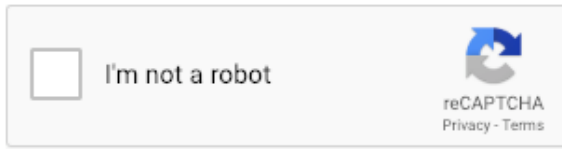**Please verify you are not a robot**

Welcome to the Usable Testing study. We're researching how programmers use testing tools because we want to understand how to design better testing tools.

If you have 90 minutes to spare, have experience with Python, are at least 18 years old, and are located in the United States or Canada, we'd love for you to participate in our study. In this study, you will test various Python programs using various testing tools.

The study will be conducted remotely over the internet. During the study, you will interact with a live researcher over Zoom. If you participate, you will receive a $30 Amazon gift card. To see if you may be eligible to participate, please complete this screening survey.

First, please confirm you are not a robot.

Basic Demographics

Are you at least 18 years old?

○ Yes

○ No

Are you located in the United States or Canada?

○ Yes

○ No

Not Qualified

We are sorry, but you do not currently meet the qualification criteria for this study.

Please accept our thanks for taking the screening survey.

Be on the lookout for future studies for which you may qualify.

Demographics

How many years have you used software testing tools in total? (any language, any tool)
(Enter 0 if you do not have any testing experience)

[   ]

Including your education, how many years have you been programming in total? (any language)
(Enter 0 if you do not have any programming experience)

[   ]

Excluding your education and internships, how many years have you programmed professionally? (any language)
(Enter 0 if you do not have professional programming experience)

How would you describe your level of expertise with Python?

○ No experience
○ Beginner
○ Intermediate
○ Advanced
○ Expert

How would you describe your level of expertise with property-based testing tools like Quickcheck, Fast-check, Hypothesis, etc.?

○ No experience
○ Beginner
○ Intermediate
○ Advanced
○ Expert

How would you describe your familiarity with Visual Studio Code?

○ Not at all familiar

○ Slightly familiar

○ Somewhat familiar

○ Very familiar

○ Extremely familiar

Please select the range that most closely matches the amount of time you typically spend performing software development tasks per week.

○ I do not perform software development tasks

○ 1-5 hours/week

○ 5-10 hours/week

○ 10-20 hours/week

○ 20-30 hours/week

○ 30-40 hours/week

○ > 40 hours/week

How would you describe your gender?
(We use this information to increase visibility of less represented genders)

○ Male

○ Female

○ Non-binary

○ Prefer not to answer

○ [   ] Prefer to self-describe: (free text)

Interlude

Next we will ask several <u>timed</u> questions about programming and testing.

If you don't know the answer, select "I don't know" or "I don't program."

<u>Each question has a timer between 30 and 60 seconds that will be shown on the screen.</u>

Please answer each question as quickly and as accurately as you can.

Programming

Choose the answer that best fits the description of a compiler's function

○ Connecting to the network

○ Aggregating user data

○ I don't know

○ Collecting user data

○ Translating code into executable instructions

○ Re-factoring code

30

Which of these websites might you more frequently use as an aid when programming?

○ Wikipedia

○ I have not used any of these websites for programming

○ LinkedIn

○ StackOverflow

○ I don't program

○ MemoryAlpha

Choose the answer that best fits the description of a recursive function

○ A function that runs for an infinite time

○ I don't know

○ A function that can be called from other functions

○ A function that calls itself

○ A function that does not have a return value

○ A function that does not require any inputs

Which of these values would be most fitting as a boolean?

○ Small

○ Quadratic

○ I don't know

○ Red

○ Solid

○ True

PBT

30

Choose the answer that best describes the purpose of a property-based testing tool?

○ Connecting to the network

○ Re-factoring code

○ I don't know

○ Aggregating user data

○ Checking code correctness

In a property-based testing tool, what do <u>you</u> generally need to <u>describe</u> to the tool? (check all that apply)

☐ I don't know or none of these

☐ How to solve path constraints

☐ How to organize test results

☐ How to validate outputs

☐ Specific input and output examples

☐ How to generate inputs

If a property-based test fails, what does the tool typically show on the screen?

○ A list of passed and failed tests

○ A single failed test

○ A list of failed tests

○ A single code correction

○ I don't know

Contact Details

Thank you for taking this survey. You appear to <u>qualify</u> for the study.

Below we ask for contact details so that the researchers may:

- Coordinate scheduling the session
- E-mail you the Amazon gift card after completing the study
- Provide access to the study environment in GitHub

What is your name?

What is your e-mail address?

What is your GitHub username?

End of Survey: Qualified

<u>Next step:</u>

Please click this link to schedule a study session with a researcher.

- Please paste the e-mail address you provided into the **Description** field of the time slot.
- If you can't find a time that works for you, please e-mail mcd2@cmu.edu for additional times.
- These links will not be shown again, so please schedule time now.

After the study session, the Amazon gift card will be e-mailed to the address you provided.