Department of Computer Science and Engineering

21st Batch

Lab Report 3

Course Code: CSE 414

Course Title: Artificial Intelligence Lab

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Problem: Get Fibonacci series using prolog.

Theory: In mathematics, the Fibonacci numbers, commonly denoted F_n, form a **sequence**, the Fibonacci sequence, in which each number is the sum of the two preceding ones. The sequence commonly starts from 0 and 1, although some authors omit the initial terms and start the sequence from 1 and 1 or from 1 and 2. Starting from 0 and 1, the next few values in the sequence are:

0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144, ...

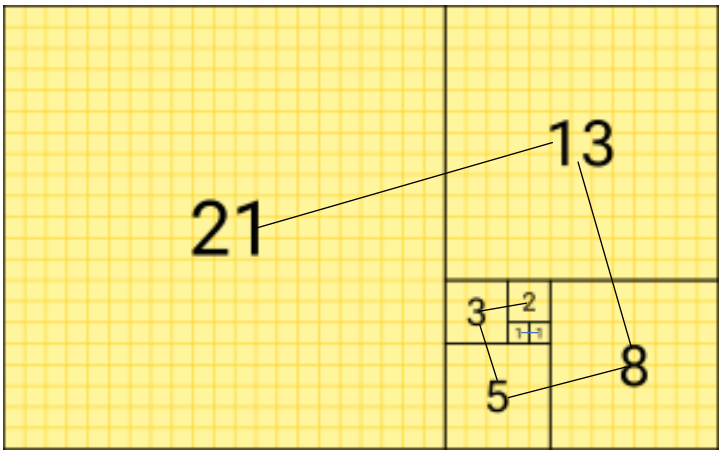


Diagram: Illustration of Fibonacci number genaration

Code:

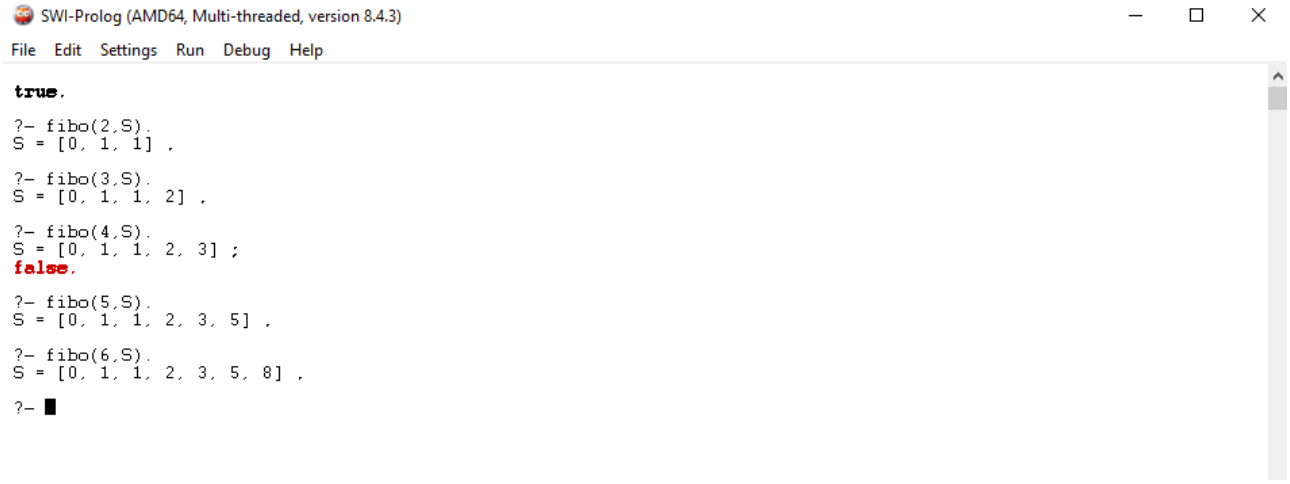
```
fibo(0,[0]).
fibo(1,[0,1]).
fibo(N, F) :-
        N > 1,
        fibo_series(N,Sr,1,[1,0]),
        reverse(Sr,F).

fibo_series(N,F,N,F).

fibo_series(N,F,N0,[V1,V0|Fs]):-
        N > N0,
        N1 is N0+1,
        V2 is V0+V1,
        fibo_series(N,F,N1,[V2,V1,V0|Fs]).

cls:- write('\33\[2J').
```

Output:



Conclusion: By defining the 0 and 1 index and then implementing the 'fibo' rule we can get the Fibonacci series, and show the value of F from the rules. By this process, we can get the Fibonacci series in prolog.