CMSI 386 Homework #4

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1. Write Regular Expressions for:

   (a) Canadian Postal Codes:

   ```
   [^DFIOQUWZ][\d][^DFIOQU] [\d][^DFIOQU][\d]
   ```

   (b) Legal Visa Card Numbers, not including checksums

   ```
   4\d{3} (\d{4} ){3}
   ```

   (c) MasterCard Numbers, not including checksums

   ```
   5\d{3} (\d{4} ){3}
   ```

   (d) Ada 95 numeric literals

   ```
   \d(_?\d)*#[\dA-F](_?[\dA-F])*#(E[+-]+[\dA-F](_?[\dA-F])*)?|\d(_?\d)*(\.\d(_
   ```

   (e) Strings of letters and numbers beginning with a letter, EXCEPT those strings that are exactly three letters ending with two Latin letter ohs, of any case.

   ```
   ^\w(?![Oo][Oo]$)[\w\d]*
   ```

2. Syntax tree for Program in JSON (http://cs.lmu.edu/ ray/notes/syntax/)

```
{
    "Program" : [
        {"Var" : "x"},
        {"Var" : "y"},
        {"While" : [
            {"Minus" : ["y", 5]},
            [
                {"Var" : "y"},
                {"Read" : "x"},
                {"Read" : "y"},
                {"Assign" : ["x", {
                    "Times" : [2, {
                        "Plus" : [3, "y"]
                    }]
                }]}
            ]
        ]}
        {"Write" : 5}
    ]
}
```