CSE216 – Programming Abstractions
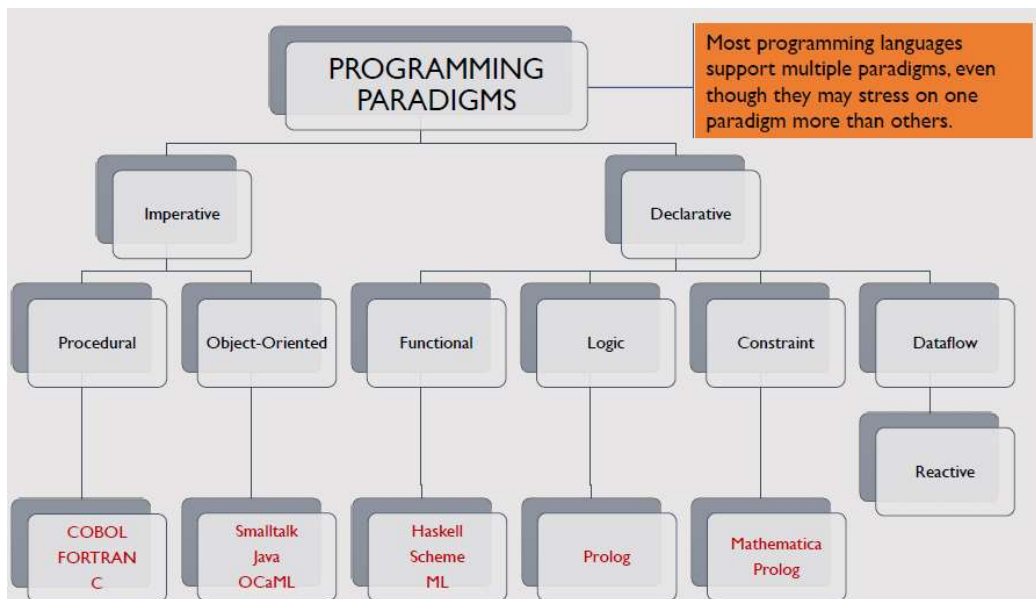## Recitation 2

Goals:
1. Understand experiences in the development of programs using multiple languages.
2. Install C compiler and convert a C program to assembly level language program.
3. Installation of Java and NetBeans IDE on your system.

Question 1:

Get together with a classmate whose principal programming experience is with a language in a different category (see the figure below). (If your experience is mostly in C, for example, you might search out someone with experience in Lisp.) Compare notes. What are the easiest and most difficult aspects of programming, in each of your experiences? Pick a simple problem (e.g., sorting, or identification of connected components in a graph) and solve it using each of your favorite languages. Which solution is more elegant (do the two of you agree)? Which is faster? Why? Create a file Answer1.doc on your computer and write your answer.

Question 2:

Check whether your computer has a C compiler **gcc** installed. If not, install gcc on your computer using appropriate instructions as follows:

MacBook users:
https://www.mkyong.com/mac/how-to-install-gcc-compiler-on-mac-os-x/
Windows users:
http://www.codebind.com/cprogramming/install-mingw-windows-10-gcc/

Write the following program in a C file "consoleio.c".

```
#include <stdio.h>

int main ()
{
    char initial;
```

```
  char anykey;

  printf ("Enter your initial:\t");
  scanf ("%c",&initial);
  printf ("Your initial is %c\n\n\n", initial);
}
```

Compile this program with the -S command as follows:

gcc -S consoleio.c

Try to understand the assembly level language code generated in file consoleio.s. Refer to following link for understanding meaning of assembly language instructions.

http://web.mit.edu/rhel-doc/3/rhel-as-en-3/

Create an executable with the following command:

gcc consoleio.c -o consoleio.exe

This will create an executable file consoleio.exe.

(Windows) Run the file using following command in DOS prompt:

C:/>consoleio.exe

(MacBook) Run the file using following command in DOS prompt:

$./consoleio.exe

Submission:

Submit the following files on blackboard:

1) Answer1.doc
2) Consoleio.s

Activity:
If you have not installed Java or NetBeans on your system, this exercise is for you:

Part 1: Java installation
Follow the instructions on the following page for installing **JDK11** and getting started with Java programming:
https://www3.ntu.edu.sg/home/ehchua/programming/howto/JDK_Howto.html

Part 2: NetBeans installation
Follow the instructions at the following page for installing NetBeans IDE on your system.
https://netbeans.org/community/releases/82/install.html

Follow the tutorial at the following link for creating and running a simple project using NetBeans IDE.
https://netbeans.org/kb/docs/java/quickstart.html