# Week of June 9, 2014

## Topics for this week: Program Design

### Activity Checklist

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| | Read chapter 5 in the course packet |
| | Review the slides Program Design |
| | Complete lab #8, due by 11:59pm on Tuesday. |
| | Complete lab #9, due by 11:59pm on Thursday. |
| | Complete project #3, due by 11:59pm on Sunday night. |

### Learning Goals

It is expected that you will meet the objectives outlined here by the end of the week. You might want to test yourself to see how well you fare. You can be guaranteed that you will be tested on these concepts on your first midterm. By the end of this unit, you should be able to:

- Describe the basic steps in the software development process.
- Describe the steps required to solve a programming problem.
- Break a word problem down into the set of steps required to solve the problem.
- Create an activity diagram that describes each of these steps.
- Describe the basic structure and syntax of a C# program.
- Explain why you should desk check your code.
- Explain how to desk check your code.
- Design and write a simple program based on the examples presented in the slides.

### Reading Assignment

All reading should be done before you come to class. Your ability to understand the material discussed in class will be greatly enhanced when you come to class prepared.

1. Read the chapter 5 in the course packet, Program Design. It is important to understand the design process. All too often, beginning programmers want to start writing code right away, without having a good handle on how the program that they are writing should work. In this course, we will focus a great deal on getting the design right, before we start to code.
2. Slides on "Program Design" - These slides introduce all of the basic steps required to solve a computing problem. You should thoroughly understand these steps and be able to apply them as you solve the programming problems assigned in class.

The slides on the course web site are used to focus the presentation of the course material in class. Be sure to go through the practice material at the end of each slide set on your own. These practice sessions will help make sure that you understand the material presented.

### Key Concepts

Computer programming is all about solving problems. To become a good programmer, you must sharpen your problem solving skills. Programming requires that you be able to

1. Analyze a problem statement that is usually given to you as a word problem.
2. Abstract from the problem statement what it is that you know about the problem.

3. Abstract from the problem statement what it is you are trying to produce.
4. Write down the important steps required to produce this result.
5. Formulate these steps in terms of a computer programming language.
6. Test your ideas by desk checking your code.
7. Compile, execute and test your code until you are satisfied that it produces the correct results.

## Lab Assignment

This week you should complete labs 8 and 9. These labs will give you some practice at solving a simple word problem. You will need to use some basic geometry to complete these labs. You should know how to compute the area of a circle and the area of a square.

## Programming Project

This week you should complete your third programming project. It will test your abilities to design, code and test a C# program.