**High Stakes II**

1. For each Prolog, SAS, and C give an ideal application and a non-ideal application.

Prolog, being a functional language, is very useful for applications in the artificial Intelligence and data mining areas. It is easily demonstrated that Prolog is capable to forming complex relationships with very few base rules – a highly desirable trait in AI and machine learning. Machine learning wants to use base rules and generate new rules from them. However, because functional languages like Prolog are inherently stateless, the language would not be well-suited for interactive applications such as a word processor or a web browser.

SAS is a statistical analysis language meaning it has very niche uses. Most obviously, a statistician for a business would find SAS useful for analyzing demographics, sales, etc. However, SAS cannot be used for anything other than statistical modelling, so the language is very limited. The limitations, though, allow the statistical modelling capabilities to be extremely polished.

C is the one of the most popular and widely used programming languages in the world. Because it is imperative and has a large community of library developers, there are very few problems that C cannot be used to solve. The limitation to C is not so much in its applications but rather in the portability of those applications. C programs must be compiled on the current machine to insure portability meaning that an application in C cannot be perfectly cross-platform. As stated before, C is a very powerful, optimized, and fast language so it is a great choice for any type of consumer application like a word processor, satellite software, or mainframe computing applications.

1. Compare and contrast C and Java. Note the similarities and differences in syntax, when to use one language over the other, and dangerous pitfalls.