

CS122 Engineering Computation Lab

Lab 1

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Winter 2010

Welcome Back to CS122

- Goals and objectives for this term – by the end of this term, students should be able to :
 - Create code from specifications (beyond “copy the example provided”)
 - Work with longer code segments (code edit regions) with emphasis on troubleshooting / debugging

CS122 – Basic Schedule

- 4 labs in even numbered weeks (2, 4, 6 and 8)
- 4 quizzes odd numbered weeks (3, 5, 7 and 9)
- 4 pre-lab quizlets in weeks (2, 3, 5 and 7)
- Proficiency Exam in week 10
- Flow of course similar to CS121
- Be sure to review contents of course web site for details
 - www.cs.drexel.edu/complab/cs122/winter2010

What's New in CS122?

- Different focus for Chat sessions
 - More of a demo based presentation
 - Will still be publishing hint sheets for most challenging quiz problems
- Additional (new) consultation activity
 - Tim Cheeseman and Dan De Sousa will coordinate
 - Will be held in odd weeks
 - By invitation, based initially on cs121 Fall term performance
 - Selected students will be contacted by end of week 2 via email
 - Details to follow in upcoming email

Administrative Notes

- Please contact your individual instructors with questions and problems
- CLC (room 147 UC) will be staffed at same times as for cs121 in Fall (odd weeks – starting week 3)
- Missed work policies – same as in cs121
 - Makeup labs to be held on Monday at 6 PM (odd weeks). Must receive explicit approval from your instructor in order to attend!
 - Lab 1 makeup is on Tuesday (1/19) due to MLK holiday
 - Makeup quiz offered (30% penalty) – Thursday through Sunday after completion of regular quiz
 - No makeup quizlets
- Pre-Lab 1 quizlet – unusual schedule
 - Due on Friday, 1/15
 - All others on Thursday to Monday (8 AM) cycle prior to lab

Lab 1 Overview

- Based on materials from Chapter 9 readings
 - Development of longer scripts using Maple's Code Edit Region feature and "outline" approach
 - The code edit region enables us to create and execute a series of Maple actions at once in "development friendly" environment
 - Utilizes the execution trace feature
 - Facilitates step by step troubleshooting / debugging
 - Use of print, printf and sprintf functions to enhance display of script information and results
 - print – basic text and variable output
 - printf – formatted, more user controlled output
 - sprintf – creates output as a string for downstream usage
 - Code troubleshooting / debugging techniques

Lab 1 Overview

- Lab 1 outline
 - Part 1 – design and implement a user defined function from specifications
 - Part 2 – working with code edit regions
 - A. execute a code edit region obtained from a starter file that simulates Blammo's flight trajectory
 - B. Revise this script to produce a result in metric units
 - C. Suppress intermediate result traces for 1.B script
 - Part 3 – adding wind resistance calculations to the Blammo script
 - A. Revise script from Part 2.B to incorporate impact of wind resistance
 - B. From a starter file outline, create a script in a code edit region to compute and compare the flight trajectories with and without wind resistance
 - C. Use the script from 3.B to analyze the impact of Blammo's weight on the comparison

Lab 1 Maple Concepts: Discussion and Demo

- Working with Maple's Code Edit Region – logistics and demo
 - 1. open a Maple worksheet
 - 2. create a code edit region
 - Insert -> Code Edit Region
 - 3. change size of region
 - Right click -> Component Properties -> change to 800 x 800 pixels
 - 4. enter some code
 - `A:=6;`
 - `B:=8;`
 - `C:=sqrt(A^2+B^2);`
 - `print(A,B,C);`

Lab 1 Maple Concepts: Discussion and Demo

- Working with Maple's Code Edit Region – logistics and demo - continued
 - 5. execute the code edit region – ctrl + E
 - Note results – print versus execution trace
 - 6. Collapse the code edit region
 - Right click within region -> Collapse Code Edit Region
 - 7. Execute code from collapsed region – 2 click on icon
 - 8. Expand the region again
 - Right click -> Expand code edit region
 - End of Demo

Lab 1 Maple Concepts: Discussion and Demo

- Demo of other Maple features needed for this lab
 - Open the Maple worksheet demo file from the course web site
 - CS122Lab1Demo.mw
 - The following concepts are illustrated
 - User defined functions – creation and invocation
 - Multiple graph plotting syntax
 - Print option syntax – print, printf and sprintf
 - Troubleshooting within code edit regions - example

Quiz Week (3) Activities

- Don't forget to take the pre-lab 1 quizlet during this week (available until 1/15 (5 PM)– even if you have already taken lab)
- Quiz 1 will be released on Friday (1/15) at 6 PM
 - Deadline: Wednesday (1/20) at 4:30 PM)
 - Makeup quiz – from Thursday (1/21) at 9 AM through Sunday (1/24) at 11:30 PM
 - 30% penalty
- Pre-lab 2 quizlet
 - From Thursday (1/21 – 9 AM) through Monday (1/25 – 8 AM)
- Be sure to visit the CLC for quiz assistance
- Be on alert for information regarding Chat and extra consultation initiatives