

2021 Spring: CPSC 240

Assignment 1 Area of Rectangle

Preface

This assignment welcomes you to the world of advanced programming called “X86 Assembly Programming”.

Basic requirements

Make a program satisfying the structure given in the diagram that follows. The main purpose of the program is given the width and height of the rectangle compute the total perimeter and the average length of side.

The educational purposes of this first program are these:

- == Input and output float numbers.
- == How to organize source code into blocks.
- == Assemble and link
- == Script file
- == Arithmetic of float numbers

Calling structure



Sample dialog with the program

Welcome to an friendly assembly program by Jenny Long.
This program will compute the perimeter and the average side length of a rectangle.
Enter the height: 3.75
Enter the width: 7.2
The perimeter is 21.9
The length of the average side is 5.475
I hope you enjoyed your rectangle
The assembly program will send the perimeter to the main function.
The main function received this number 21.9 and has decided to keep it.
A 0 will be returned to the operating system.
Have a nice day.

Legend: The text highlighted in yellow is produced by the function perimeter. The non-highlighted text is produced by the function rectangle, which is sometimes called main.

Other requirements

The calling structure diagram must be preserved.

The program must output numerically correct answers.

The program must make a dialog similar to the sample in this specification document.

The program must run to completion without crashing.

The two source files must carry the proper correct open source license.

The two source files must carry the professional identification in areas of author, program, and module.

The file perimeter must be block structured.

Blocks must be properly identified.

There must be no evidence of any file having been copied from a previous program. If comments made by the the professor or any other third party are found in the source files then the entire program is invalidated.

Submission of professional programs.

Send 3 source files as attachments to holliday@fullerton.edu

Submission time: from February 13 at 2:00am through February 14 at 2:00am. Programs submitted outside of the 24-hour time period are automatically deleted.

Professional honesty

Each student is responsible for making his or her own program. Do not submit a program that looks like the program of someone else. Make sure the comments are written by you and relate to the program

Can you help for classmates? Of course. We want to promote a friendly programming community. In the discord room (channel or server) when someone posts a question and you know the answer then you should provide assistance. You **cannot** simply post an entire assembly source file and say here is how I did it.

After the due date (Feb 13 in this case) you have full permission to post your wonderful program any place on the web including your discord server, or github, or gitlab, or any place else. The link below will tell you about many websites that will like to host your program.

https://en.wikipedia.org/wiki/Comparison_of_source-code-hosting_facilities

You have to wait until after the due date to post your wonderful assignment 1 program.

Why should I post my program on the public web?

The answer is because you want a job. Software developing companies want to see what you can do and what you have done. They want a sample of the programs you have built. The solution is you create homework programs that attain the level of professional software. Post those programs at a website. In your resume place a link to those programs. Design a business card that includes your name, degree you will receive, your contact information, your specialization within computer studies, and the link to where the company can see your programs. During career day there are many tables set up in the quad each sponsored by a tech company. You approach one of those tables. You say "Hello Ms Nguyen, I see the sign says you are Assistant Manager of Human Resources at Boeing. You know I have always wanted to start my career at Boeing. May I have a business card to contact you and send you my resume. [She hands you a card.] By the way, here is my business card. Your technical staff can see some of the fine programs I built during my studies at CSUF. Thank you, have a wonder rest of your day Ms Nguyen."

Of course the above is a hypothetical conversation during Career Day, but it does happen in some form or another. There are two obvious successes in this dialog. (1) You have obtained a name inside the company to whom you will direct future correspondence. That is big. (2) The recruiter has something of yours to take with her. When she gets back to the big office at Boeing and cleans out her purse what will she find? Your business card. She is not going to call you. She is going to hand that card to some junior assistant and say something like "Find out if this applicant's programs are anything we can use at Boeing."

Now you do it. Don't wait until your last semester as a senior to begin your portfolio of programs. Post them now. Plan your strategy for getting the big job offer now.

Lastly, on Career Day don't look like student who stayed up all right. You dudes wear a full business suit. Ladies must wear a business dress outfit. Plan ahead for your wardrobe.

Software. This document was created by “Libre Office Writer” word processor. The file is saved in an open source format known as “odt”. If you open this document using Microsoft software then in most cases any diagram like the one on page 1 will be distorted. Yes, Google docs do a fine job of replacing Microsoft Office. I like Google docs but I don’t like to depend on the cloud for everything I do. That is why you should have Libre Office, which is available as a free download at <https://www.libreoffice.org/download/download/> . There are versions available for Macs, Windows, and Linux.