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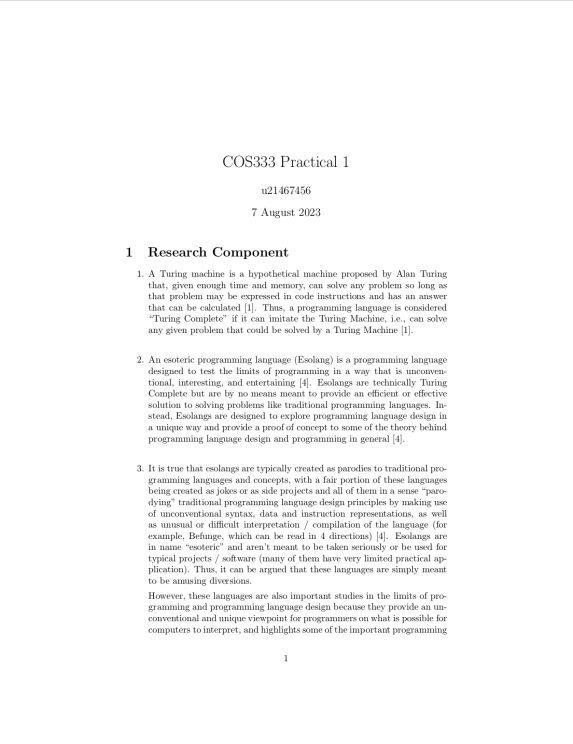

COS333 Practical 1

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1 Research Component

1. A Turing machine is a hypothetical machine proposed by Alan Turing that, given enough time and memory, can solve any problem so long as that problem may be expressed in code instructions and has an answer that can be calculated [1]. Thus, a programming language is considered "Turing Complete" if it can imitate the Turing Machine, i.e., can solve any given problem that could be solved by a Turing Machine [1].

2. An esoteric programming language (Esolang) is a programming language designed to test the limits of programming in a way that is unconventional, interesting, and entertaining [4]. Esolangs are technically Turing Complete but are by no means meant to provide an efficient or effective solution to solving problems like traditional programming languages. Instead, Esolangs are designed to explore programming language design in a unique way and provide a proof of concept to some of the theory behind programming language design and programming in general [4].

3. It is true that esolangs are typically created as parodies to traditional programming languages and concepts, with a fair portion of these languages being created as jokes or as side projects and all of them in a sense "parodying" traditional programming language design principles by making use of unconventional syntax, data and instruction representations, as well as unusual or difficult interpretation / compilation of the language (for example, Befunge, which can be read in 4 directions) [4]. Esolangs are in name "esoteric" and aren't meant to be taken seriously or be used for typical projects / software (many of them have very limited practical application). Thus, it can be argued that these languages are simply meant to be amusing diversions.

   However, these languages are also important studies in the limits of programming and programming language design because they provide an unconventional and unique viewpoint for programmers on what is possible for computers to interpret, and highlights some of the important programming

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