# Homework Assignment #1

Due: See Blackboard

# General guidelines

## Naming

* When creating project names for your applications, name the project *first\_last\_app* where *first\_last* specifies your first and last name and *app* specifies the name of the application.
* When creating names for variables and functions, please use the guidelines and recommendations specified in the textbook (*Murach’s Java Programming*) or lecture slides.

## User interfaces

* You should think of the user interfaces that are shown for the projects as starting points. If you can improve on them, especially to make them more user-friendly, by all means do so.

## Specifications

* You should think of the specifications that are given for the projects as starting points. If you have the time to enhance the applications by improving on the starting specifications, by all means do so.

## Development tip

* Always start by developing a working version of the application for a project. That way, you’ll have something to show for your efforts if you run out of time. Then, you can build out that starting version of the application until it satisfies all of the specifications.

# Project 2-1: Student Registration

Create an application that allows a student to enter registration information. The application should display a completion message that includes the user’s full name and a temporary password.

## Console

Student Registration Form

Enter first name: Harold

Enter last name: Moore

Enter year of birth: 1998

Welcome Harold Moore!

Your registration is complete.

Your temporary password is: Harold\*1998

## Specifications

* The user’s full name consists of the user’s first name, a space, and the user’s last name.
* The temporary password consists of the user’s first name, an asterisk (\*), and the user’s birth year.
* Assume that the user will enter a valid 4-digit integer for the year.

# Project 2-2: Grade Converter

Create an application that converts number grades to letter grades.

## Console

Welcome to the Letter Grade Converter

Enter numerical grade: 90

Letter grade: A

Continue? (y/n): y

Enter numerical grade: 88

Letter grade: A

Continue? (y/n): y

Enter numerical grade: 80

Letter grade: B

Continue? (y/n): y

Enter numerical grade: 67

Letter grade: C

Continue? (y/n): y

Enter numerical grade: 59

Letter grade: F

Continue? (y/n): n

## Specifications

* The grading criteria is as follows:

A 88-100  
B 80-87  
C 67-79  
D 60-67  
F <60

* Assume that the user will enter valid integers between 1 and 100 for the grades.
* The application should continue only if the user enters “y” or “Y” to continue.

# Project 2-3: Rectangle Calculator

Create an application that calculates the area and perimeter of a rectangle.

## Console

Welcome to the Area and Perimeter Calculator

Enter length: 100

Enter width: 200

Area: 20000.0

Perimeter: 600.0

Continue? (y/n): y

Enter length: 8

Enter width: 4

Area: 32.0

Perimeter: 24.0

Continue? (y/n): n

## Specifications

* The formulas for calculating area and perimeter are:

area = width \* length  
perimeter = 2 \* width + 2 \* length

* The application should accept decimal entries like 10.5 and 20.65.
* Assume that the user will enter valid numeric data for the length and width.
* The application should continue only if the user enters “y” or “Y” to continue.