Comparative Languages Homework 1

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Question 1

The book describes 4 criteria for language evaluation. List those 4 criteria. Choose one that you feel is the most important and give at least 3 reasons for why.

Answer

The four criteria for language evaluation are readability, writeability, reliability, and cost. I think that readability is the most important of the 4 because it allows programs to be better maintained, makes debugging programs much easier, and helps people new to programming understand what programs are doing.

Question 2

The book describes 4 language categories, sometimes called paradigms. List the 4 paradigms. Choose which paradigm you believe is the most influential on programming in general and give at least 3 supporting arguments for why.

Answer

The four main language categories are imperative, functional, logic, and object-oriented. I think that the imperative paradigm is the most influential. Imperative programming languages are modeled after the von Neumann architecture which is what the majority of computers follow. Imperative languages are a direct result from computer architecture which is a huge influence on all things computer. Another reason why it is the most influential is that a lot of our systems programs are written in imperative languages. Operating systems define how users interact with their systems and their design is greatly influenced by imperative programming languages. The final reason is that the other programming paradigms grew out of the imperative paradigm as time when on, and programmers were interested in expressing different things in different ways.

Question 3

Select 1 language from the list below. Describe the purpose of the language, any major contributions to programming languages overall they added, and any subsequent languages that branched from them: FORTRAN, ALGOL, LISP, Smalltalk, SIMULA.

Question 4

Imagine you are going to create a new programming language. Describe the purpose of the language, the major paradigm or category the language belongs to, which language, if any, that is is a descendant of, the execution style, e.g. compiled, interpreted, etc