

UCSD StudentTECH 2012

Computer Science for High School Students

Sponsored by the San Diego Supercomputer Center, University of California, San Diego

Introduction to Object Oriented Programming Using Java

Monday- Friday, July 16-20, 2012

Class meets at the University of California, San Diego from 8:30am - 3:00pm.

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, sequence, selection and iteration. Object oriented concepts will be introduced including Java classes that contain instance and local variables, constructors, methods and objects. Students will focus on algorithm development and problem solving skills using sound software engineering practices.

This course will start with the very basics and assumes that students do not have any previous Java programming experience and does not require any other programming experience. This course will cover the fundamentals of the operative parts of Java and will introduce the basic programming concepts of Java programming.

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 from application software to web applications.

Course Goals and Learning Outcomes

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

Develop Java classes that contain instance variables, constructors and methods. Methods may have parameters and a return type.

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.

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 2-3:

- Algorithm Development
- Selection Control Structure
- Iteration Control Structure
- String Class

Module 4:

- Classes, Objects
- Constructors
- Methods
- Instances of Objects
- Java Swing – JOptionPane input and output windows

Module 5: -Final Project: Putting the pieces together.

Instructor: Terrie Canon, Associate Professor, Palomar College

Prerequisites:

- Must be a current high school student in grade 9 –12.
- No previous programming experience is required.

Course fee: \$225.00

Registration deadline: June 15, 2012. 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.

Introduction to Object Oriented Programming Using Java

July 16-20, 2012

Applicant Information:

Name: _____
Last First Middle

Mailing address: _____
Street Address or Post Office Box City/State Zip

Telephone: _____ Email: _____

Date of birth: _____ Age as of June 30, 2012: _____

Gender: _____ Male _____ Female

San Diego County Middle or High School: _____
School name District

Grade completed by June 2012: _____

Email: (optional) _____

Parent or Legal Guardian Information (if applicant is under 18): (Please Print)

Name: _____

Mailing address: _____
Street Address or Post Office Box City/State Zip

Telephone: (Home) _____ (Work) _____

Email: (Please Print) _____

Course fee: \$225.00

Please make your check or money order payable to UC Regents and submit both payment and application in a single envelope to the following address:

Ange Mason
Attn: Student Summer Workshops
San Diego Supercomputer Center
University of California, San Diego
9500 Gilman Drive, Mail Code 0505
La Jolla, CA 92093-0505

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