Introduction to Object Oriented Programming using Java:

Course Overview

This workshop introduces object oriented programming development and design using Java. Students will learn basic programming language concepts including Java syntax, input/output, memory allocation and control structures. Object oriented concepts will be introduced including Java classes that contain variables, methods and objects. Students will focus on problem solving skills by program design, algorithm development using sound software engineering practices.

This course will start with the very basics, assuming that students do not have any previous Java programming experience. It does not require any other programming experience. This course will introduce basic programming concepts using the Java programming language.

More About the Java Programming Language

Java is a programming language originally developed by James Gosling at Sun Microsystems (which is now a subsidiary of Oracle Corporation) and released in 1995 as a core component of Sun Microsystems' Java platform. The language derives much of its syntax from C and C++ but has a simpler object model and fewer low-level facilities. Java applications are typically compiled to byte code (class file) that can run on any Java Virtual Machine (JVM) regardless of computer architecture. Java is a general-purpose, concurrent, class-based, object-oriented language that is specifically designed to have as few implementation dependencies as possible. It is intended to let application developers "write once, run anywhere." Java is currently one of the most popular programming languages in use, and is widely used in application software and web applications.

Course Goals and Learning Outcomes

Develop Java programs that contain sequence, selection and iteration control structures.

Develop Java programs that contain methods that may have parameters and a return type.

Understand the concepts of Objects and Java classes.
Structure

This course is taught using classroom and lab instruction employing lecture/demonstration, in-class exercises, student participation, and class activities leading to a final project. Classes will include introductory concept presentations, followed by in-class exercises. While students are invited to bring their own laptops to class, the UCSD lab will have all necessary hardware and software installed for their use each day. Java is cross platform and may be run under Windows, Mac OS X or Linux.

Topics to be covered during the week

Module 1:  
- Introduction to Java  
- Introduction to the IDE environment  
- Java keywords  
- Primitive data types  
- Input/Output

Module 2:  
- Selection Control Structure  
- Methods  
- Algorithm Development

Module 3:  
- Iteration Control Structure  
  Algorithm Development

Module 4:  
- String Class  
- Java Swing – JOptionPane input and output windows  
  Algorithm Development

Module 5:  
- Classes, Objects  
- Instances of Objects  
- Final Project: Putting the pieces together.

Prerequisites:
- Must be a current high school student in grade 10-12.
- Latest math course must have a grade of A or B. Please provide transcripts.
- A basic understanding of computers.

Instructor: Joseph Pistone [Sweetwater Union High School District]

Course fee: $260.00

Space is limited.

If you have any questions regarding this workshop or the application process, please contact Ange Mason via phone at 858 534-5064 or via email at amason@ucsd.edu.