# Lab 4 - Git and Polymorphism

Simulation Physics

Fall 2012

## 1 Overview

The purpose of this lab/quiz is to practice using polymorphism and Git. To this end, we have provided you with a file consisting of a set of Google tests. Your job is to implement source and header files so that the tests all pass. Additionally, you will have to create a second branch named "triangles" that reproduces the tests but replaces the circle class and tests with a triangle class and tests. Details below.

## 2 Deliverables

You will have to turn in the following:

- A git repository consisting of branches named "master" and "triangles."
- In the master branch, classes implementing an abstract base class Shape with derived classes Circle and Square.
- In the master branch, a file containing the Google tests we provided, with details filled in so that the tests all pass.
- In the triangles branch, classes implementing an abstract base class Shape with derived classes Square and Triangle.
- in the triangles branch, a file containing the Google tests we provided, modified to replace the tests for Circle with equivalent tests for Triangle.

## 3 Due Date

As always, the quiz is due by 3:30 pm one week from the date the quiz is assigned. In this case, that means the quiz is due at 3:30pm on Sept. 28.

## 4 Hints

- Make sure that shape is an abstract base class.
- Look up std::make_shared.
- Look up member functions of std::vector for pushing an item onto the back of a vector.
- If you're having trouble remembering the commands I used in git in lecture, look into git add, git commit, git status, and git log. Along with the branching commands from the slides, those should be all you need.
- You may not need to worry about it for this quiz, but you should probably look up the relationship between the keyword virtual and destructors.