

Assignment on Computational Thinking for CS50L

Total points 5/10 ?

Starting in 2021, all assignments in CS50L are out of 10 points. A score of 7 points or better (70%) is required to be considered to have "passed" an assignment in this course. Please do not resubmit an assignment if you have already obtained a passing score. You don't receive a final grade at the end of the course, so it will have no bearing on your certificate, and it will only slow down our graders!

Unlike CS50x, assignments in this course are graded on a set schedule, and depending on when you submitted, it may take up to three weeks for your work to be graded. Do be patient! Project scores and assignment status on cs50.me/cs50l (e.g. "Your submission has been received...") will likely change over time and are not final until the scores have been released.

Email *

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Name *

Mazafer Ul-Raqib

edX Username *

Mazafer

What is your GitHub username?

You only need to tell us if you are concerned about checking your progress in the course and/or you want a free CS50 Certificate after you satisfy all of the requirements of the course. If you do not already have a GitHub account, you can sign up for one at <https://github.com/join>. You can then use this account to log in to cs50.me/cs50 to track your progress in the course (your progress will only show up after you have received at least one score release email from CS50 Bot, so do be patient!). Don't worry about seeing a 'No Submissions' message on submit.cs50.io, if you find that. The course collects submissions using Google Forms, and only the gradebook on cs50.me/cs50 is important! If you do decide to provide us with a GitHub username, BE CERTAIN IT IS CORRECT. If you provide the wrong username, you will not be able to see your scores.

<https://github.com/maz786/>

City, State, Country

Dudley, West Midlands, United Kingdom

Caution

Google Forms doesn't autosave responses, so if you start inputting your answers * and something goes wrong, keep in mind that you might lose your work. For longer answers, best to write (and save) them in a file on your own computer and then paste them into this form only once you're ready to submit.

☒ I understand!

This course is graded by human graders, and has a ZERO TOLERANCE plagiarism ^{*} and collaboration policy. If *any* of your answers are copied and pasted from, or obviously based on (a) an online source or (b) another student's work in the course, in *any* of the course's ten assignments, you will be reported to edX and removed from the course immediately. There is no opportunity for appeal. There are no warnings or second chances.

It is far better, we assure you, to leave an answer blank rather than risk it. This may be an online course, but it is offered by Harvard, and we're going to hold you to that standard.

☒ I understand this policy and agree to its terms; I hereby affirm that I will not plagiarize any answers or collaborate with any other students in this course .

Acknowledgement ^{*}

Unlike our course CS50x, grading in this course is not done automatically, and there are human reviewers for each assignment. Grading may, depending on exactly when in our grading cycle you submit, take up to three weeks from the time you submit. Your grade status may change in your gradebook at cs50.me/cs50l in the interim, but grades are never final until you receive a score release email from CS50 Bot (on this first assignment, in fact, your gradebook may not even become active until that score release email). The staff cannot entertain requests for expedited grading under any circumstance. Your patience is appreciated.

☒ I understand.

Accounts

If you haven't already, head to <https://scratch.mit.edu/> and create an account by clicking "Join Scratch" up top. Take care to remember your username and password! And be sure to confirm your email address as instructed. If you'd prefer not to provide Scratch with a personally identifiable username and email address (i.e., one that includes your name), you're welcome to create an account using an anonymous username and some other email address (e.g., that you only use for Scratch). If you choose to provide a personally identifiable username or email address, material you submit for the course will be personally identifiable by Scratch. See Scratch's Privacy Statement at https://scratch.mit.edu/privacy_policy. *

☒ Done!

Scratch

It's time to choose your own adventure! Implement in Scratch, a programming platform designed for novices but that we use in CS50 in many ways, any project of your choice, be it an interactive story, game, animation, or anything else, subject only to the following requirements:

- * Your project must have at least two sprites, at least one of which must resemble something other than a cat.
- * Your project must have at least three scripts total (i.e., not necessarily three per sprite).
- * Your project must use at least one condition, one loop, and one variable.
- * Your project must use at least one sound.
- * Your project must use standard Scratch blocks only to satisfy the above requirements (no add-ons).
- * Your project should contain a few dozen puzzle pieces overall, but it can be less complex than, say, our project Ivy's Hardest Game, which you can feel free to explore (<https://scratch.mit.edu/projects/326129433/>).

Don't try to implement the entirety of your project all at once: pluck off one piece at a time. In other words, take baby steps: write a bit of code (i.e., drag and drop a few puzzle pieces), test, write a bit more, test, and so forth. If, along the way, you find it too difficult to implement some feature, try not to fret; alter your design or work around the problem. If you set out to implement an idea that you find fun, odds are you won't find it too hard to satisfy the above requirements. No idea how to begin? Have a look at <https://scratch.mit.edu/projects/editor/?tutorial=all>.

Once finished with your project, click "Share" atop Scratch's user interface so that your project is public (and thus accessible by us).

And be sure to save your work often via File > Save now!

NB: This may be the first time you encounter us asking you a question about something only derivative of, but not covered directly in, lecture in an assignment; but it will not be the last, so best to acclimate to the notion that this course involves knowledge application and some external research and exploration from time to time. You are attorneys (or attorneys in training), after all, so these skills are probably already part of your repertoire!

✗ What's the URL of your project on Scratch's website?

3/4

As a reminder, once finished with your project, click See project page in Scratch's top-right corner. Ensure your project has a title (in Scratch's top-left corner), some instructions (in Scratch's top-right corner), and some notes and/or credits (in Scratch's bottom-right corner). Then click Share in Scratch's top-right corner so that others can see your project. Finally, take note of the URL in your browser's address bar. That's your project's URL on MIT's website. Your response should look exactly like this: <https://scratch.mit.edu/projects/XXXXXXXXXX> (where XXXXXXXXXX is a nine-digit number).

<https://scratch.mit.edu/projects/785055902>



Individual feedback

Missing at least one required element. Be sure your program contains: at least 2 sprites (one of which is not a cat), at least 3 scripts, a loop block, conditional block, sound, and use of a variable.

Have you definitely clicked "Share" atop Scratch's user interface so that your project is public?



☒ Yes!

In a sentence or so, what does your project do?

S to start, F to end, Eat all the doughnuts before the Dino gets you.

Can we share your name, city/state/country, and Scratch project with others online?

☒ Yes

☐ No

✗ What's the largest value you can represent in binary with 6 bits?

0/1

Your answer, though, should be in decimal (base-10)!

.....

✗

✗ Suppose that you do, in fact, need to represent not only positive values but also negative values and zero in binary. Still using just bits (0s and 1s), propose how you could represent both negative and positive values (and zero). 0/1

111111, which is equal to 63 in decimal.

.....

✓ In the context of computer science (or problem solving more generally), what, in your own words, is abstraction? And why is it a helpful technique? 1/1

The practise of simplifying a complex issue or system into a more manageable and understandable form is known as abstraction. This may entail focusing on the salient aspects of the issue or system while neglecting the specifics that are unimportant for the task at hand.

Being able to focus on the large picture and approach issues at a high level rather than getting mired in the specifics makes abstraction a useful method. Additionally, it enables the reuse of concepts and ideas in other situations, which can improve the effectiveness of problem-solving.

✗ What, in your own words, is an algorithm? 0/1

In order to solve a problem or complete a task, a collection of steps or instructions called an algorithm must be performed in a specific order. Algorithms are used to carry out a variety of tasks, including data processing, image analysis, and natural language processing. They can be implemented using computer code. The use of algorithms, a fundamental component of computer science, to automate processes and increase productivity is widespread.

✗ Write a program in pseudocode (i.e., step-by-step instructions in English) with which a human (or, if you prefer, a robot) could make a peanut butter and jelly sandwich (correctly). 1/2

Assume that the human (or robot) has access to a loaf of bread, a jar of peanut butter, a jar of jelly, a plate, and a knife.

```
# Get the bread
```

```
bread_slice_1 = get_bread_slice()
```

```
bread_slice_2 = get_bread_slice()
```

```
# Get the peanut butter and jelly
```

```
peanut_butter = get_peanut_butter()
```

```
jelly = get_jelly()
```

```
# Get the plate and knife
```

```
plate = get_plate()
```

```
knife = get_knife()
```

```
# Place one slice of bread on the plate
```

```
place_on_plate(bread_slice_1, plate)
```

```
# Spread peanut butter on the slice of bread
```

```
spread(peanut_butter, bread_slice_1)
```

```
# Spread jelly on the other slice of bread
```

```
spread(jelly, bread_slice_2)
```

```
# Place the slice of bread with the jelly on top of the slice of bread with the peanut butter
```

```
place_on_top(bread_slice_2, bread_slice_1)
```

```
# Cut the sandwich in half diagonally
```

```
cut_diagonally(knife, bread_slice_1)
```

```
# Enjoy your peanut butter and jelly sandwich!
```

```
enjoy(bread_slice_1)
```

Individual feedback

When I grabbed the knife, I cut my hand open. Was I supposed to hold it a particular way?

Debrief

How much programming experience would you say you already have?

- ☒ none
- ☐ a little
- ☐ a lot

How would you describe yourself?

- ☒ I am a law student.
- ☐ I am a practicing attorney.
- ☐ I am an attorney no longer in practice.
- ☐ I am none of the above.

How many CS (or programming) courses have you taken previously?

☒ 0

☐ 1

☐ 2

☐ 3+

☐ Other:

Which category do you feel you fall into?

I.e., what's your level of comfort with computers, the Internet, the mere idea of being in CS50 for JDs, etc.?

☒ I'm among "those less comfortable"

☐ I'm somewhere in between

☐ I'm among "those more comfortable"

What are you hoping to get out of this course? *

Digital skills

About how many MINUTES would you say you spent on this assignment in total? *

300

This form was created inside CS50.

Google Forms