Tutorial-01

Knowledge Representation & Logical Programming (Practical)

1. You're programming a backgammon game, and are working on the dice roll method. Given two integers, return their sum. However, if the two numbers are the same, return double their sum.

2. Given a number from 1 to 4 (inclusive), return a word representation of the number. For example, given 2, return two. If the number is greater than 4, return the phrase too large. If the number is less than 1, return the phrase too small.

3. You're the captain of a pirate ship and would like to calculate whether your trip was a success. You are given two parameters - gold and pirates. The trip is a success iff there is at least as much gold as pirates. However, if gold + pirates > 100, then the trip is a failure, since the ship may sink. Return true if the ship was a success and false if it was a failure.

4. The Kingdom of Zumbania recently banned the number 7. Please print all the numbers from 1 to 50 but skip all multiples of 7. Also, skip any number that has a 7 in it, such as 27.

5. Write a program that prints the numbers from 1 through 100. But for multiples of three print “Fizz” instead of the number and for the multiples of five print “Buzz”. For numbers which are multiples of both three and five print “FizzBuzz”.

6. Take any number n. If n is even, divide it by 2, if n is odd, multiply it by 3 and add 1. Repeat the process indefinitely, and you'll eventually reach 1.(Collatz Conjecture Problem).

7. Given two numbers a and b can you return their Least Common Multiple (LCM)? A LCM of a and b is the smallest number that is a multiple of both a and b.

8. Simba is a lion. Buchchi is a monkey. Lucy is a dog. Simba always eat meat, Buchchi is vegetarian and Lucy will eat all kind of foods. Animals can be divided in to three types such as carnivores, omnivores and herbivores based on their eating behaviors. Carnivores are meat eaters; herbivores eat plants only and omnivores eats both plants and meats. Define the above information in prolog and prove that “Simba is an animal”.

9. Solve the small crossword puzzle with the given words; dog, run, top, five, four, lost, mess, unit, baker, forum, green, super, prolog, vanish, wonder, yellow.
   (Hint: L1, L2, ……., L16 are letters of the word. You can represent the words like word (d, o, g))

L1	L2	L3	L4	L5	
L6		L7		L8	
L9	L10	L11	L12	L13	L14
L15				L16	