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Software Engineering Assignment

MODULE: 1

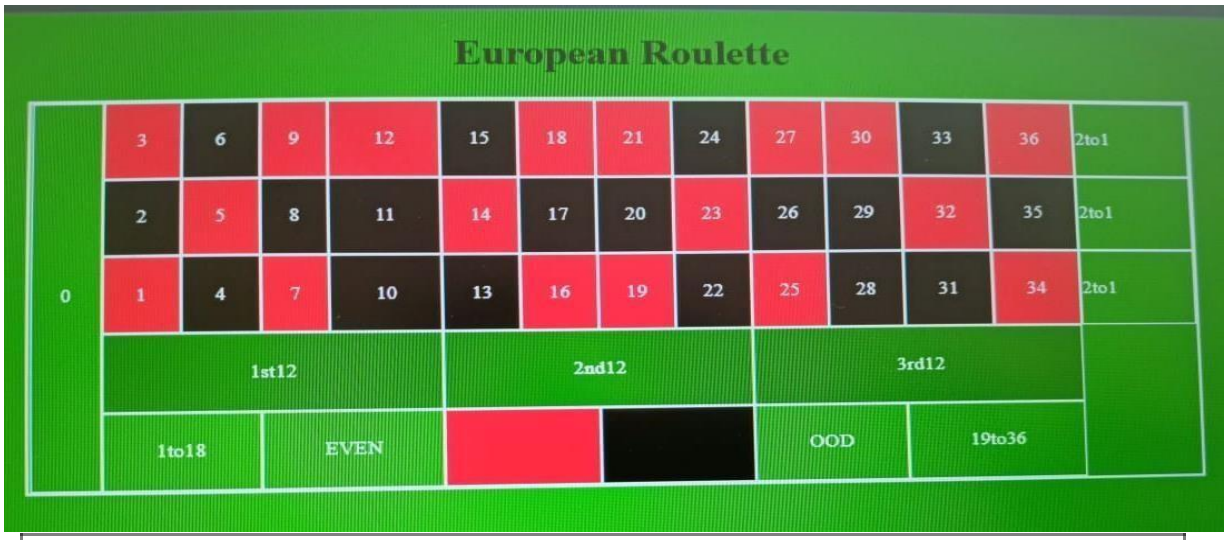
SE – Overview of IT Industry

1. What is software? What is software engineering?
2. Explain types of software
3. What is SDLC? Explain each phase of SDLC
4. What is DFD? Create a DFD diagram on Flipkart
5. What is Flow chart? Create a flowchart to make addition of two numbers
6. What is Use case Diagram? Create a use-case on bill payment on paytm.

MODULE: 2

SE – HTML and CSS

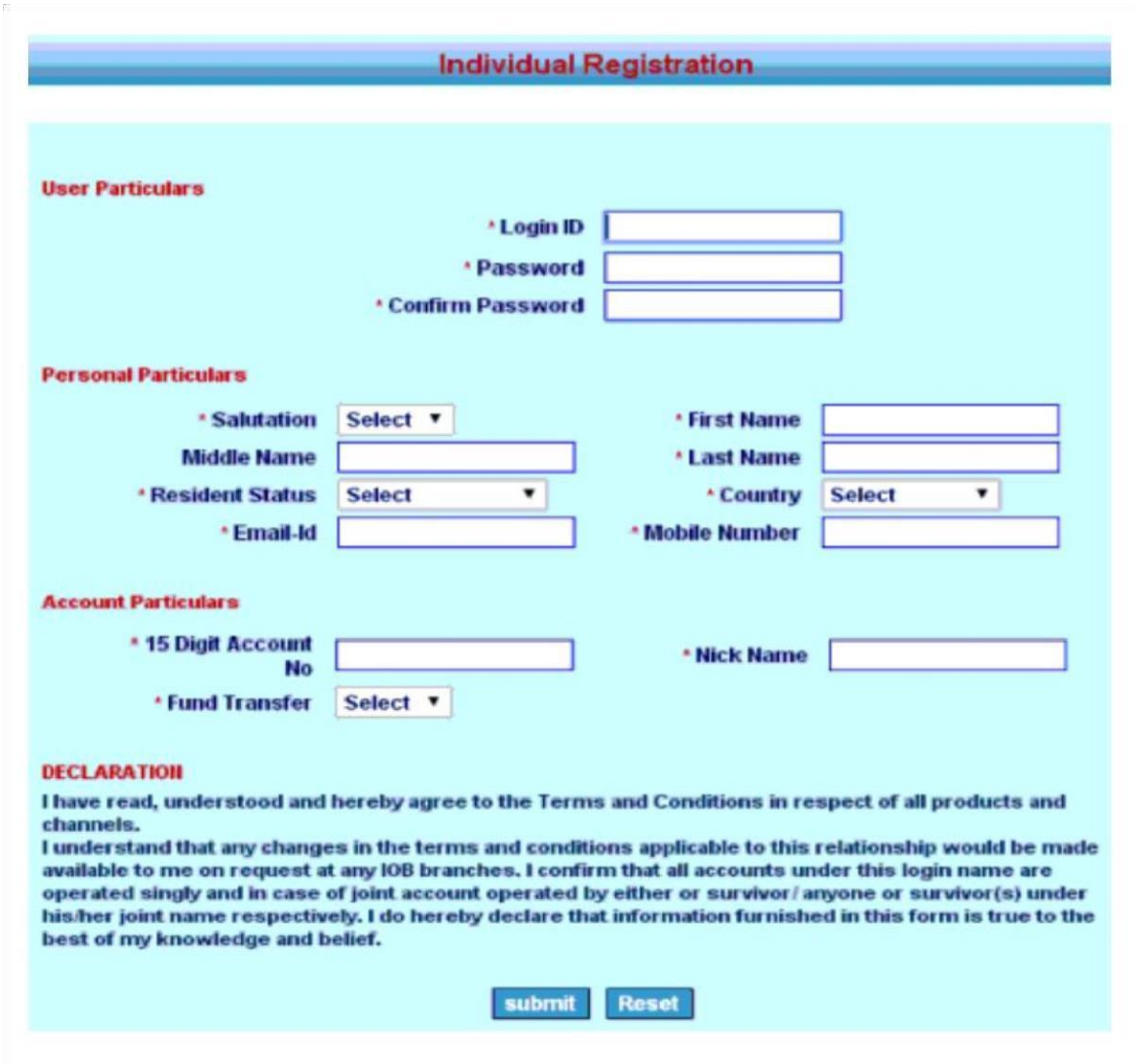
1. Define the terms: Website, Webpage, Web browser, Web server, HTML,CSS
2. Create a webpage to show “This is my first HTML page”
3. Display top 10 IT companies list in html webpage
4. Create a dropdown list
5. Create a Table Of college Management system using row span & col span.
6. Create below table using HTML table tags



CSS3 Browser Support (latest browser versions)

CSS Property	Internet Explorer	FireFox	Chrome	Safari	Opera
Border Radius	YES	YES	YES	YES	YES
Box Shadow	YES	YES	YES	YES	YES
CSS Animations	NO	NO	YES	YES	NO

7. Create Registration form using HTML, CSS
8. In how many ways can a CSS be integrated as a web page?
9. Create simple three pages using External CSS, Internal CSS, and Inline CSS.
10. Create below page using HTML CSS



11. Create link-pseudo classes using external css, to format links on the pages.
12. Create a dynamic pseudo class using HTML, CSS

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MODULE: 3

SE – Fundamentals of Programming

Topics Covered

Basic Syntax
Data Structures
Variables
Operators

Basic Logic Program

1. Display This Information using printf
    a. Your Name
    b. Your Birth date
    c. Your Age
    d. Your Address
2. Write a program to make Simple calculator (to make addition, subtraction, multiplication, division and modulo)
3. WAP to Find Area And Circumference of Circle
4. Find Area of Square formula : a = a2
5. Find Area of Cube formula : a = 6a2
6. Find area of Triangle Formula : A = 1/2 × b × h
7. Find area of Rectangle Formula : A=wl
8. Find circumference of Rectangle formula : C = 4 * a
9. Find circumference of Triangle formula : triangle = a + b + c
10. find the area of a rectangular prism formula : A=2(wl+hl+hw)
11. Find circumference of square formula : C = 4 * a
12. Accept number of students from user. I need to give 5 apples to each student. How many apples are required?
13. Find character value from ascii
14. Find ascii value of given number
15. Convert school's name in abbreviated form
16. Convert country's name in abbreviate form
17. Calculate person's insurance premium based on salary

18. Calculate person's Annual salary
19. Calculate compound interest
20. Accept monthly salary from the user and deduct 10% insurance premium, 10% loan installment find out of remaining salary.
21. Accept 2 numbers from user and swap 2 numbers with using 3rd variable and without using 3rd variable

22. Calculate compound interest (Compound Interest formula:
    a. Formula to calculate compound interest annually is given by: Amount= P(1 + R/100)t
    b. Compound Interest = Amount – P
23. WAP to calculate swap 2 numbers with using of multiplication and division.
24. Accept 5 employees name and salary and count average and total salary
25. Accept 5 expense from user and find average of expense
26. Convert temperature Fahrenheit to Celsius
27. Convert days into months
28. Convert years into days and months
29. Convert minutes into seconds and hours
30. WAP to convert years into days and days into years
31. Convert kilometers into meters
32. Accept 2 numbers and find out its sum check it size
33. C Program to Read Integer and Print First Three Powers (N^1, N^2, N^3)

Topics Covered

Control statements
Conditional Statements

Conditional Logic Programs:

1. Write a C program to accept two integers and check whether they are equal or not
2. Write a C program to read the value of an integer m and display the value of n is 1 when m is larger than 0, 0 when m is 0 and -1 when m is less than 0
3. WAP to check if the given year is a leap year or not.
4. WAP to make simple calculator (operation include Addition, Subtraction, Multiplication, Division, modulo) using conditional statement
5. Check Number Is Positive or Negative
6. Find the Character Is Vowel or Not
7. Accept marks from user and check pass or fail
8. WAP to accept the height of a person in centimeters and categorize the person according to their height.
9. C Program to Check Uppercase or Lowercase or Digit or Special Character

10. WAP to check whether a number is negative, positive or zero.
11. WAP to find number is even or odd using ternary operator
12. WAP to find maximum number among 3 numbers using ternary operator
13. WAP to find minimum number among 3 numbers using ternary operator
14. WAP to find the largest of three numbers.
15. Write a C program to determine eligibility for admission to a professional course based on the following criteria
    Eligibility Criteria : Marks in Maths >=65 and Marks in Phy >=55 and Marks in Chem>=50 and Total in all three subject >=190 or Total in Maths and Physics >=140 ---------- Input the marks obtained in Physics :65 Input the marks obtained in Chemistry :51 Input the marks obtained in Mathematics :72 Total marks of Maths, Physics and Chemistry : 188 Total marks of Maths and Physics : 137 The candidate is not eligible.
16. Write a C program to read temperature in centigrade and display a suitable message according to the temperature state below:
    Temp < 0 then Freezing weather
    Temp 0-10 then Very Cold weather
    Temp 10-20 then Cold weather
    Temp 20-30 then Normal in Temp
    Temp 30-40 then Its Hot
    Temp >=40 then Its Very Hot
17. Write a C program to check whether a triangle can be formed with the given values for the angles.
18. Write a C program to calculate profit and loss on a transaction.
19. Write a program in C to calculate and print the electricity bill of a given customer. The customer ID, name, and unit consumed by the user should be captured from the keyboard to display the total amount to be paid to the customer. The charge are as follow :

20. Unit	**21. Charge/unit**
22. upto 350	23. @1.20
24. 350 and above but less than 600	25. @1.50
26. 600 and above but less than 800	27. @1.80
28. 800 and above	29. @2.00

30. If bill exceeds Rs. 800 then a surcharge of 18% will be charged and the minimum bill should be of Rs. 256/-

31. Write a program in C to read any Month Number in integer and display the number of days for this month.

32. Write a C program to input basic salary of an employee and calculate its Gross salary according to following:
Basic Salary <= 10000 : HRA = 20%, DA = 80%
Basic Salary <= 20000 : HRA = 25%, DA = 90%
Basic Salary > 20000 : HRA = 30%, DA = 95%\

33. WAP to input the week number and print week day.
34. Accept month number and display month name
35. Accept the input month number and print number of days in that month.

36. Write a C program to input electricity unit charges and calculate total electricity bill according to the given condition:
For first 50 units Rs. 0.50/unit
For next 100 units Rs. 0.75/unit
For next 100 units Rs. 1.20/unit
For unit above 250 Rs. 1.50/unit
An additional surcharge of 20% is added to the bill

37. WAP to show
    i. Monday to Sunday using switch case
    ii. Vowel or Consonant using switch case

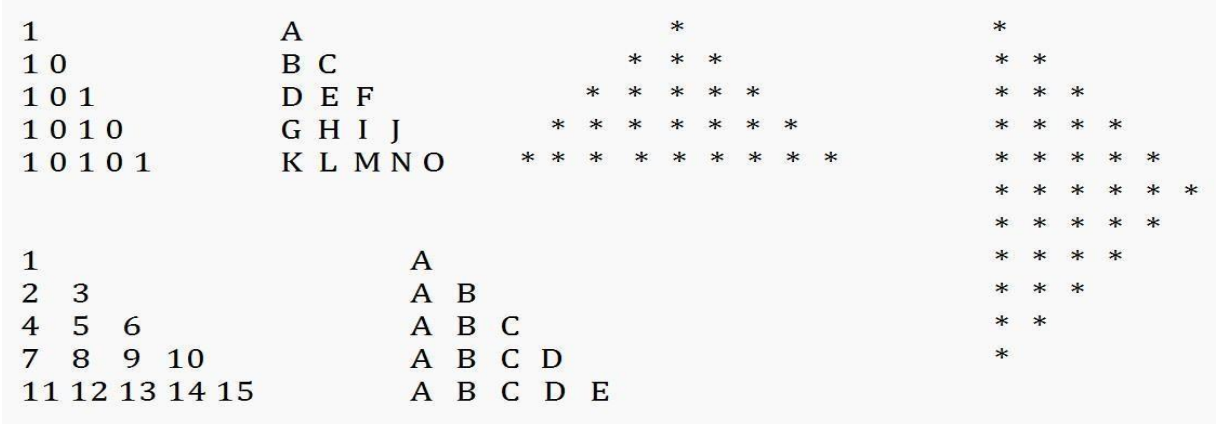
Topics Covered

Looping Statements
Conditional Statements

1. WAP to print 972 to 897 using for loop
2. WAP to accept 5 numbers from user and display all numbers
3. WAP to take 10 no. Input from user find out below values
    a. How many Even numbers are there
    b. How many odd numbers are there
    c. Sum of even numbers
    d. Sum of odd numbers

4. WAP to print table up to given numbers

5. WAP to print factorial of given number
6. WAP to print Fibonacci series up to given numbers
7. WAP to print number in reverse order e.g.: number = 64728 ---> reverse = 82746
8. Write a program to find out the max from given number (E.g., No: -1562 Max number is 6)
9. Write a program make a summation of given number (E.g., 1523 Ans: -11)
10. Write a program you have to make a summation of first and last Digit. (E.g., 1234 Ans: -5)
11. Accept 5 names from user at run time.
12. Program of Armstrong Number in C Using For Loop & While Loop
13. calculate the Factorial of a Given Number using while loop
14. Accept 5 numbers from user and find those numbers factorials
15. Calculate sum of 10 numbers using of while loop
16. Calculate the Sum of Natural Numbers Using the While Loop
17. Calculate 5 numbers from user and calculate number of even and odd using of while loop
18. Write a C Program to Print the Multiplication Table of N
    i. E.g. 5 * 1 = 5
    ii. 5 * 2 = 10
        1. .
        2. .
    iii. 5 * 10 = 50
19. Patterns:



```
1   2   3   4   5   6   7   8   9   10
36  37  38  39  40  41  42  43  44  11
35  64  65  66  67  68  69  70  45  12
34  63  84  85  86  87  88  71  46  13
33  62  83  96  97  98  89  72  47  14
32  61  82  95  100 99  90  73  48  15
31  60  81  94  93  92  91  74  49  16
30  59  80  79  78  77  76  75  50  17
29  58  57  56  55  54  53  52  51  18
28  27  26  25  24  23  22  21  20  19
```

20. WAP program to print below output using for loop

    01 02 03 04 05 06 07 08 09 10

    11 12 13 14 15 16 17 18 19 20

    .

    .

21. 42 43 44 45 46 47 48 49 50

22. Accept 3 numbers from user using while loop and check each numbers palindrome

23. C Program to Reverse a Number Using FOR Loop

    Series Program:

24. 1 + 2 + 3 + 4 + 5 + … + n

25. (1*1) + (2*2) + (3*3) + (4*4) + (5*5) + … + (n*n)

26. (1)+ (1+2) + (1+2+3) + (1+2+3+4) + … + (1+2+3+4+…+n)

27. 1/2 - 2/3 + 3/4 - 4/5 + 5/6 - …… n

28. 1 2 3 6 9 18 27 54…

Topics Covered

Function

Array

1. Write a program to find out the max number from given array using function
2. WAP of Addition, Subtraction, Multiplication and Division using Switch case.(Must Be Menu Driven)
3. WAP to find reverse of string using recursion
4. WAP to find factorial using recursion
5. WAP to take two Array input from user and sort them in ascending or descending order as per user's choice

6. WAP to make addition, Subtraction and multiplication of two matrix using 2-D Array
7. WAP Find out length of string without using inbuilt function

8. WAP to reverse a string and check that the string is palindrome or not
   Write a program of structure employee that provides the following
   a. information -print and display empno, empname, address andage
   b. Write a program of structure for five employee that provides the following information -print and display empno, empname, address andage
9. WAP to show difference between Structure and Union.
10. WAP to perform Palindrome number using for loop and function
11. WAP to accept 5 numbers from user and display in reverse order using for loop and array
12. WAP to accept 5 students name and store it in array
13. WAP to accept 5 numbers from user and check entered number is even or odd using of array
14. Perform 2D matrix array
15. Store 5 numbers in array and sort it in ascending order
16. Accept 5 numbers from user and perform sum of array
17. WAP to show difference between Structure and Union.

Topics Covered

String

1. Write a program in C to find the length of a string without using library functions.

2. Write a program in C to separate individual characters from a string.

3. Write a program in C to print individual characters of a string in reverse order

4. Write a program in C to count the total number of words in a string.

5. Write a program in C to compare two strings without using string library functions.

6. Write a program in C to count the total number of alphabets, digits and special characters in a string.

7. Write a program in C to copy one string to another string.

8. Write a program in C to count the total number of vowels or consonants in a string.

9. Write a program in C to find the maximum number of characters in a string.

10. Write a program in C to extract a substring from a given string

11. Write a program in C to read a sentence and replace lowercase characters with uppercase and vice versa.

12. Write a program in C to find the number of times a given word 'is' appears in the given string.

13. Write a program in C to remove characters from a string except alphabets.

14. Write a program in C to combine two strings manually

15. Write a program in C to find the largest and smallest words in a string.

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MODULE: 4

OOPS Concept

Topics Covered

Basic Concepts of OOP

1. WAP to print "Hello World" using C++
2. What is OOP? List OOP concepts
3. What is the difference between OOP and POP?

Topics Covered

Basic Concepts of OOP

1. WAP to create simple calculator using class
2. Define a class to represent a bank account. Include the following members:
3. Data Member:

-Name of the depositor

-Account Number

-Type of Account

-Balance amount in the account

Member Functions

-To assign values

-To deposited an amount

-To withdraw an amount after checking balance

-To display name and balance

4. Write a C++ program to implement a class called Circle that has private member variables for radius. Include member functions to calculate the circle's area and circumference.
5. Write a C++ program to create a class called Rectangle that has private member variables for length and width. Implement member functions to calculate the rectangle's area and perimeter.
6. Write a C++ program to create a class called Person that has private member variables for name, age and country. Implement member functions to set and get the values of these variables.

Topics Covered

Constructor
Destructor
Encapsulation
Abstraction

1. Write a program to find the multiplication values and the cubic values using inline function
2. Write a program of Addition, Subtraction, Division, Multiplication using constructor.
3. Write a C++ program to create a class called Car that has private member variables for company, model, and year. Implement member functions to get and set these variables.
4. Write a C++ program to implement a class called Bank Account that has private member variables for account number and balance. Include member functions to deposit and withdraw money from the account.
5. Write a C++ program to create a class called Triangle that has private member variables for the lengths of its three sides. Implement member functions to determine if the triangle is equilateral, isosceles, or scalene.
6. Write a C++ program to implement a class called Employee that has private member variables for name, employee ID, and salary. Include member functions to calculate and set salary based on employee performance. Using of constructor
7. Write a C++ program to implement a class called Date that has private member variables for day, month, and year. Include member functions to set and get these variables, as well as to validate if the date is valid.
8. Write a C++ program to implement a class called Student that has private member variables for name, class, roll number, and marks. Include member functions to calculate the grade based on the marks and display the student's information. Accept address from each student implement using of aggregation

Topics Covered

Inheritance
Polymorphism

1. Assume a class cricketer is declared. Declare a derived class batsman from cricketer. Data member of batsman. Total runs, Average runs and best performance. Member functions input data, calculate average runs, Display data. (Single Inheritance)
2. Write a C++ Program to find Area of Rectangle using inheritance
3. Create a class person having members name and age. Derive a class student having member percentage. Derive another class teacher having member salary. Write necessary member function to initialize, read and write data. Write also Main function (Multiple Inheritance)
4. Write a C++ Program display Student Mark sheet using Multiple inheritance
5. Assume that the test results of a batch of students are stored in three different classes. Class Students are storing the roll number. Class Test stores the marks obtained in two subjects and class result contains the total marks obtained in the test. The class result can inherit the details of the marks obtained in the test and roll number of students. (Multilevel Inheritance)
6. Write a C++ Program to show access to Private Public and Protected using Inheritance
7. Write a C++ Program to illustrates the use of Constructors in multilevel inheritance
8. Write a program to Mathematic operation like Addition, Subtraction, Multiplication, Division Of two number using different parameters and Function Overloading
9. Write a Program of Two 1D Matrix Addition using Operator Overloading
10. Write a program to concatenate the two strings using Operator Overloading
11. Write a program to calculate the area of circle, rectangle and triangle using Function Overloading
    Rectangle: Area * breadth
    Triangle: ½ *Area* breadth
    Circle: Pi * Area *Area

12. Write a program to swap the two numbers using friend function without using third variable
13. Write a program to find the max number from given two numbers using friend function

- **Topics Covered**

Templates

1. Write a program of to swap the two values using template
2. Write a program of to sort the array using templates

MODULE: 5 (Database)

- **Topics Covered**

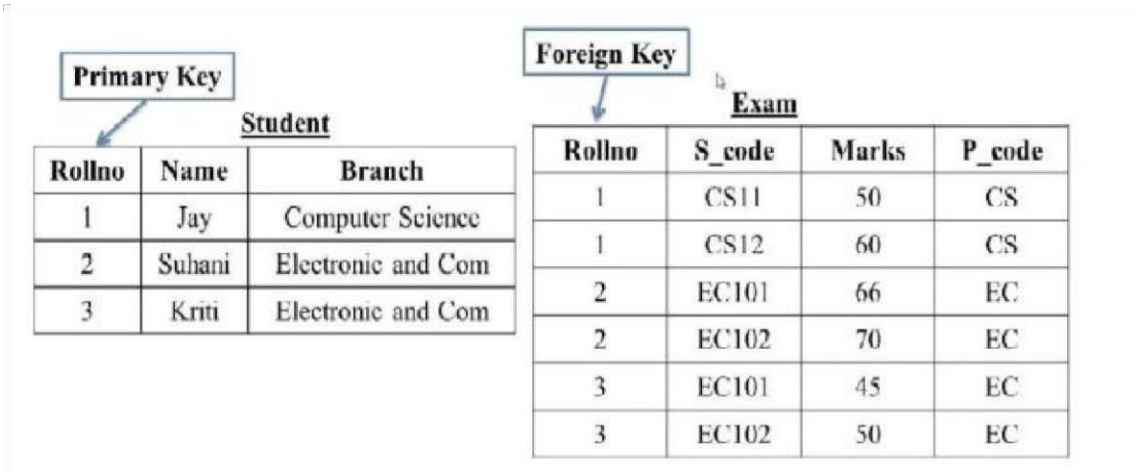
Basics of Database

1. What do you understand By Database
2. What is Normalization?
3. What is Difference between DBMS and RDBMS?
4. What is MF Cod Rule of RDBMS Systems?
5. What do you understand By Data Redundancy?
6. What is DDL Interpreter?
7. What is DML Compiler in SQL?
8. What is SQL Key Constraints writing an Example of SQL Key Constraints
9. What is save Point? How to create a save Point write a Query?
10. What is trigger and how to create a Trigger in SQL?

Topics Covered

SQL Queries

1. Create Table Name : Student and Exam



Student

Rollno	Name	Branch
1	Jay	Computer Science
2	Suhani	Electronic and Com
3	Kriti	Electronic and Com

Exam

Rollno	S_code	Marks	P_code
1	CS11	50	CS
1	CS12	60	CS
2	EC101	66	EC
2	EC102	70	EC
3	EC101	45	EC
3	EC102	50	EC

2. Create table given below: Employee and IncentiveTable

Employee_id	First_name	Last_name	Salary	Joining_date	Department
1	John	Abraham	1000000	01-JAN-13 12.00.00 AM	Banking
2	Michael	Clarke	800000	01-JAN-13 12.00.00 AM	Insurance
3	Roy	Thomas	700000	01-FEB-13 12.00.00 AM	Banking
4	Tom	Jose	600000	01-FEB-13 12.00.00 AM	Insurance
5	Jerry	Pinto	650000	01-FEB-13 12.00.00 AM	Insurance
6	Philip	Mathew	750000	01-JAN-13 12.00.00 AM	Services
7	TestName1	123	650000	01-JAN-13 12.00.00 AM	Services
8	TestName2	Lname%	600000	01-FEB-13 12.00.00 AM	Insurance

Name: Employee

Table Name: Incentive

Employee_ref_id	Incentive_date	Incentive_amount
1	01-FEB-13	5000
2	01-FEB-13	3000
3	01-FEB-13	4000
1	01-JAN-13	4500
2	01-JAN-13	3500

3. Get First_Name from employee table using Tom name “Employee Name”.
4. Get FIRST_NAME, Joining Date, and Salary from employee table.
5. Get all employee details from the employee table order by First_Name

Ascending and Salary descending?

6. Get employee details from employee table whose first name contains ‘J’.

7. Get department wise maximum salary from employee table order by

8. salaryascending?
9. Select first_name, incentive amount from employee and incentives table forthose employees who have incentives and incentive amount greater than 3000
10. Create After Insert trigger on Employee table which insert records in viewtable

11. Create table given below: Salesperson and Customer

TABLE-1

TABLE NAME- SALSEPERSON

(PK)SNo	SNAME	CITY	COMM
1001	Peel	London	.12
1002	Serres	San Jose	.13
1004	Motika	London	.11
1007	Rafkin	Barcelona	.15
1003	Axelrod	New York	.1

TABLE-2

TABLE NAME- CUSTOMER

(PK)CNM.	CNAME	CITY	RATING	(FK)SNo
201	Hoffman	London	100	1001
202	Giovanne	Roe	200	1003
203	Liu	San Jose	300	1002
204	Grass	Barcelona	100	1002
206	Clemens	London	300	1007
207	Pereira	Roe	100	1004

12. Retrieve the below data from above table
13. All orders for more than $1000.
14. Names and cities of all salespeople in London with commission above 0.12
15. All salespeople either in Barcelona or in London
16. All salespeople with commission between 0.10 and 0.12. (Boundary

valuesshould be excluded).

17. All customers excluding those with rating <= 100 unless they are located inRome

18. Write a SQL statement that displays all the information about all salespeople

```
salesman_id |    name    |   city   | commission
-------------+------------+----------+------------
5001 | James Hoog | New York |       0.15
5002 | Nail Knite | Paris    |       0.13
5005 | Pit Alex   | London   |       0.11
5006 | Mc Lyon    | Paris    |       0.14
5007 | Paul Adam  | Rome     |       0.13
5003 | Lauson Hen | San Jose |       0.12
```

19. From the following table, write a SQL query to find orders that are delivered by a salesperson with ID. 5001. Return ord_no, ord_date, purch_amt.

Sample table: orders

ord_no	purch_amt	ord_date	customer_id	salesman_id
70001	150.5	2012-10-05	3005	5002
70009	270.65	2012-09-10	3001	5005
70002	65.26	2012-10-05	3002	5001
70004	110.5	2012-08-17	3009	5003
70007	948.5	2012-09-10	3005	5002
70005	2400.6	2012-07-27	3007	5001
70008	5760	2012-09-10	3002	5001
70010	1983.43	2012-10-10	3004	5006
70003	2480.4	2012-10-10	3009	5003
70012	250.45	2012-06-27	3008	5002
70011	75.29	2012-08-17	3003	5007
70013	3045.6	2012-04-25	3002	5001

20. From the following table, write a SQL query to select a range of products whose price is in the range Rs.200 to Rs.600. Begin and end values are included. Return pro_id, pro_name, pro_price, and pro_com.

Sample table: item_mast

PRO_ID	PRO_NAME	PRO_PRICE	PRO_COM
101	Mother Board	3200.00	15
102	Key Board	450.00	16
103	ZIP drive	250.00	14
104	Speaker	550.00	16
105	Monitor	5000.00	11
106	DVD drive	900.00	12
107	CD drive	800.00	12
108	Printer	2600.00	13
109	Refill cartridge	350.00	13
110	Mouse	250.00	12

21. From the following table, write a SQL query to calculate the average price for a manufacturer code of 16. Return avg.

Sample table: item_mast

PRO_ID	PRO_NAME	PRO_PRICE	PRO_COM
101	Mother Board	3200.00	15
102	Key Board	450.00	16
103	ZIP drive	250.00	14
104	Speaker	550.00	16
105	Monitor	5000.00	11
106	DVD drive	900.00	12
107	CD drive	800.00	12
108	Printer	2600.00	13
109	Refill cartridge	350.00	13
110	Mouse	250.00	12

22. From the following table, write a SQL query to display the pro_name as 'Item Name' and pro_priceas 'Price in Rs.'

Sample table: item_mast

PRO_ID	PRO_NAME	PRO_PRICE	PRO_COM
101	Mother Board	3200.00	15
102	Key Board	450.00	16
103	ZIP drive	250.00	14
104	Speaker	550.00	16
105	Monitor	5000.00	11
106	DVD drive	900.00	12
107	CD drive	800.00	12
108	Printer	2600.00	13
109	Refill cartridge	350.00	13
110	Mouse	250.00	12

23. From the following table, write a SQL query to find the items whose prices are higher than or equal to $250. Order the result by product price in descending, then product name in ascending. Return pro_name and pro_price.

Sample table: item_mast

PRO_ID	PRO_NAME	PRO_PRICE	PRO_COM
101	Mother Board	3200.00	15
102	Key Board	450.00	16
103	ZIP drive	250.00	14
104	Speaker	550.00	16
105	Monitor	5000.00	11
106	DVD drive	900.00	12
107	CD drive	800.00	12
108	Printer	2600.00	13
109	Refill cartridge	350.00	13
110	Mouse	250.00	12

24. From the following table, write a SQL query to calculate average price of the items for each company. Return average price and company code.

Sample table: item_mast

PRO_ID	PRO_NAME	PRO_PRICE	PRO_COM
101	Mother Board	3200.00	15
102	Key Board	450.00	16
103	ZIP drive	250.00	14
104	Speaker	550.00	16
105	Monitor	5000.00	11
106	DVD drive	900.00	12
107	CD drive	800.00	12
108	Printer	2600.00	13
109	Refill cartridge	350.00	13
110	Mouse	250.00	12