मPL : Marathi Programming Language

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ABSTRACT

The main or primary motivation of our project is that there are subjects like Mathematics, Science etc. likewise computing is also concept which can be introduce through native language so our motivation is toward creating a language to introduce children to computing. Once they know to think in these logical modes (enumeration, recursion and procedural) then writing any program is an aggregation of ideas in some order. Marathi keywords and grammar are chosen to make the native Marathi speaker write programs in the Marathi Programming Language which allows easy representation of computer program closer to the Marathi language logical constructs equivalent to the conditional, branch and loop statements in modern English based programming languages.

Keywords : Regional Programming Language, Compiler Design.

I. INTRODUCTION

We are developing a new language for programming in the category of regional programming language which is similar to general programming languages like c, c++, python which are high level programming languages.

The structure of our programming language is similar to python but main difference between these two are python uses English keywords, variables but our language uses keywords , variables of native regional language which is Marathi.

The primary motivation behind this is like mathematics is concept and it can be introduced to children in their native language we want to introduce programming as concept to children in their native language . To introduce computing towards children we want to create programming language and this is reason behind our project.

There are various programming languages present in the market. this are made for various special purposes. but majority of them are English based programming languages. such as keywords present in these languages are English base. very few languages present in the market which are non-English based. means that the keywords used in these languages are non-English keywords . these keywords are taken from their respective regional languages such as Chinese, Hindi, Tamil etc.

The different non-English based programming languages are Hindawi, Ezhil etc. Hindawi programming system is language proposed by Abhishek Chaudhary and Dr, Shweta Chaudhary which is based on Hindi language. Ezhil programming

language is proposed by Muthiah Annamalai which is based on Tamil language.

In china Chinese people use their own language for programming they are not using English programming language, so why not us?.

II. LITERATURE SURVEY

TABLE I. LITERATURE SURVEY TABLE

| Sr.NO.	PAPER NAME	AUTHOR	METHOD PROPOSED	LIMITATIONS
1.	Ezhil (எழில்): A Tamil Programming Language	Muthiah Annamalai	Proposed Programming language which allows only Tamil keywords by prototyping it in python	Limited for Tamil language only.
2.	Hindawi Programming System	Abhishek Chaudhary, Dr. Shweta Chaudhary	A suite of open source Indic-text programming languages	Limited for Hindi language only.
3	Lieutenant	Mr. Zhongli	Chinese programming language based on Python language with support of internal Chinese character encoding	Limited to Chinese language only

III. TAXONOMY CHART

TABLE III. TAXONOMY CHART

	Procedural	Object Oriented (OOP)	Language Restriction	Scope to use external libraries
Ezhil Programming language	✓	✗	✓	✓
Hindawi programming system	✗	✓	✗	✗
Lieutenant	✗	✓	✓	✓

IV. SYSTEM DESIGN

We write our program files in python which contains functions and algorithms which can compile our input which is written in Marathi and able to generate output according to it.

DIAGRAM III. SYSTEM DESIGN
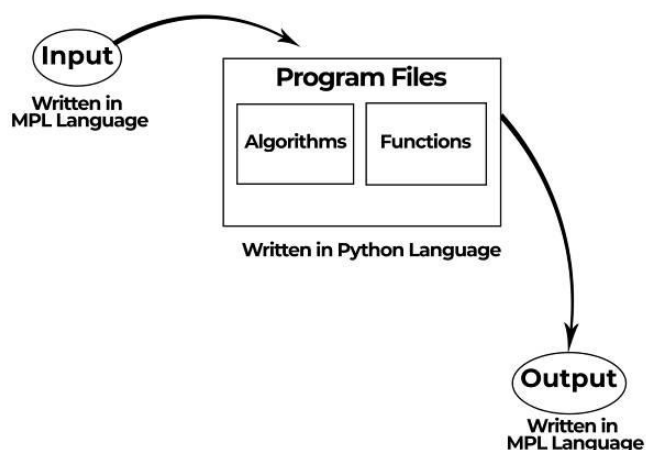
V. ALGORITHM

A: START

Get Set of Instructions(Marathi Input Code) from User.

B: Lexing-Conversion of sequence of characters into sequence of tokens.

Input :१+२
Output : [INT:१ , PLUS , INT:२]

C: Parsing-Sequence of tokens is converted into syntax tree.

Input : -१+२*३
Output : ((MINUS, INT:१) , PLUS , (INT:२ , MUL ,INT:३))

D: Interpreting- Execution of set of Instructions(Marathi Input Code) written in High Level Language or Scripting Language.

Input :१+२*३
Output :७

E: Creation of Variable(चल **)**

चल अ = ५
    चल ->var
    अ ->variable_name
    = -> equals
    ५ ->expr

F: Addition of Logical Operators and Comparison Operators

Input:१>२&&१<२
Output :०

G: Creation of "if(जर), then(तर), else(अथवा), while(जेव्हा), for(च्यासाठी)" statements

Input :जर ७ = = ७तर १२३ अथवा २३४
Output :१२३

H: Creation of Functions(कार्य**)**

कार्यबेरीज(अ,आ) ->अ + आ
<कार्यबेरीज>

Input :बेरीज(१,२)
Output :३

I: Creation of Strings(वाक्य**)**

Input :वाक्य अ = "नमस्ते"
Output :नमस्ते

J: Creation of Built-In Functions: "print(लिहा), scan(वाचा), return(परत), continue(सुरु), break(तोड), run(चालवा)"

L: STOP

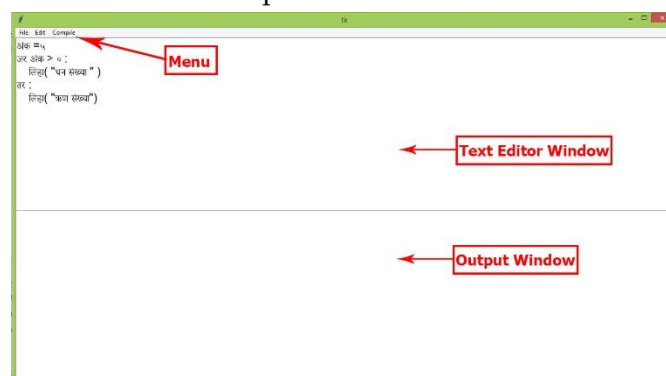## VI. OUTPUT

A: GUI Interface
Divide Into 3 Parts
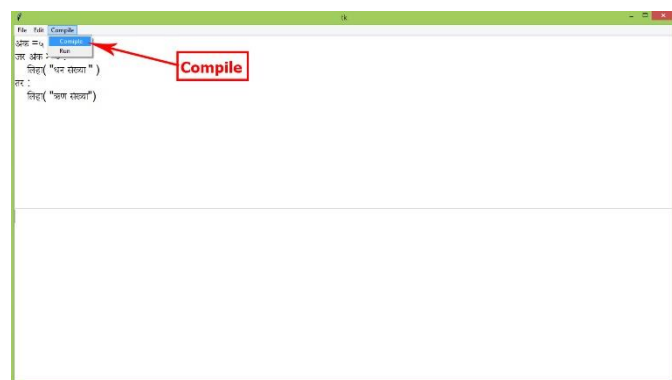   -Menu
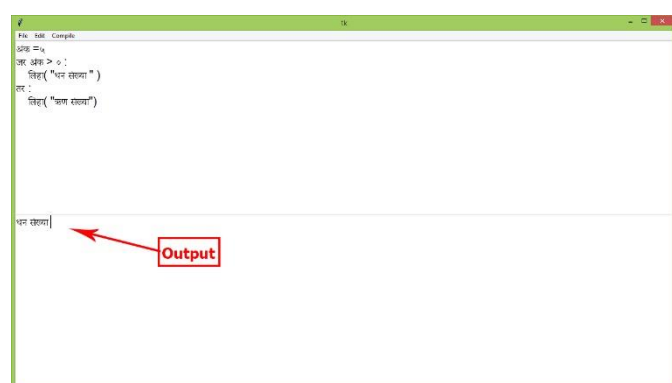   -Text Editor Window
       -Output Window
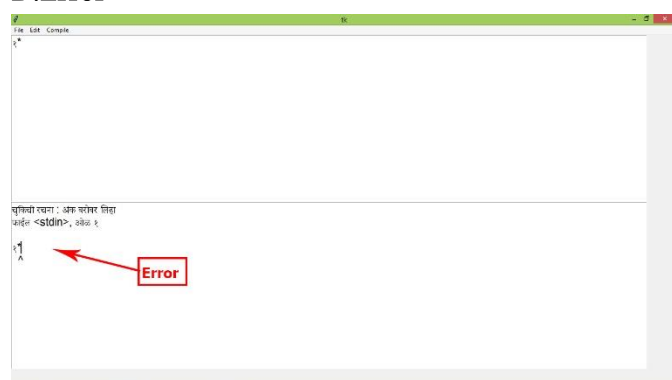
B : Writing Program Sample Program

Writing Simple If Else Program In **MPL** Which Check Given Number is positive(धन संख्या) or negative (ऋण संख्या)
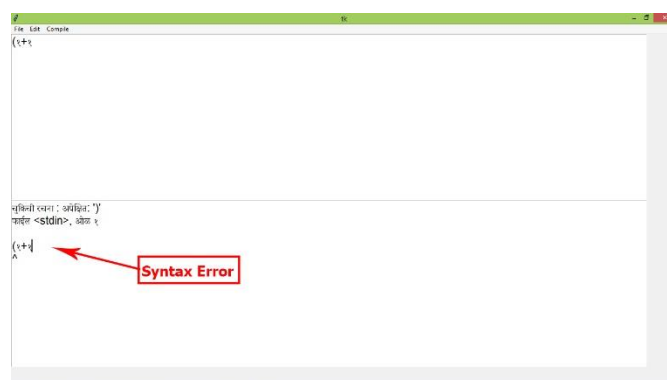

C: Output of Sample Program

D:Error

E: Syntax Error

VII. ADVANTAGES

1. Easy to use

2. Native Language Programming

3. Easy to learn coding

4. No other language is present similar to this

5. Scope to use external libraries

VIII. LIMITATIONS

1. Limited concepts only

2. Concepts like Exception-handling, Multithreading are not included

IX. FUTURE SCOPE

1.To Expand language to its greater extent and make it fully fledged to support variety of libraries.

2.Devlop Library for GUI Programming in MPL

3.To make MPL fully functional for daily uses.

X. CONCLUSION

Our proposed System is designed to develop programming language which allows to write the programs in Marathi language. And it also have additional functionalities as compared to other existing non-English based programming languages and purposed system justifies the comparison as shown in taxonomy chart above. After surveying and studying some other non-English based programming languages, we can conclude that the purposed system is feasible with respect to all three formats, these are Market Feasibility, Technical Feasibility and Financial Feasibility.

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