1.1

Errors in a computer program can be classified according to when they are detected and, if they are detected at compile time, what part of the compiler detects them. Using your favorite imperative language, give an example of each of the following.

(a) A lexical error,detected by the scanner

In C++, assigning int value as '.five' would be a lexical error.

(b) A syntax error,detected by the parser

In C++, if you forget ';' at the end of statements, it would be a syntax error

(c) A static semantic error, detected by semantic analysis

In C++, assigning String value to int type.

(d) A dynamic semantic error,detected by code generated by the compiler

In C++, accessing out of range in an array.

(e) An error that the compiler can neither catch nor easily generate code to catch (this should be a violation of the language definition, not just a program bug)

In C++, using the name of a method as a variable.

1.15

Using an Internet search engine or magazine indexing service, read up on the history of Java and C#, including the conflict between Sun and Microsoft over Java standardization. Some have claimed that C# was, at least in part, an attempt by Microsoft to undermine the spread of Java. Others point to philosophical and practical differences between the languages, and argue that C# more than stands on its merits. In hindsight, how would you characterize Microsoft's decision to pursue an alternative to Java?

Personally, I think that there's no harm in creating more programming languages. But in this case, I can't help thinking that Microsoft wanted more money and that's it. They shouldn't have violated the terms of their licensing agreement for Java. I think that the greed of Microsoft has killed the potential of Java.