Final Year Project

Outline

Goals

The primary goal of this project is to create a new programming language built on the Irish language.

Secondary goals include:

- The domain of the language should be education.
- The language should be as easy to access as possible, avoiding excessive installation steps or cross platform issues
- The language should be designed under the influence of the Irish language, It should be allowed to be influenced by Irish language structures, both grammatical and cultural.
- The language should be simple and constrained in scope and design, to keep the language accessible to all.
- *Standard* features of most languages should be present. This is to ensure that learning the language teaches fundamental programming concepts.
  - Variables (mutable / non mutable to be decided later)
  - Functions
  - Integers
  - Floats
  - Strings
  - Booleans
  - Conditional execution

Tertiary ideas

These are some ideas that might be taken forward into the project.

- Postfix notation for function application. The inspiration for this is the fact that Irish is a VSO (Verb Subject Object) language rather than an SVO language like English. This means that Irish lists the verb (*function*) before the subject and object. In contrast in most modern OOP languages the subject is listed first, then the verb, then the arguments. This could have a syntactic effect on our language, but also a semantic one, as if the function is syntactically more prominent then a more functional paradigm might suit the language best.

- Non technicality. As the language is not English, there is no value in over saturating the user with technical words for things like programs, strings, floats, functions etc. These could be replaced with familiar concepts like stories, words, actions, characters etc.

- LOGO/Scratch like visual elements: As the domain of the language is education, it would benefit greatly from a visual interface, a canvas where the user can draw pictures or make animations. This could be done using the turtle graphics approach of logo or the more scratch like approach of using sprites and movement, or both.

- Story telling: Irish has a great history of storytelling, both written and oral. Example programs can be written to play a "game" where the user plays through a historical Irish tale. e.g. Oisín and Tír na nÓg, Diarmuid and Gráinne etc.

- Class inheritance denoted using "Ó" keyword. This is a small feature that could be added to the language that comes from the cultural and historical fact that names in Irish have historically used **Ó** meaning **from** to denote ancestry.

- Use in Gaelscoil, Gaelcholaiste: Gaelscoils and Gaelcholaistes are Irish speaking primary and secondary schools respectively. As computer science is being brought into the Irish education curriculum it might be possible to trial use of the language in such schools, as part of a single CS class.

Possible Inspirations

- Scratch
- LOGO
- Linotte A french education language.