**Homework # 2 - Question #3 (Resubmitted)**

The preliminary intuition for this grammar is very simple. Apart from 0, all binary numbers divisible by 4 ends with 000 or 100. The leading bits can form any binary number.

So, the number is: 0 or *Any Binary Number* having 000 or 100 in the end. The regular expression is:

1(0|1)\*(000|100) | 0 | 100

Hence, the grammar is given below. Non-terminals are highlighted with <>.

<GOAL> 🡪 0 | 100 | 1<BINARY-NUMBER>000 | 1<BINARY-NUMBER>100

<BINARY-NUMBER> 🡪 <BIT> |

<BIT> 🡪 <BIT><BIT>

<BIT> 🡪 0 | 1