

Logical Test

1. WAP to print this using loops.

```
1
121
12321
1234321
123454321
```

2. Write a program in to calculate and print the Electricity bill of a given customer. The customer id, and unit consumed by the user should be taken from the keyboard and display the total amount to pay to the customer.

The charge are as follow :

<u>Unit</u>	<u>Charge/unit</u>
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upto 199 @3.20

200 and above but less than 400 @5.50

400 and above but less than 600 @7.80

600 and above @8.00

If bill exceeds Rs. 1000 then a surcharge of 18% will be charged and the minimum bill should be of Rs. 200/-

3. Make a fibbonacci series from the sum of odd numbers and even numbers in a digit and the number of term = digit length

let num=321578 oddSum=16 evenSum=10 digitLen=6

16 10 26 36 62 98 Ans.

4. WAP to check whether a number is a Strong Number or not using **Recursion**.

(Hint: let num=145 if $1! + 4! + 5! = 145$ then it is strong no.).

5. Take a 3 or more-digit number from user and check whether it is Armstrong or not.
6. Take 10-character input from user and count the number of special characters, numeric, capital and small Alphabets from an array.
7. Check whether a string is Anagram or not. (Hint: Anagram: - if the letters from one string can be rearranged to form the other string e.g., Cola and coal is anagram hey and yah is not anagram).
8. Write a program to maintain a record of "n" student details using an array of **structures (in c)/class (in java)** with four fields (Roll number, Name, Marks, and Grade). Each field is of an appropriate data type. Print the marks of the student given student name as input.
9. Define a structure/class point and take 3-point structure/class object from user and store in file then read those objects from file and find the area of the triangle 5 let vertices of triangle are A (x1, y1), B (x2, y2), and C(x3,y3).
Then area (ABC) = $\frac{1}{2} \{x_1(y_2 - y_3) + x_2(y_3 - y_1) + x_3(y_1 - y_2)\}$ |
10. WAP to sort all the structure/class objects from a file/database by name or roll no.

SQL Test

Statements about some company are given below:

The Jonson Brothers is a retail company with department stores in many major US cities.

The company has a large number of employees and sells a varied line of products.

To manage all information about the company structure and products, a database system is used.

The company consists of a number of stores that contain a number of departments.

The company has a number of employees, who (among other things) sell items at the different stores.

Sales are registered in the sale and debit tables.

The sale and debit tables may be a bit tricky to understand. You can view a row in the debit table as representing the receipt you get when you pay for your items, while a row in the sale table represents a row on such a receipt.

The company has contracts with various suppliers, who supply items for sale and also parts for the company's computer equipment.

Deliveries of computer parts are registered in the supply table.(make necessary assumptions)

Find solution of given queries:

- 1) List all employees, i.e. all tuples in the EMPLOYEE relation.
- 2) List the name of all departments, i.e. the NAME attribute for all tuples in the DEPT relation.
- 3) What parts are not in store, i.e. QOH=0? (QOH = Quantity On Hand).
- 4) Which employees have a salary between 10000 and 12000 (inclusive)?
- 5) Retrieve all items sold in the department 49 with their name, price, and price increased by 10%.
- 6) Which employees have a family name starting with "S"? Retrieve their names, numbers and salaries.
- 7) What are the names and weights of all parts delivered by a supplier called "DEC"? Formulate this query using a subquery in the where-clause.
- 8) Formulate the same query as above, but without a subquery.
- 9) Retrieve the name and the color of all parts that are heavier than a black tape drive. Formulate this query using a subquery in the where-clause. (The SQL query should not contain the weight as a constant.)
- 10) Formulate the same query as above, but without a subquery. (The query should not contain the weight as a constant.)
- 11) What is the average salary of all the employees whose manager is the employee with number 199?
- 12) For each supplier retrieve its name and the number of different items it supplies.
- 13) For each supplier in Massachusetts ("Mass") retrieve the total weight of all the parts delivered by the supplier.
- 14) Insert data about a new supplier on your choice in the supplier table. Note that the city column is a foreign key to the city table, i.e. the supplier city must already exist or be inserted in advance to the city table.
- 15) All departments in store number 8 showed good sales figures last year! Give the managers of these departments 5% raise of their salaries. Retrieve the information about these managers by a query before and after the update statement to verify that the data has been updated.