Polynomial Calculator Programming Language (PCPL) Proposal

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1. **Introduction**

   PCPL is a simple programming language that facilitates manipulation and computation of polynomial expressions. Polynomial is one of the main divisions in mathematics and it is widely used in engineering to model different sets of measured engineering data. PCPL is designed as a simple and easy to use tool to cultivate the interests in learning math and to facilitate the study in polynomials.

2. **Features**

   Users can program to perform addition, subtraction, multiplication, division and parity over two polynomial expressions, also can compare two polynomials using comparison operators, such as >, >=, <, <=, ==, !=.

   PCPL is easy to use. The syntax is similar to mathematical expressions and there are built-in functions for various polynomial operations.

   The language will support simple control structure, such as single level while loop and single level if-else statement. Comments are between /* and */. Each statement is ended with ; and { } are used for grouping.

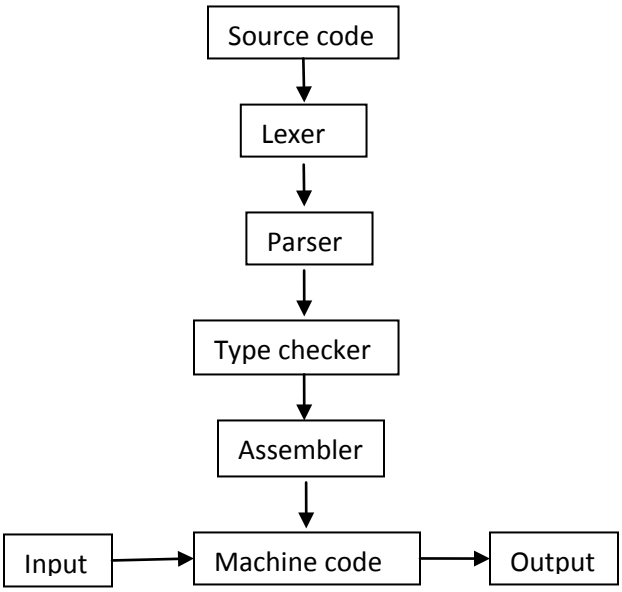
3. **Data Types**

   Each variable is declared one of the following data types:

   - int : represents an integer value
   - double: represents a floating point value
   - polynomial: a data type will be created to represent a polynomial expression
   - string: represents a sequence of characters

4. **Modules**

   The compiler will be divided into the following modules:
   Lexer, Parser (check syntax errors), Type checker (check type errors) and Assembler.



5. **Sample Program**

```
polynomial p1, p2, p;
p1 = x+1;
p2 = x^2 + x ;
p = p1 + p2;
print (p);
int i;
i = parity(p);
print (i);
if (p1 > p2)
    print (p1);
else
    print (p2);
```