Subject: Programming Language and Compiler Design Lab Assignment

Lab Assignment Week 2 : Programming Languages and Automata

Topic : Internal Representation

In Context to programming language C perform followings.

Q1. Write a piece of code to obtain internal bit pattern of a given integer numbers

(a) 23 (b)-23 (c)-2056 (d) 1 (e) 0 (f) -0

Observe and analyze the technique of representation.

Q2. Write a piece of code to obtain internal bit pattern of a given real numbers

(a) 1.0 (b)-1.0 (c)3.0 (d)-3.0 (e) 0.625 (f) -17.875

Observe and analyze the technique of representation.

Topic : Automata Theory

Q3. Write a program to check whether for a given deterministic finite automata, input string of <0,1> is valid or not.

(a) Design and implement DFA for a string which accepts odd number of 1's and any where any number of 0s.
Valid strings : 111, 1011, 1000111010
Invalid String : 011, 1100, 001100101

(b) Design and implement DFA for a string which ends which ends with 1.
Valid String : 0101, 01010111001
Invalid String : 110, 101110110

Q4. Write a program for executing the Deterministic Finite Automata (DFA). The program should able to accept an input string, and able to result as ACCEPTED/NOT ACCEPTED.

(a) Design a DFA which accepts input string only if the pattern e.g. 'abc', is available in the input string.

Example : Pattern "abc"
I/P String : "xyabcp" ACCEPTED
I/P String : "abxsc" NOT ACCEPTED
I/P String : "abc" ACCEPTED

(b) Design a DFA which accepts input string only if the pattern e.g. 'abc', is NOT available in the input string.

Example : Pattern "abc"
I/P String : "xyabcp" NOT ACCEPTED
I/P String : "abxsc" ACCEPTED
I/P String : "abc" NOT ACCEPTED