JULIA CODE GENERATOR FOR FLOWGORITHM FLOW CHART INTERPRETER

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ABSTRACT

This is my poster about generating Julia code from the flow chart. I have created a template based on existing templates for Flowgorithm to generate the Julia code.

It is very simple to use. Just draw the flow chart, select the Julia template to generate the code and execute the flow chart to view the result.

This tool is very helpful for non-native English speakers who are interested to learn problem solving and programming without worrying much of syntax and errors.

MOTIVATION

We get students from diverse background i.e., whose primary medium of study is not English, rural and economically weaker section of the society.

Programming course is introduced as the one of the first courses in Engineering study in India.

I have seen students struggling to understand the programming concepts and often stuck between syntax and semantics of the language.

BACKGROUND

Although there are many tools such as Alice, Scratch etc. but more formal tools were needed to aid in assessment.

The Flowgorithm flow chart interpreter where flow charts can be drawn and executed. Also code generation option is present and flow charts are one of most widely used tool for problem solving and understand the program flow.

The flowgorithm supports 18+ languages but lacks the support for Julia language. There was a need to add the support of Julia language to Flowgorithm if we wanted to introduce Julia as first programming language for problem solving.

RESULTS AND DISCUSSION

Structure of Template file

Language: Keywords, extension

Literals

Expressions: Operator precedence

Intrinsic and Extrinsic functions

Program : Define different blocks of the program including decision making and loops

In case of user defined functions, the implementation needs to be included in the template

Advantages

Easy to use, drag and drop and corresponding code generation

Beginner friendly and great tool to learn problem solving

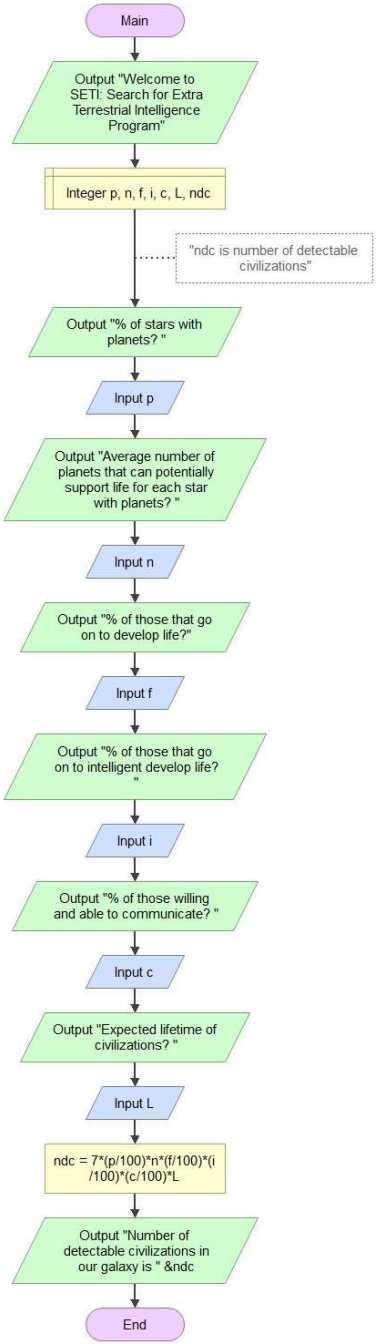
Disadvantages

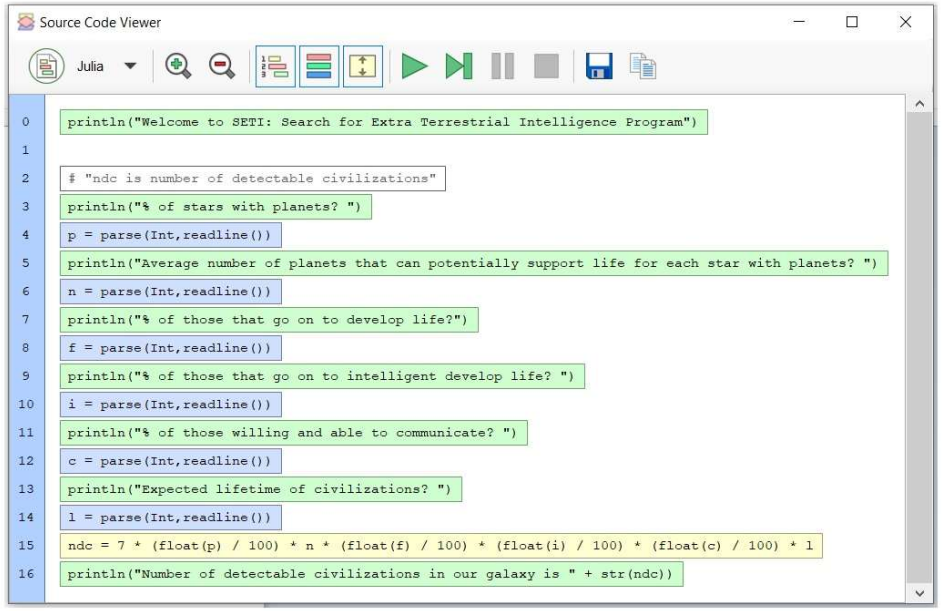
Code generation is limited. For example 2 or more dimensional arrays are not supported

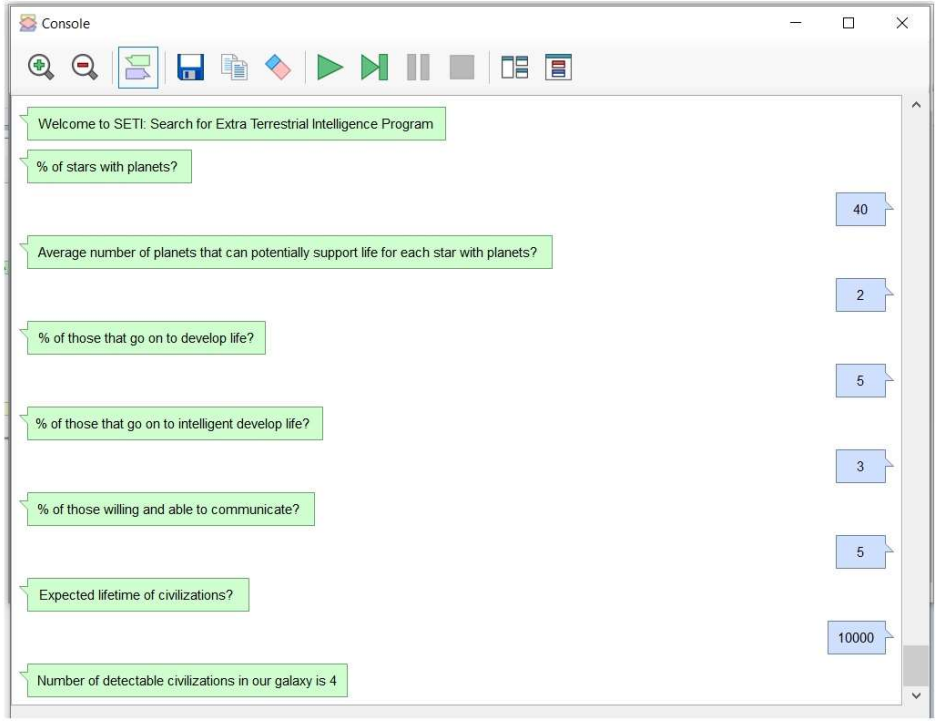
Language specific features (.*) are not supported

Presently no support for Indic languages

RESULTS AND DISCUSSION







Sample Flow Chart on the left side

Generated Julia code on top right

Output on bottom right

CONCLUSION

Flowgorithm is a great tool for learning problem solving and programming.

You can add a new programming language support based on existing template files.

Flowgorithm is available in multiple languages. But lacks the support for Indian languages. In the future scope, I will add Indian language support that will help many students to learn programming at their early age.

ACKNOWLEDGEMENTS

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Thanks to the wonderful audience.