Big Data Analytics (Lab) | Yes |
| 6 | B.Tech. (CS) | ECS851 | Data Warehousing and Data Mining (Lab) | Yes |
| 7 | B.Tech. (CS) | ECS854 | Android Programming (Lab) | Yes |

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# LAB ASSIGNMENT REPORT

## On

## (ECS 355)

## (Data Structures using C Lab)



## FACULTY OF ENGINEERING

## BACHELOR OF TECHNOLOGY (CSE)

### Session: 2020-2021 (Odd Semester)

*Submitted To:*

*Name:*

*Submitted By:*

*Student Name :*
*Enrollment No.*

## Practical List - Data structure

### 1. General

1.  WAP to compute the average of given real numbers using all loops.

2.  WAP that takes an integer number from user and check it is palindrome or not.

3.  WAP to generate the Armstrong numbers from N to M.

4.  WAP to calculate the factorial of a number.

5.  WAP to calculate the factorial of a number using recursion .

6.  WAP to implement the Formula n C r.

7.  WAP to print the Pascal Triangle.

8.  WAP to print the following sequence of numbers using recursion 0,1,1,2,3,5,8,13,21,34...........

9.  WAP for tower of Hanoi.

10. WAP that create a FILE data and perform write and read operation.

### 2. Array

1.  WAP to insert a specific element in an array of size n.

2.  WAP to delete the specific element in an array.

3.  WAP to to print the sum of the diagonal element of the M*N square matrix

4.  WAP to find the maximum element in a array & find how many times it is coming in a array of size n

5.  WAP to calculate sum of the element of two square matrix pointer

6.  WAP to calculate product of the element of two square matrix using pointer

7.  WAP to find the maximum element in an array A of size n (using all loop & recursion)

8.  WAP using function to perform the multiplication of matrix by scalar quantity using pointer.

9.  WAP to search an element in integer array ,if found then return the position of element of array else return -1.

10. WAP to merge two sorted array and make a combined sorted array. If the input array is not sorted that (firstly sort both the array using insertion sort method).

11. WAP to generate a magic square of size N.

12. WAP which find whether a matrix, input by the user is Magic Square or Not.

13. WAP to implement operations upon sparse matrix

## 3. Structure

1. WAP that take the details of the Student ( Stu_name,Stu_roll, Stu_course, Stu_marks, of three subject ).

Then show the show the details of the student as well as their Percentage.

 2. WAP that take the details of the Employee (Enamel,Empno,Empdeptno,Empsal,Empmgr,Empjob)

through pointer..

## 4. Searching

1. WAP to search an element using Binary Search Method.

2. WAP with different Functions for implementing the hashing concept.

## 5. Sorting

1.  WAP to sort a array of given numbers in ascending order using selection sort method.

2.  WAP to sort a array of given numbers in ascending order using bubble sort method.

3.  WAP to sort a array of given numbers in ascending order using Insertion sort method.(note :- input numbers in an array should be random .)

4.  WAP to sort a array of given numbers in ascending order using Quick sort method.

5.  WAP to sort a array of given numbers in ascending order using Heap sort method.

6.  WAP to sort a array of given numbers in ascending order using Two-way Merge Sort method.

7.  WAP to perform a Binary tree Sort.

8.  WAP that take the data of B.Tech II Sem student and store it in Ascending order by their names.

Note:- Try to demonstrate the complexity of different sorting algorithm with graph.

## 6. String

1.  WAP a program to check a given string is palindrome or not (the user should give the string

2.  WAP for comparison of two string without using strcmp() function. The user should gives the string

3.  Find the substring in a string. The string & the length & the starting position of the substring are given by user

4.  WAP to calculate the length of string without using library functions

5.  WAP to reverse the string without using library function

6. WAP to concatenate the two string without using library function

7. WAP to copy one string to another string without using library function

8. WAP which will read a text & count all occurrences of a particular word in given string .

## 7. Linked List

1. WAP for making a linear linked list with following operation :- (1) Insertion (at beginning , at end ,at particular position , after particular position , before particular position ) (2) Deletion (at beginning , at end , particular position , particular element ) (3) Traverse in Reverse order . (4) search an element (5) Sort the elements.

2. WAP with above operations for the doubly linked list .

## 8. Tree

1. WAP to search the element in a Binary search tree.

2. WAP for Tree Traversal in Pre-order.

3. WAP for Tree Traversal in In-order.

4. WAP for Tree Traversal in Post-order.

5. WAP to insert and delete a node from the BST.

(NOTE:- Make a single program for all operations of a BST )

## 9. Stack

1. WAP for implement a Stack though Linked List.

2. WAP to perform push & pop operation on the stack. Check the underflow & overflow condition using array.

3. WAP to implement multi Stack with array.

4. WAP a program to evaluate a postfix expression

5. WAP to convert infix to postfix expression

6. WAP to convert infix to prefix expression

## 10. Queue

1. WAP to implement the Queue using Array.

2. WAP to implement the Queue using Linked List

3. WAP to implement Circular Queue with array.

4. WAP to implement the priority Queue.

## 11. Graph

1. WAP for Graph Traversal (BFS , DFS )

2. WAP for Minimum cost spanning tree, shortest path.

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# LAB ASSIGNMENT REPORT

## On

## ECS 356

## Database Management System Lab

**Faculty of Engineering,
Bachelor of Technology (CSE)**

Session: 2020-2021 Odd Semester

*Submitted To:*

Name:

*Submitted By:*

Student Name:

Enrollment No. :

## LAB ASSIGMENT NO. – 1

| S No | Query Detail | Page No | Date | Sign | Remark |
|------|-------------|---------|------|------|--------|
| 1 | Create the table with their Constraints.<br>Table:- CLIENT_MASTER | | | | |

| Column Name | Data type | Size | Attribute Constraints |
|-------------|-----------|------|----------------------|
| CLIENTNO | VARCHAR2 | 6 | Primary Key/ First Latter must start with 'C' |
| NAME | VARCHAR2 | 20 | NOTNULL |
| ADDRESS1 | VARCHAR2 | 30 | |
| ADDRESS2 | VARCHAR2 | 30 | |
| CITY | VARCHAR2 | 15 | |
| PINCODE | NUMBER | 8 | |
| STATE | VARCHAR2 | 15 | |

| S No | Query Detail | Page No | Date | Sign | Remark |
|------|-------------|---------|------|------|--------|
| 2 | Create the table with their Constraints.<br>Table: - PRODUCT _MASTER | | | | |

| Column Name | Data type | Size | Attribute Constraints |
|-------------|-----------|------|----------------------|
| PRODUCTNO | VARCHAR2 | 6 | Primary Key/ First Latter must start with 'P' |
| DESCRIPTION | VARCHAR2 | 15 | NOTNULL |
| PROFITPERCENT | NUMBER | 4,2 | NOTNULL |
| UNITMEASURE | VARCHAR2 | 10 | NOTNULL |
| QTYONHAND | NUMBER | 8 | NOTNULL |
| REORDERLVL | NUMBER | 8 | NOTNULL |
| SELLPRICE | NUMBER | 8,2 | NOTNULL, Cannot be 0 |
| COSTPRICE | NUMBER | 8,2 | NOTNULL, Cannot be 0 |

| S No | Query Detail | Page No | Date | Sign | Remark |
|------|-------------|---------|------|------|--------|
| 3 | Create the table with their Constraints.<br>Table: - SALESMAN_MASTER | | | | |

| Column Name | Data type | Size | Attribute Constraints |
|-------------|-----------|------|----------------------|
| SALESMANNO | VARCHAR2 | 6 | Primary Key/ First Latter must start with 'S' |
| SALESMANNAME | VARCHAR2 | 20 | NOTNULL |
| ADDRESS1 | VARCHAR2 | 30 | NOTNULL |
| ADDRESS2 | VARCHAR2 | 30 | |
| CITY | VARCHAR2 | 20 | |
| PINCODE | NUMBER | 8 | |

| | | | |
|---|---|---|---|
| STATE | VARCHAR2 | 8,2 | |
| SALAMT | NUMBER | 8,2 | NOTNULL, Cannot be 0 |
| TGTTOGET | NUMBER | 6,2 | NOTNULL, Cannot be 0 |
| YTDSALES | NUMBER | 6,2 | NOTNULL |
| REMARKS | VARCHAR2 | 60 | |

**4**  Create the table with their
Constraints. Table: - SALES_ORDER

| Column Name | Data type | Size | Attribute Constraints |
|---|---|---|---|
| ORDERNO | VARCHAR2 | 6 | Primary Key/ First Latter must start with 'O' |
| CLIENTNO | VARCHAR2 | 6 | Foreign key references ClientNo of Client_Master table |
| ORDERDATE | DATE | | NOTNULL |
| DELYADDRESS | VARCHAR2 | 25 | |
| SALESMANNO | VARCHAR2 | 6 | Foreign key references SalesmanNo of Salesman_Master table |
| DELTYPE | CHAR | 1 | Delivery:- Part(P)/ Full(F) |
| BILLYN | CHAR | 1 | |
| DELYDATE | DATE | | Can not be less than Order_date |
| ORDERSTATUS | VARCHAR2 | 10 | Values('In Process', 'Fulfilled', 'BackOrder', 'Cancelled') |

# LAB ASSIGMENT NO. – 2

Table as per given constraints.

Table : EMPLOYEE

| Column Name | Data Type | Size | Attributes |
|---|---|---|---|
| EMPNO | Number | 4 | Primary Key |
| ENAME | Varchar2 | 20 | Not Null |
| JOB | Varchar2 | 20 | |
| MGR | Number | 4 | |
| HIREDATE | Date | | |
| SAL | Number | 10 | |
| COMM | Number | 7 | |
| DEPTNO | Number | 2 | Foreign Key |

| | Data Type | Size | Attributes |
|---|---|---|---|
| | Number | 2 | Primary Key |
| | Varchar2 | 15 | Not Null |

| EMPNO | ENAME | JOB | MGR | HIREDATE | SAL | COMM | DEPTNO |
|---|---|---|---|---|---|---|---|
| 7369 | SMITH | CLERK | 7902 | 17-Dec-80 | 800 | | 20 |
| 7499 | ALLEN | SALESMAN | 7698 | 20-Feb-81 | 1600 | 300 | 30 |
| 7521 | WARD | SALESMAN | 7698 | 22-Feb-81 | 1250 | 300 | 30 |
| 7566 | JONES | MANAGER | 7839 | 2-Apr-81 | 2975 | | 20 |
| 7654 | MARTIN | SALESMAN | 7698 | 28-Sep-81 | 1250 | 1400 | 30 |
| 7698 | BLAKE | MANAGER | 7839 | 1-May-81 | 2850 | | 30 |
| 7782 | CLARK | MANAGER | 7839 | 9-Jun-81 | 2450 | | 20 |
| 7788 | SCOTT | ANALYST | 7566 | 9-Dec-82 | 3000 | | 40 |
| 7839 | KING | PRESIDENT | | 17-Nov-81 | 5000 | | 20 |
| 7844 | TURNER | SALESMAN | 7698 | 8-Sep-81 | 1500 | 0 | 30 |
| 7876 | ADAMS | CLERK | 7788 | 12-Jan-83 | 1100 | | 20 |
| 7900 | JAMES | CLERK | 7698 | 3-Dec-81 | 950 | | 30 |
| 7902 | FORD | ANALYST | 7566 | 3-Dec-81 | 3000 | | 20 |
| 7934 | MILLER | CLERK | 7782 | 23-Jan-82 | 1300 | | 10 |

| DEPTNO | DNAME |
|---|---|
| 10 | RESEARCH |
| 20 | ACCOUNTING |
| 30 | SALES |
| 40 | OPERATIONS |

| S No | Query Detail | Page No | Date | Sign | Remark |
|------|-------------|---------|------|------|--------|
| 1 | List all column of Employee. | | | | |
| 2 | List all jobs of Employee. | | | | |
| 3 | List all distinct job in Employee. | | | | |
| 4 | List all information about employee in Department Number 30. | | | | |
| 5 | Find all department number with department names greater than 20. | | | | · |
| 6 | Find all information about all the managers as well as the clerks in department 30. | | | | |
| 7 | List the Employee name, Employee numbers and department of all clerks; | | | | |
| 8 | Find all managers not in department 30. | | | | |
| 9 | List information about all Employees in department 10 who are not manager or clerks. | | | | |
| 10 | Find Employees and jobs earning between 1200 and 1400. | | | | |
| 11 | List Name and Department Number of employee who are clerks, analyst or salesman. | | | | |
| 12 | List Name and Department Number of employee whose names began with M. | | | | |
| 13 | List all employees and jobs in Department 30 in descending order by salary. | | | | |
| 14 | List job and Department Number of employees whose name are five letters long begin with "A" and end with "N". | | | | |
| 15 | Display the name of employees whose name start with | | | | |

| | | | | | |
|---|---|---|---|---|---|
| | alphabet S. | | | | |
| 16 | Display the names of employees whose name ends with alphabet S. | | | | |
| 17 | Display the names of employees working in department number 10 or 20 or 40 or employees working as clerks, salesman or analyst. | | | | |
| 18 | Display employee number and names for employees who earn commission. | | | | |
| 19 | Display employee number and total salary for each employee. | | | | |
| 20 | Display employee number and annual salary for each employee. | | | | |
| 21 | Display the names of all employees working as clerks and drawing a salary more than 3,000. | | | | |
| 22 | Display the names of employees who are working as clerk, salesman or analyst and drawing a salary more than 3,000. | | | | |
| 23 | Display the list of employees who have joined the company before 30th June 80 or after 31st Dec 81. | | | | |
| 24 | Display the names of employees whose names have second alphabet A in their names. | | | | |
| 25 | Display the names of employees whose name is exactly five characters in length | | | | |
| 26 | Display the names of employees whose names have second alphabet A in their names. | | | | |
| 27 | Display the names of employees who are not working as salesman or clerk or analyst. | | | | |
| 28 | Display the name of the employee along with their annual salary (sal*12). The name of the employee earning highest salary should appear first. | | | | |

| | | | | | |
|---|---|---|---|---|---|
| 29 | Display name, sal, hra, pf, da, totalsal for each employee. The output should be in the order of total sal, hra 15% of sal, da 10% of sal, pf 5% of sal. Total salary will be (sal*hra*da)-pf. | | | | |
| 30 | Update the salary of each employee by 10% increment who are not eligible for commission. | | | | |
| 31 | Display those employees whose salary is more than 3000 after giving 20% increment. | | | | |
| 32 | Display those employee whose salary contains alleast 3 digits. | | | | |
| 33 | Display those employees whose name contains "A". | | | | |
| 34 | Create table called as newemp. This table should contain only empno, ename, deptno without taking any record. | | | | |
| 35 | Create table called as Employeeinfo which contain all the entries as per Employee table. | | | | |
| 36 | Delete the rows of Employeesinfo who are working in the company for more than 2 years. | | | | |
| 37 | Display those department whose name start with "S" while the location name ends with "K". | | | | |

# LAB ASSIGMENT NO. – 3

Queries related to Employee and Department Table.

| S No | Query Detail | Page No | Date | Sign | Remark |
|---|---|---|---|---|---|
| 1 | Display the total number of employee working in the company. | | | | |
| 2 | Display the total salary being paid to all employees. | | | | |
| 3 | Display the maximum salary from employee table. | | | | |
| 4 | Display the minimum salary from employee table. | | | | |
| 5 | Display the average salary from employee table | | | | |
| 6 | Display the maximum salary being paid to clerk. | | | | |
| 7 | Display the maximum salary being paid in dept no 20. | | | | |
| 8 | Display the minimum salary paid to any salesman. | | | | |
| 9 | Display the average salary drawn by managers. | | | | |
| 10 | Display the total salary drawn by analyst working in dept no 40. | | | | |
| 11 | Display the names of the employee in Uppercase. | | | | |
| 12 | Display the names of the employee in Lowercase. | | | | |
| 13 | Display the names of the employee in Proper case. | | | | |
| 14 | Display the length of Your name using appropriate function. | | | | |
| 15 | Display the length of all the employee names. | | | | |
| 16 | select name of the employee concatenate with employee number. | | | | |
| 17 | User appropriate function and extract 3 characters | | | | |

| | | | | | |
|---|---|---|---|---|---|
| | starting from 2 characters from the following string 'Oracle'. i.e the output should be 'ac'. | | | | |
| 18 | Find the First occurrence of character 'a' from the following string i.e 'Computer Maintenance Corporation' | | | | |
| 19 | Replace every occurrence of alphabet A with B in the string Allens(use translate function). | | | | |
| 20 | Display the information from employee table Where job manager is found it should be displayed as boos(Use replace function). | | | | |
| 21 | Display empno, ename, deptno from employee table. Instead of display department numbers display the related department name(Use decode function). | | | | |
| 22 | Display your age in days. | | | | |
| 23 | Display your age in months. | | | | |
| 24 | Display the current date as 15th Augest Friday Nineteen Ninety Saven. | | | | |
| 25 | Display the following output for each row from employee table. **Scott has joined the company on Wednesday 13th August Nineteen Ninety** | | | | |
| 26 | Find the date for nearest Saturday after current date. | | | | |
| 27 | Display current time. | | | | |
| 28 | Display the date three months Before the current date | | | | |
| 29 | Display those employee who joined in the company in the month of Dec. | | | | |
| 30 | Display those employees whose first 2 characters from hire date -last 2 characters of salary. | | | | |
| 31 | Display those employees whose 10% of salary is equal to the year of joining. | | | | |

# LAB ASSIGMENT NO. – 4

## Queries related to Employee and Department Table.

| S No | Query Detail | Page No | Date | Sign | Remark |
|------|--------------|---------|------|------|--------|
| 1 | Display department numbers and total number of employees working in each department. | | | | |
| 2 | Display the various jobs and total number of employees within each job group. | | | | |
| 3 | Display the depart numbers and total salary for each department. | | | | |
| 4 | Display the depart numbers and max salary for each department. | | | | |
| 5 | Display the various jobs and total salary for each job. | | | | |
| 6 | Display the various jobs and total salary for each job. | | | | |
| 7 | Display the depart numbers with more than three employees in each dept. | | | | |
| 8 | Display the various jobs along with total salary for each of the jobs where total salary is greater than 40000. | | | | |
| 9 | Display the various jobs along with total number of employees in each job. The output should contain only those jobs with more than three employees. | | | | |
| 10 | Display those who are not managers of any one. | | | | |
| 11 | Display who are managers any one. | | | | |
| 12 | Display those employees whose manager name is JONES. | | | | |
| 13 | Display all employees with their dept names. | | | | |
| 14 | Display employee name, deptname, salary and comm for that sal in between 2000 to 5000 while location is chicago. | | | | |
| 15 | Display those employees whose salary greater than his manager salary. | | | | |
| 16 | Display those employees who are working in the same dept where his manager is work. | | | | |
| 17 | SELECT those employee who joined the company before 31-dec-82 while their dept location is newyork or Chicago. | | | | |
| 18 | Display employee name, job, depart name ,manager name, his grade and make out an under department wise. | | | | |

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| | | | | | |
|---|---|---|---|---|---|
| 19 | List out all employees name, job, salary, grade and depart name for everyone in the company except 'CLERK'. Sort on salary display the highest salary. | | | | |
| 20 | Display the employee name, job and his manager. Display also employee who are without manager. | | | | |
| 21 | Display the name of the employee who earns second highest salary. | | | | |
| 22 | Display the employee number and name for employee working as clerk and earning highest salary among clerks. | | | | |
| 23 | Display the names of salesman who earns a salary more than the highest salary of any clerk. | | | | |
| 24 | Display the names of clerks who earn a salary more than the lowest salary of any salesman. | | | | |
| 25 | Display the names of employees who earn a salary more than that of Jones or that of salary greater than that of scott. | | | | |
| 26 | Display the names of the employees who earn highest salary in their respective departments. | | | | |
| 27 | Display the names of the employees who earn highest salaries in their respective job groups. | | | | |
| 28 | Display the employee names who are working in accounting department. | | | | |
| 29 | Display the employee names who are working in Chicago. | | | | |
| 30 | Display the Job groups having total salary greater than the maximum salary for managers. | | | | |
| 31 | Display the names of employees from department number 10 with salary greater than that of any employee working in other department. | | | | |
| 32 | Display the names of the employees from department number 10 with salary greater than that of all employees working in other departments. | | | | |
| 33 | Display the details of those who do not have any person working under them. | | | | |
| 34 | Display the details of those employees who are in sales department and grade is 3. | | | | |
| 35 | Display ename who are working in sales dept. | | | | |

| | | | | | |
|---|---|---|---|---|---|
| 36 | Display those employees whose salary is equal to average of maximum and minimum. | | | | |
| 37 | Display dname where at least 3 are working and display only department name. | | | | |
| 38 | Display name of those managers name whose salary is more than average salary of his company. | | | | |
| 39 | Display those managers name whose salary is more than average salary of his employee. | | | | |
| 40 | Display employee name, sal, comm and net pay for those employees whose net pay are greater than or equal to any other employee salary of the company. | | | | |
| 41 | Display all employees' names with total sal of company with each employee name. | | | | |
| 42 | Find out last 5(least) earners of the company. | | | | |
| 43 | Find out the number of employees whose salary is greater than their manager salary. | | | | |
| 44 | Display those department where no employee working. | | | | |
| 45 | Display those employees who are working in sales or research. | | | | |
| 46 | Delete those records where no of employees in a particular department is less than 3. | | | | |
| 47 | Display employee name and his salary whose salary is greater than highest average of department number. | | | | |
| 48 | Display the 10th record of emp table (without using rowid). | | | | |
| 49 | Display the 10th record of emp table without using group by and rowid. | | | | |
| 50 | Delete the 10th record of emp table. | | | | |
| 51 | To display 5 to 7 rows from a table. | | | | |
| 52 | Display top N rows from table. | | | | |
| 53 | Display top 3 salaries from emp. | | | | |
| 54 | Display 9th from the emp table. | | | | |

# LAB ASSIGNMENT REPORT

## ON

## EEC351

## DIGITAL LOGIC CIRCUIT LAB

## Faculty of Engineering, Bachelor of Technology (CSE)

### Session: 2020-2021 Odd Semester

**Submitted To:**
Name:

**Submitted By:**
**Student Name :**
Enrollment No.

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## Lab Assignment-1

| # | Program Name | Page No | Date | Sign | Remark |
|---|---|---|---|---|---|
| 1 | Study Basic Logic Gates AND,OR And NOT GATE. | | | | |
| 2 | Study Compound Gates XOR, XNOR, NOR And NAND | | | | |
| 3 | Design AND, OR, NOT, XOR and XNOR Gates Using Universal NAND Gate | | | | |
| 4 | Design AND, OR, NOT, XOR and XNOR Gates Using Universal NOR Gate | | | | , |
| 5 | Design NOR gate using NAND gate And vice versa | | | | |
| 6 | PROVE DEMORGAN THEOREM $(A+B)'= A' \cdot B'$ $(A.B)' = A' + B'$ | | | | |
| 7 | DESIGN AND PROVE $(A'.B'.C+A'.B.C)' =A+C'$ | | | | |
| 8 | DESIGN DIGITAL CIRCUIT $(X+Y+Z).(X+Y').(X'+Y')$ | | | | |
| 9 | Give truth table of  AB+CD+B'C' and verify it using NAND gates only. | | | | |
| 10 | Give truth table of  A(B+CD)+BC' and verify it using NOR gates only. | | | | |

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# Lab Assignment-2

| # | Program Name | Page No | Date | Sign | Remark |
|---|---|---|---|---|---|
| 1 | Design a Half Adder&Full Adder. | | | | |
| 2 | Design a HalfSubtractor& Full Subtractor | | | | |
| 3 | Design a Full Subtractor using NAND gates only | | | | |
| 4 | Design a Full Adder using NAND gates only | | | | |
| 5 | Design a combinational circuit that generates 2's complement of a 4-bit binary no. | | | | , |
| 6 | Design a BCD to Excess-3 Code Converter | | | | |
| 7 | Design a 4-bit full adder | | | | |
| 8 | Deign a 4-bit binary code to gray code converter | | | | |
| 9 | Design 4-bit Gray code to binary converters. | | | | |
| 10 | Design Gray to Ecess 3 code converter. | | | | |

# Lab Assignment-3

| # | Program Name | Page No | Date | Sign | Remark |
|---|---|---|---|---|---|
| 1 | Design a circuit with four inputs and one output, such that the output goes to '1' whenever two or more of inputs are '1'. For other cases the output remains at '0' | | | | |
| 2 | Design a circuit to check whether two 4-bit binary numbers are equal or not. | | | | |
| 3 | Design a 2 to 4 line decoder using NAND gates only | | | | |
| 4 | Design a BCD to Decimal Decoder | | | | |
| 5 | Design a 1-bit magnitude comparator using NAND gates only | | | | |
| 6 | Design a 2-bit magnitude comparator. | | | | |
| 7 | Design an 4x1 MUX using basic logic gates. | | | | |
| 8 | Design a full-adder using suitable MUX | | | | |
| 9 | Design a full-subtractor using suitable MUX | | | | |
| 10 | Design a 2X4 Decoder with enable input or 1X4 Demultiplexer. | | | | |

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# Lab Assignment-4

| # | Program Name | Page No | Date | Sign | Remark |
|---|---|---|---|---|---|
| 1 | Design an 8x1 MUX using 4x1 MUX. | | | | |
| 2 | Realize the following Boolean function using suitable MUX:- $f(A,B,C)=\sum(1,3,5,6)$ | | | | |
| 3 | Realize the following Boolean function using suitable MUX:- $f(A,B,C,D)=\sum(2,4,6,7,9,10,11,12,15)$ | | | | |
| 4 | To study RS flip-flop using NAND gate. | | | | |
| 5 | To study D-type flip-flop usingNAND gate. | | | | |
| 6 | To study JK flip flop using NANDgate. | | | | |
| 7 | To study T flip flop using NANDgate. | | | | |
| 8 | To implement register with parallel load | | | | |
| 9 | To implement shift register | | | | |
| 10 | To implement 4-bit synchronous binary counter | | | | |

# LAB ASSIGNMENT

## On

## Design and Analysis of Algorithm

## (ECS -552)



## Faculty of Engineering,

## Bachelor of Technology (CSE)

### Session: 2020-2021 Odd Semester

*Submitted To:*

**Name:**

*Submitted By:*

*Student Name :*
*Enrollment No. :*

# ASSIGNMENT NO. – 01

| S.NO | PROGRAM  NAME | PAGE NO | DATE | SIGN | REMA RK |
|------|---------------|---------|------|------|---------|
| 1. | Write algorithm and program in C to implement Linear Search. | | | | |
| 2. | Write algorithm and program in C to implement Binary Search. | | | | |
| 3. | Write algorithm and program in C to implement Bubble Sort. | | | | |
| 4. | Write algorithm and program in C to implement Insertion Sort | | | | |
| 5. | Write algorithm and program in C to implement Merge Sort | | | | |
| 6. | Write algorithm and program in C to implement  Quick Sort | | | | |
| 7. | Write algorithm and program in C to implement Selection Sort. | | | | |
| 8. | Write algorithm and program in C insert an element in array at a given position. | | | | |
| 9. | Write algorithm and program in C to implement Linear Search using recursion. | | | | |
| 10. | Write algorithm and program in C to implement Binary Search using recursion. | | | | |

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## ASSIGNMENT NO. – 02

| S.NO | PROGRAM NAME | PAGE NO | DATE | SIGN | REMARK |
|------|--------------|---------|------|------|--------|
| 1. | WAP to implement Fractional KnapSack Problem | | | | |
| 2. | WAP to implement Integer KnapSack Problem | | | | |
| 3. | WAP to implement Matrix Chain Multiplication order. | | | | |
| 4. | WAP to implement Huffman Code | | | | |
| 5. | WAP to implement Longest Common Subsequence. | | | | |
| 6. | .WAP to implement BFS. | | | | |
| 7. | WAP to implement Minimum spanning tree using Kruskal's Algorithm.. | | | | |
| 8. | WAP to implement Minimum spanning tree using Prim's Algorithm. | | | | |
| 9. | WAP to implement single source shortest path using Dikjastra's Algorithm. | | | | |
| 10 | WAP to implement single source shortest path using Bellman- Ford Algorithm. | | | | |

## ASSIGNMENT NO. – 03

| S.NO | PROGRAM NAME | PAGE NO | DATE | SIGN | REMARK |
|------|--------------|---------|------|------|--------|
| 1. | WAP for n Queen problem | | | | |
| 2. | WAP for TSP using Branch and Bound | | | | |
| 3. | WAP for TSP using Back tracking | | | | |
| 4. | WAP for TSP using Dynamic Programming | | | | |
| 5. | WAP to solve Optimal BST problem using Dynamic Programming | | | | |
| | | | | | |

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# LAB ASSIGNMENT RECORD

## On

## ECS554

## Java Programming (Lab)

## Faculty of Engineering,

## Bachelor of Technology (CSE)

### Session: 2020-2021 Odd Semester

**Submitted To:**

Name:

**Submitted By:**

(Student Name)

(University Roll Num)

| S.NO | PROGRAM NAME | PAGE NO | DATE | SIGN | REMARK |
|---|---|---|---|---|---|
| 1 | Install and configure JDK and check whether Java is installed on your computer. | | | | |
| 2 | Write a program to print Hello World. | | | | |
| 3 | Write a program how to accept different types of input from user | | | | |
| 4 | Write a program to print whatever value is given by user using command line arguments. | | | | |
| 5 | Write a program print the sum of two numbers given by user using command line argument. | | | | |
| 6 | WAP to print the sum of N numbers. | | | | |
| 7 | Write a program for the following pattern<br>1<br>1 2 1<br>1 2 3 2 1<br>1 2 3 4 3 2 1 | | | | |
| 8 | Write a program for the following pattern<br>A<br>AB<br>ABC<br>ABCDE | | | | |
| 9 | WAP to input a number and check whether it is a **Magic Number** or not.<br>**Note: A Magic number is a number whose sum of digits eventually leads to 1.** | | | | |
| 10 | Write a Program in Java to input a number and check whether it is a **Disarium Number** or not.<br>**Note:** A number will be called DISARIUM if sum of its digits powered with their respective position is equal to the original number.<br><br>**For example** 135 is a DISARIUM (Workings $1^1+3^2+5^3 = 135$, some other **DISARIUM** are 89, 175, 518 etc) | | | | |
| 11 | WAP to input a number and check whether it is | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | an **Evil Number** or not.<br>**Note : An Evil number is a positive whole number which has even number of 1's in its binary equivalent.** | | | | | |
| 12 | Write a Program in Java to input a number and check whether it is an Automorphic Number or not.<br>**Note: An automorphic number is a number which is present in the last digit(s) of its square.**<br>**Example: 25 is an automorphic number as its square is 625 and 25 is present as the last digits.** | | | | | |
| 13 | Write a program which contains 10 element and sort it using bubble sort, selection sort and insertion sort technique. | | | | | |
| 14 | Write a program in java to input a number from the user and print the frequency of each digits present in it.<br>**Example**<br>Input : 43457973<br>**Output:**<br>**Digits        Frequency**<br>**4              2**<br>**3              2**<br>**5              1**<br>**7              2**<br>**9              1** | | | | | |
| 15 | WAP to implement typecasting. | | | | | |
| 16 | Write a program to demonstrate static variables, methods, and blocks. | | | | | |
| 17 | Write a program to give the example for 'this' operator. And also use the 'this' keyword as return statement. | | | | | |
| 18 | Write a program that will illustrate the concept of default & the concept of parameterized constructor . | | | | | |
| 19 | Write a program to illustrate the concept of this(). | | | | | |
| 20 | Write a program to demonstrate static and instance data members and methods. | | | | | |
| 21 | Write a Java program to implement the concept of importing classes from user defined package and creating packages | | | | | |

## Lab Assignment No:2

| S.NO | PROGRAM NAME | PAGE NO | DATE | SIGN | REMARK |
|------|--------------|---------|------|------|--------|
| 1. | WAP to display total marks of 5 students using student class. **Following are the related information: Regno(int), Name(string), Marks in subjects(int array), Total(int).** | | | | |
| 2. | WAP to create a class "Shape". Inherit two classes "Square" and "Rectangle" from the class "Shape". Override a method area() that is capable of printing area of Square and Rectangle. | | | | |
| 3. | WAP where the abstract class "MyClass" has one abstract method which has got various implementations in sub classes. | | | | |
| 4. | Write a program to demonstrate the working of 'super' keyword. | | | | |
| 5. | Define an interface "IntOperations" with methods to check whether an integer is positive, negative, even, odd, prime and operations like factorial and sum of digits. Define a class MyNumber having one private int data member. Write a default constructor to initialize it to 0 and another constructor to initialize it to a value (Use this). Implement the above interface. Create an object in main. Use scanner class to pass a value to the object and perform the above operations using a menu. | | | | |
| 6. | Create a class **Student** with attributes roll no, name, age and course. Initialize values through parameterized constructor. If age of student is not in between 15 and 21 then generate user-defined exception "AgeNotWithinRangeException". If name contains numbers or special symbols raise exception "NameNotValidException". Define the two exception classes. | | | | |
| 7. | WAP to search the last occurrence of a substring in a given string. | | | | |
| 8. | WAP to enter two strings and check whether they are equal or not. | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 9. | WAP to compare two strings input by the user. The program should state whether the first string is less than, equal to or greater than the second. | | | | | |
| 10 | Define an abstract class "Staff" with members name and address. Define two subclasses of this class – "FullTimeStaff" (department, salary) and "PartTimeStaff" (number_of_hours, rate_per_hour). Define appropriate constructors. Create n objects which could be of either FullTimeStaff or PartTimeStaff class by asking the user's choice. Display details of all "FullTimeStaff" objects and all "PartTimeStaff" objects. | | | | | |
| 11. | Write a Java program to create a Package "Sub_Total" which has a class ST (members – ComputerTotal, MathsTotal, and ElectronicsTotal). Create another package "Gross_Total" which has a class GT(members – Theory, Practicals). Create n objects of Student class (having rollNumber, name, STMarks and GTMarks). Add the marks of ST and GT computer subjects and calculate the Grade ('A' for >= 70, 'B' for >= 60 'C' for >= 50 , Pass Class for > =40 else 'FAIL') and display the result of the student in proper format. | | | | | |

# LAB ASSIGNMENT REPORT

## ON

## ECS555

## COMPUTER NETWORKS LAB



## Faculty of Engineering,

## Bachelor of Technology (CSE)

### Session: 2020-2021 Odd Semester

*Submitted To:*
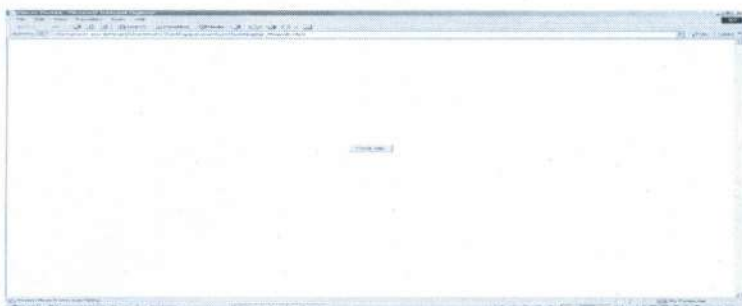Mr. Kamal Kumar Gola

*Submitted By:*
Student Name :
Enrollment No.

Director
Faculty of Engineering
Teerthanker Mahaveer University
Moradabad.

# Lab Assignment-1

| # | Network Experiment | Page No | Date | Sign | Remark |
|---|---|---|---|---|---|
| 1 | To study the basic network connectivity | | | | |
| 2 | To show the differences between a hub and a switch | | | | |
| 3 | Configuring IP address using windows operating system in network lab | | | | |
| 4 | To explore the different network devices in lab | | | | |
| 5 | To study Packet Tracer - Network representations | | | | |
| 6 | Designing the different network topology using packet tracer | | | | |
| 7 | To investigate the TCP/IP and OSI Models in action | | | | |
| 8 | Create Client server communication and perform services: A)HTTP B)FTP C) DNS | | | | |
| 9 | Study of different types of Network cables and Practically implement the cross-wired cable and straight through cable using crimping tool. | | | | |
| 10 | Configure VLAN and Trunks using packet tracer. | | | | |
| 11 | Perform an initial switch configuration | | | | |
| 12 | Perform an initial router configuration | | | | |

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## Assignment 2

| | | | | | |
|---|---|---|---|---|---|
| 1 | Implementation of CRC in C for detecting error transmission | | | | |
| 2 | Implementation of Hamming code | | | | |
| 3 | Simulation of Sliding window protocol using C | | | | |
| 4 | Implement ARP in C | | | | |
| 5 | To get the MAC or Physical address of the system using Address Resolution Protocol in C. | | | | |

Note: All network experiments will be performed using Cisco Packet Tracer (version latest) and Turbo C/C++.

# LAB ASSIGNMENT RECORD

## On

## ECS751

## Web Technology (Design and Architecture using .NET)



## Faculty of Engineering,

## Bachelor of Technology (CSE)

### Session: 2020-2021 Odd Semester

*Submitted To:*                                            *Submitted By:*

Name:                                                            Student Name :

                                                                       Enrollment No.
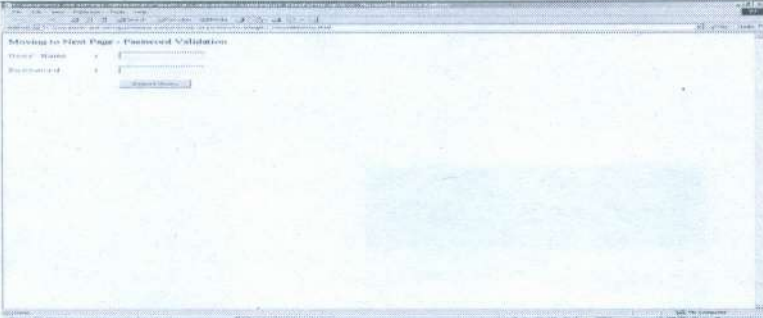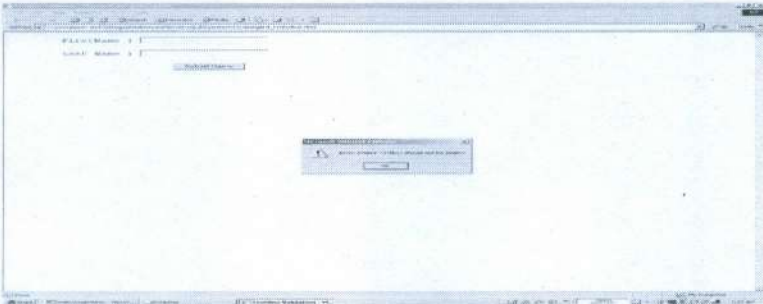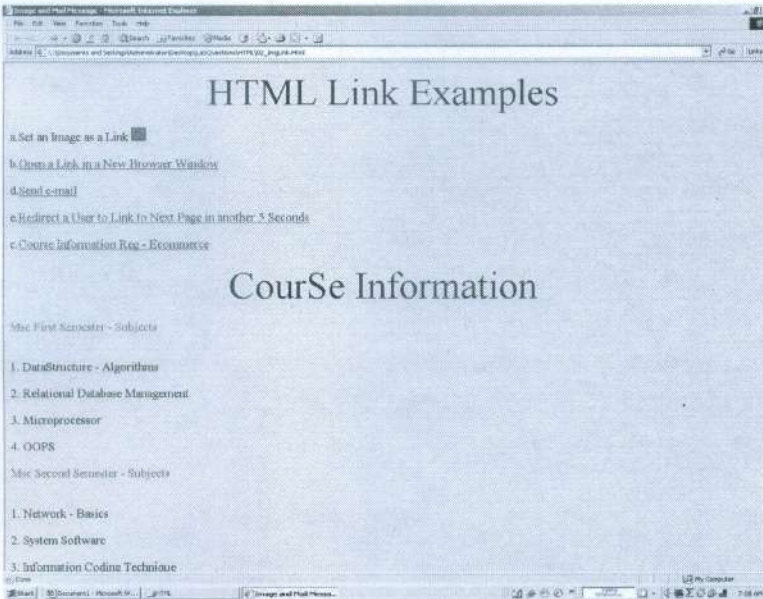
| S.NO | PROGRAM NAME | PAGE NO | DATE | SIGN | REMARK |
|------|--------------|---------|------|------|--------|
| 1. | Create an html page having table with caption as My Caption | | | | |
| | 100 200 300<br>400 500 600 | | | | |
| 2. | Create the html page with colspan attribute in the following manner | | | | |
| | Name / Telephone<br>Bill Gates 555 77 854 555 77 855 | | | | |
| 3 | Create an html page having table as | | | | |
| | First Heading / Second Heading<br>11 / 12<br>21 / 22 | | | | |
| 4 | Create the html page with row span attribute in the following manner | | | | |
| | First Name: Bill Gates<br>Telephone: 555 77 854 / 555 77 855 | | | | |
| 5 | Create the html page with rowspan attribute in the following manner | | | | |
| | top<br>left center right<br>bottom | | | | |
| 6 | Create an html page and align the text of data cell in the following manner. | | | | |

| Left align | Right align | Center align |
|---|---|---|
| Hello | Hello | Hello |

| | | |
|---|---|---|
| 7 | Create the html page with rowspan and colspan attribute in the following manner | |

| 111 | 222 | colspan 2 | |
|---|---|---|---|
| 333 | 444 | colspan 2 | |
| 555 | 666 | colspan 2 | |
| 777 | 888 | colspan 2 | |
| | | | |
| 321 | 123 | hello | World |
| 444 | 555 | colspan 2 | |
| 333 | 444 | rowspan 3 and colspan 2 | |
| 222 | 333 | | |
| 111 | 222 | | |

| | | |
|---|---|---|
| 8 | Create the html page for showing time table in the following manner | |

| Time Table | | | | | |
|---|---|---|---|---|---|
| | Mon | Tue | Wed | Thu | Fri |
| | Science | Maths | Science | Maths | Arts |
| | Social | History | English | Social | Sports |
| Hours | Lunch | | | | |
| | Science | Maths | Science | Maths | Project |
| | Social | History | English | Social | |

| | | |
|---|---|---|
| 10 | Create an html page for the registration of the employee and use the following input elements:-Name, Address, Phone No, Email Id, Pin No, Mobile No, City, and State. | |
| 11 | Create an html page and jump in the specific section of the page for avoiding scrolling. | |
| 12 | Create an html page and take text field and password field. | |
| 13 | Create an html page and display different types of header available in html for the Text like Teerthanker Mahaveer University. | |
| 14 | Create an html page that has marquee as TEERTHANKER MAHAVEER UNIVERSITY. When we hold mouse over this marquee then the moving text is stopped and show marquee movement as | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | horizontal as well as vertical direction. | | | | | |
| 15 | Create a html page for creating website of TMU | | | | | |

**Item 15 layout:**

| THIS IS HEADER AND WILL SHOW IMAGE OF TMU | | | |
|---|---|---|---|
| HOME | ABOUT US | CONTACT US | COURSES OFFERED |

WELLCOM TO THE HOME PAGE OF TEERTHANKER MAHAVEER UNIVERSITY MORADABAD

Theerthanker Mahaveer university India's top best private university in India.

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| | | |
|---|---|---|
| 16 | Create a Form having two boxes with labels as FirstName and LastName. The User should not be allowed to enter the names directly in the text boxes. The input has to be given in the prompt box and then entered values should be given in the text boxes. | |



| | | |
|---|---|---|
| 17 | Create a Web Page that has a button in the centre of the page. Using mouse events change the Message in the status bar. | |



| | | |
|---|---|---|
| 18 | Design a Web page that accepts UserName and Password. Opens a new window when the password corresponds to a particular value is set by the developer. | |

| | | | | | |
|---|---|---|---|---|---|
| |  | | | | |
| 19 | Design a Web page that consists of 2 text boxes. When the page is first loaded set the focus to the first textbox. The user should not be allowed to leave the box unless enters a value in it. | | | | |
| |  | | | | |
| 20 | Program No: 2  | | | | |
| 21 | Create HTML page with form tag with following input elements Name, Address, Mobile No. and submit button .Write php program to print html form value with $_POST variable. | | | | |
| 22 | Create HTML page with form tag with following input elements Name, Address, Mobile No. and submit button .Write php program to print html form value with $_GET variable. | | | | |
| | | | | | |
| | | | | | |

| S.NO | PROGRAM NAME | PAGE NO | DATE | SIGN | REMARK |
|------|--------------|---------|------|------|--------|
| 1 | WWP to implement calculator in ASP.net with C#. | | | | |
| 2 | WWP to implement login form in ASP.net which field name are:-Username, Password. | | | | |
| 3 | WWP to implement Registration form in ASP.net which field name are:-RegID, UserName, Address, State, City, PhoneNo, EmailId, PinNo. | | | | |
| 4 | WWP to implement combobox in ASP.net and fetch the State or City data from the database. | | | | |
| 5 | Create a ASP.Net web applications application in which contain three field:<br><br>• Student Id(Perform Auto Increment and initial start with 10001)<br>• Student Name<br>• Student Course<br><br>Use New Button for Auto increment in Id and save button for save the record with the disconnected architecture. | | | | |
| 6 | Create ASP.Net web applications which contain a data grid, when form will be load then data grid fill with predefined database with disconnected architecture. | | | | |
| 7 | Create ASP.Net web application which contains a data grid, when form load this data grid fill with predefined database in sorted manner and contain two textbox one for Student Name and another for Student id to perform pattern search operation as per textbox value in the Data Grid with disconnected architecture. | | | | |
| 8 | Create an application which contains fallowing fields:<br>• Employee ID (Created By User)<br>• Employee Name<br>• Employee Date Of Birth<br>• Employee City<br>• Employee Mobile No<br>To perform the following operations<br>• Add Button for New Record<br>• Save Button for Save new Record<br>• Delete Button for Delete a record as per click on the Grid and fill all the Text boxes<br>• Update Button for Update a Record as per click on the Grid and fill all the Text Boxes<br>• Exit for exit from the application | | | | |
| 9 | WWP to fetch student Name in a combobox from a Student table in connected mode. (Take Table Fields as | | | | |

| | | | | | |
|---|---|---|---|---|---|
| | Rollno, StudentName, Course, Contactno, Address) in ASP.Net. | | | | |
| 10 | WWP to fetch student Record in a DataGridview from a Student table in connected mode in ASP.Net. | | | | |
| 11 | WWP to fetch, insert, delete and update student Record from Student table in connected mode and also use try...catch... statement in ASP.Net. | | | | |
| 12 | WWP to fetch student Record in a textboxes by clicking the row of Data Grid view and Data Grid view receives data from student table in connected mode in ASP.Net. | | | | |
| 13 | WWP to fetch student Record in a textboxes from a Student table and use previous and next button to navigate records in ASP.Net. | | | | |
| 14 | Write Web based Program to fetch student Record in a Grid view from a Student table by using the Data Set Class in disconnected mode in ASP.Net. | | | | |
| 15 | Write Web based Program to fetch student Record in a Grid view from a Student table by using the Data Table Class in disconnected mode in ASP.Net. | | | | |
| 16 | Write Web based Program to create a Login Page and take Login table having fields as Username, Password in ASP.Net. | | | | |
| 17 | Write Web based Program to create master page having menus as Home, About Us, and Contact Us. Products in ASP.Net. | | | | |
| 18 | Create two web pages and display data of one web page on another web page using statement management technique namely Application in ASP.Net. | | | | |
| 19 | Write Web based Program to use the Required Field Validator in ASP.Net. | | | | |
| 20 | Write Web based Program to use the Compare Validator in ASP.Net | | | | |
| 21 | Write Web based Program to use the Regular Expression Validator in ASP.Net. | | | | |

# LAB ASSIGNMENT RECORD

## On

## ECS752

## CRYPTOGRAPHY AND NETWORK SECURITY (LAB)



## Faculty of Engineering,

## Bachelor of Technology (CSE)

**Session: 2020-2021 Odd Semester**

*Submitted To:*

**Name:**

*Submitted By:*

**Student Name :**

**Enrollment No.**

# Lab Assignment No:1

| S.NO | PROGRAM NAME |
|------|--------------|
| 1. | To write a program in C to implement Caesar cipher. |
| 2. | To write a program in C to implement Playfair cipher. |
| 3. | To write a program in C to implement "Vigenere Cipher" technique. |
| 4. | To write a program in C to implement Rail fence – row & Column Transformation |
| 5. | To write a program in C to implement RSA algorithm. |
| 6. | To write a program in C to implement Diffie Hellman algorithm |
| 7. | Implement Hash algorithm. |
| 8. | Implementation of packet sniffer |

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