

Name: (as it would appear on official course roster)	Shraavan Sharath Shenoy	
UCSB email address:	shravansharathshenoy	@ucsb.edu
Lab Section:	Monday 9:00 AM	
Optional: name you wish to be called if different from above		
Optional: name of "homework buddy" (leaving this blank signifies "I worked alone")		

h01: Introduction to CS

Assigned: Tuesday, April 2nd, 2019

Due: Tuesday, April 9th, 2019

Points: 100

- You may collaborate on this homework with AT MOST one person, an optional "homework buddy". MAY ONLY BE TURNED IN THE LECTURE LISTED ABOVE AS THE DUE DATE. There is NO MAKEUP for missed assignments; in place of that, we drop the single lowest score (if you a zero, that is the lowest score.)
- When submitting this homework:
 - DO NOT USE STAPLES
 - WRITE YOUR NAME ON EACH PAGE IN THE SPACE PROVIDED
 - USE DARK INK PENS – PLEASE DO NOT USE PENCIL

READING ASSIGNMENT: Read Chapter 1 in Perkovic, review your lecture slides/notes. Then complete these problems.

- (10 pts) Please fill in the information at the top of this homework sheet, including your name and UCSB email address. Put the time your discussion section starts () in the space indicated (the one you are registered for—even if you usually attend a different one.) If the other two items apply, please fill them in as well. Please do this every single time you submit homework for this class.
- Section 1.1 of the textbook describes Computer Science in general. It includes a passage that distinguishes between models, algorithms and programs. I'm going to ask two questions about the relationships among these concepts. In your answer, don't just copy down an exact quote from the textbook; explain in your own words. If you don't think you understand the relationship, be honest about that, and write down what you are confused about, or your best guess at what the author is trying to say.

- (5 pts) What is the relationship between an abstract model and an algorithm?

Algorithms show information within abstract models by carrying out different functions within a hypothetical representation of something defined by logic and math (aka, a model)

- (5 pts) What is the relationship between an algorithm and a program?

Both algorithms and programs carry out specific tasks to present information and reach a result. However, despite us being able to both understand both algorithms and programs, a program is the only one of the two that can be executed on a computer system.

- (10 pts) Section 1.2 of the textbook describes Computer Systems in general. According to our author, why did computer scientists create programming languages such as Python, C, C++, Java, etc.?

Such languages were created ~~for~~ because working with default machine language (specifically binary notation) is far too difficult. To resolve this, computer scientists made programming languages that humans can easily understand while still being able to represent machine language.

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4. Continuing with questions from Section 1.2:

- a. (10 pts) The author makes a distinction between the "core set" of features in a programming language, and those that are put into "software libraries". What are two examples of features that end up in libraries rather than in the core language?

Two examples of features that end up in libraries rather than in the core language include playing music or drawing images.

- b. (10 pts) What is the advantage of putting those features into libraries rather than into the core?

A language that does not have an extreme amount of features is both easier to understand and is also more "manageable" by a programmer since there is less overall functions to worry about.

- c. (10 pts) APIs (Application Programming Interfaces) are important in programming—our author gives a nice clear explanation of what an API is. What is that explanation?

The author's explanation is that an API is essentially the explanation as to how to use instructions defined within a software library.

5. Section 1.3 of the textbook describes the Python programming language.

- a. (5 pts) What is the interactive shell used for?

The interactive shell is used for executing python instructions, for instance, `print('Hello World')`.

- b. (5 pts) What does a Python program consist of?

A python program consists of multiple instructions that must be stored within a file before they are executed.

6. According to lecture:

- a. (3 pts) What is machine language?

Machine language is essentially just basic CPU instructions, specifically in binary numbers.

- b. (4 pts) How is it related to a programming language like Python?

High level programming languages like python are able to be interpreted in a more user-friendly manner to carry out functions normally in binary notation. It's easier to read and write in programming languages than default machine languages.

- c. (3 pts) What/who is Linux?

Linux is an operating system (similar to other operating systems such as MacOS or Windows). It helps other pieces of software run seamlessly with inputs and outputs.

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7. Read the ENTIRE class syllabus and answer the following questions:

a. (2 pts) What is Prof. Matni's policy on late homework and late labs?

Late labs + homework may be submitted within

24 hrs after the deadline with a 20% penalty. After that period, it is a zero.

b. (2 pts) What is Prof. Matni's policy on makeup exams?

There is no makeup for exams.

c. (2 pts) What are Prof. Matni's office hours and where are they held?

Monday 1-3 PM in SMS 4409

d. (2 pts) What is the name of **your** lab section's teaching assistant?

Chong Liu

e. (2 pts) What are the open lab/office hours of **your** lab section's teaching assistant?

Thursday 7-9 PM at Phelps 3525

f. (2 pts) How do you turn in homework assignments?

Homework assignments are completed on paper and are only submitted in person (not electronically)

g. (2 pts) Where do you go to see your homework assignments' grades?

All graded homework assignments can be reviewed on Gradescope.

h. (2 pts) Where do you turn in lab assignments?

Lab assignments are all turned in on Gradescope.

i. (2 pts) Where is the class' main website?

<https://ucsb-cs8.github.io/s19-matni/> (Github)

j. (2 pts) What website do we use for asking class-related questions/having discussions online in this section of CS8?

Piazza.