

# Design and Implementation of an Interactive Simulation Using the JAVA Language Through Object Oriented Programming and Software Engineering Techniques

Dan Stalcup  
June 12, 2006

## Background:

Object-oriented programming has been around since the early 1970's. It has become a staple of introductory programming courses and the backbone of several currently popular programming languages, including JAVA, C++, and C#. In many professional programming environments, object-oriented programming has been adopted as an important philosophy for software development. As programmers go through development, and come across a new requirement or problem, they have to make a decision of how to solve it. For each problem there will be multiple ways to tackle it. These various approaches to problems may or may not take different programming philosophies.

## Description:

This study analyzes the effectiveness of an “entirely object-oriented approach” to solving problems and addressing requirements with the use of the JAVA language, meaning that the object-oriented programming philosophy is adopted whenever feasible. This study is conducted through development of a complex interactive simulation in the form of a tactical role-playing game called “Project Dart Hounder.” Project Dart Hounder is a large system of different types of objects that interact with each other by means of a backbone called the Gameboard. By analyzing the code and its development, conclusions of the effectiveness of an entirely object-oriented approach are drawn. Applications and comparisons to professional software development are discussed.