CST8234 C Programming
Reasons to C

There are thousands programming languages today. Some, are general purpose languages, as C++ and Java, and others are very specialized languages. To see a list of programming languages available today, go to List_of_programming_languages.

An important question, as a computer science student, is, which language should I learn? Which language will give me an advantage in the market place? And why?

Undoubtedly, C is on the top of the list. Here are some important reason why.

1. **C is one of the foundations in modern information technology and computer sciences**
   The development of C and Unix are very interlocked. In the 1972, Unix was re-written in C – before, the Unix kernel was written in assembly. The new language needed to be small, fast and low level enough to handle the requirements of an OS. The Unix environment, which main purpose was to achieve connectivity among multiple computers, was an important development to the internet and the set of protocols use today to share information over the net. The influence in the academic world of the Unix OS is remarkable, and hand-to-hand C has been there. Human interfacing, numerical analysis, data mining, computer graphics, all concepts explored first in the academia world.

2. **C is the most commonly used programming language in the industry**
   As incredible as it sounds, about 90% of the software you use today, is written in some version of C. Including, operating systems, browsers, game engines, device drivers, word processors, etc.

   TIOBE Programming Community Index – http://www.tiobe.com/ -- , gives an indicatin of how C has been the most popular programming language.

Programming Language	2015	2010	2005	2000	1995	1990	1985
C	1	2	1	1	2	1	1
Java	2	1	2	3	-	-	-
C++	3	3	3	2	1	2	9
Objective-C	4	11	42	-	-	-	-
C#	5	5	7	9	-	-	-
PHP	6	4	5	21	-	-	-
Python	7	6	6	22	20	-	-

   Notice that Objective-C, C++ and C# are all C based programming languages.

3. **C is the language for hardware interfacing and embedded systems**
   To be able to manipulate a device, you need to create a device driver, a piece of software able to communicate between the hardware and the operating system. This job, was relegated to assembly before, but assembly depends on the hardware you are using. A better solution today, is to use C, a higher level language than assembly, but low enough to do the communication with the hardware. The world of embedded systems seem to have grown enormously in the last decade. From heart rate monitors to fridges you can control from the internet. All of these devices require programs, most of them written in C or use C to develop a toolkit to program them.

4. **C is the language for operating systems, other language specifications and many other applications**
   C is used to develop many different operating system, including Unix, Linux, Mac OS, IOS, android, etc. Other computer languages specifications has been written in C, for example, the Sun JVM is implemented in C as well as the native methods in most java classes.

5. **C is used to write many game engines**
   Computer graphics – used today in most games – required a great deal of hardware optimization and fast code able to run in multiple platforms. Once again, C comes to the rescue, being used mostly to write the game engines used in today's fast, graphics computer games. For a complete list, visit http://en.wikipedia.org/wiki/List_of_game_engines