# CTI 110

# P3TLAB: Debugging

# Assignment

For this lab we will be simulating a very common situation you will experience in real-world software development.

Your manager calls you into his office. You’re being assigned to work on a program that faculty will use to calculate student grades. Your manager has good news, and bad news.

**The Good News:** The program is already partially finished!

**The Bad News:** The program is only partially finished. Also, it’s full of bugs. In particular, the indentation blocks are all wrong.

Your assignment is to complete and debug the provided program, test it, and submit the working program.

# Tips

# Code coverage

How many letter grades are there? Have you tested each branch?

What about off-by-one errors? How would students feel if a 90% scored them a “B” grade?

# Using main()

This program uses the main() structure that you will see in almost all Python programs. Here’s a simple example without the extra code:

# a simple program using main()

def main():

print (‘Hello world’)

main()

The def main() statement defines a block that will be executed later. The second main() call actually starts the program. When we cover functions, it will become clear why a main function is a good idea. For now, get in the habit of writing your programs in this way.

# Indentation

One of the most common issues students run into in Python are indentation errors. (Most other languages use a special symbol to indicate code blocks, rather than using indentation. In those languages, the issue is with errors in placing those symbols.)

In this assignment, the first error you will see if you run the unmodified original code is:

expected an indent block

If you’re getting errors in IDLE that refer to indentation, there’s two things to check.

First, **check that your code blocks are properly indented.** Code that should run if an if statement is true has to be indented one tab underneath that if statement. Nested if statements need extra attention.

Second, **check that** **all your indentation blocks that should match, actually do match.** For example, you might have a stray space somewhere at the beginning of a line.

Python requires indentation to match exactly, so “close” won’t work. This also means you should always use tabs to indent.

