CSA Africa Market Research Questionnaire   ⅋

Computer Science Academy Africa (CSA Africa) is an international outreach supported by the School of Computing Science, University of Glasgow. Since 2018, we have trained over 500 young Africans from 12 different African countries via our Python programming workshops; Nigeria (2018 and 2022); Rwanda (2019); and Online (2021). See https://www.csaafrica.org/workshops for more information.

Our mission is to empower young Africans with the computing skills they need to pursue and thrive in a CS related career. On this journey, our previous workshops have given us some insights into the computing skills gap that is still existing on the continent. However, we believe there are more challenges faced by those beyond our reach.

To inform the long-term goals of CSA Africa, we are eager to generate a more comprehensive picture of the stories of young Africans: Where are they on their computing journey? What challenges are they facing? What support would be most beneficial to them to thrive on this journey? We invite you to take part in this study, as the answers you provide will add on to the foundational problems that CSA Africa is tackling, as a result we can design sustainable solutions for the future.

Survey target group: young Africans who are interested in learning or improving their programming skills

Contact for further information

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* Required

Consent agreement

Thank you for agreeing to participate in this survey which is part of a market research that will inform the focus of Computer Science Academy Africa in the nearest future. This consent form is necessary for us to ensure that you understand the purpose of your involvement and that you agree to the conditions of your participation. Your participation in this survey is voluntary. You may refuse to take part in the research or exit the survey at any time without penalty. Please certify that you approve the following:

- Your responses to the survey will be collected online through Microsoft Forms and stored in compliance with the University of Glasgow data management policy
- Any summary of your responses from the survey that are made available through academic publication or other academic outlets will be anonymized so that your personal information cannot be identified.

I give my consent to the use of data for the purpose of academic research on the understanding that:

- The material I provide will be handled in the manner outlined above.
- The material will be kept in secure storage at all times.

- The material will be retained in secure storage for use in future academic research.
- The material may be used in future publications, both print and online.
- I have read and understood the purpose of the research.

1. Do we have your consent to proceed? *

   ◯ Yes

   ◯ No

Demographics

2. Age *

○ 16-20 years old

○ 21-25 years old

○ 26-30 years old

○ 31-35 years old

○ 36-40 years old

○ 41-45 years old

○ 46 years old and above

3. Gender *

○ Female

○ Male

○ Non-binary

○ Prefer not to say

○ Other

⁝⁝⁝

4. Which of the following best describes your status? *

○ Single

○ Married

○ Prefer not to say

○ Other

5. Do you have childcare responsibilities? *

○ Yes

○ No

6. How many child/children do you have? *

○ 0

○ 1

○ 2

○ 3

○ 4

○ Other

7. Country of residence *

- ○ Algeria
- ○ Angola
- ○ Benin
- ○ Botswana
- ○ Burkina Faso
- ○ Cabo Verde
- ○ Cameroon
- ○ Central African Republic
- ○ Chad
- ○ Comoros
- ○ Congo, Democratic Republic of the
- ○ Cote d'Ivoire
- ○ Djibouti
- ○ Egypt
- ○ Equatorial Guinea
- ○ Eritrea
- ○ Eswatini
- ○ Ethiopia
- ○ Gabon
- ○ Gambia
- ○ Ghana
- ○ Guinea
- ○ Guinea-Bissau
- ○ Kenya
- ○ Lesotho
- ○ Liberia
- ○ Libya
- ○ Madagascar
- ○ Malawi
- ○ Mali
- ○ Mauritania
- ○ Mauritius
- ○ Morocco
- ○ Mozambique
- ○ Namibia
- ○ Niger
- ○ Nigeria
- ○ Rwanda
- ○ Sao Tome and Principe
- ○ Senegal
- ○ Seychelles
- ○ Sierra Leone
- ○ Somalia
- ○ South Africa
- ○ South Sudan
- ○ Sudan
- ○ Tanzania
- ○ Togo
- ○ Tunisia
- ○ Uganda
- ○ Zambia
- ○ Zimbabwe

8. City of residence *

9. Highest educational level (already attained) *

○ Secondary School Certificate

○ A Levels

○ National or Higher National Diploma

○ Bachelor's degree

○ Master's degree

○ Doctoral degree

○ Other

10. Educational level (ongoing) *

○ National or Higher National Diploma

○ Bachelor's degree

○ Master's degree

○ Doctoral degree

○ Not currently studying

○ Other

11. Field of study *

Most recent or ongoing

○ Computer Science/Computer Engineering

○ Information Technology/Information Systems

○ Engineering (e.g., Mechanical Engineering, Electrical Engineering)

○ Business/Management/Economics

○ Social Sciences (e.g., Psychology, Sociology)

○ Natural Sciences (e.g., Biology, Chemistry, Mathematics, Physics, Statistics)

○ Health Sciences/Medicine

○ Arts/Humanities (e.g., Literature, History)

○ Education/Teaching

○ Agriculture/Agronomy

○ Environmental Sciences

○ Law

○ Other

12. Employment status *

○ Employed full-time

○ Employed part-time

○ Self-employed or freelance

○ Unemployed (actively seeking employment)

○ Unemployed (not currently seeking employment)

○ Student (not employed)

○ Student (part-time employment)

○ Student (full-time employment)

○ Other

13. If employed part or full-time, what is your job description? *

For example, Part-time Secondary School Teacher, Software Engineering Intern, University Lecturer, etc.

[   ]

14. Please rate your proficiency in the following languages by selecting the appropriate option for each language *

	Fluent	Proficient	Intermediate	Basic	No proficieny
Arabic	○	○	○	○	○
English	○	○	○	○	○
French	○	○	○	○	○
Hausa	○	○	○	○	○
Swahili	○	○	○	○	○
Zulu	○	○	○	○	○

Background and Infrastructure

15. Do you have access to a computer or laptop at your home or within your community? *

We define access here as being able to use the computer whenever you need it

○ Yes

○ No

16. Do you have access to good internet to support your learning of programming? *

This could include mobile data, Hotspot, WiFi, MiFi, etc

○ Yes

○ No

17. Can you afford the cost of accessing the internet for approximately 15 - 20hrs weekly? *

You can also average this over 30 - 40GB per month. Please note the cost does not necessarily have to be covered by the respondent, as long as they have some financial support to pay for this, that's a yes.

○ Yes

○ No

18. How much electricity access do you have to learn programming per day? *

○ Less than 1 hr

○ 1 - 3 hours

○ 4 - 6 hours

○ 7 - 9 hours

○ 10 hours or more

19. Have you ever received training in computer programming? *

☐ Yes, I have taken formal computer programming courses (e.g., as part of my University degree)

☐ Yes, I have participated in coding workshops or boot camps (Free or Scholarship)

☐ Yes, I have participated in coding workshops or boot camps (Paid)

☐ Yes, I have engaged in self-study or online programming tutorials

☐ Yes, I have done programming as part of my academic studies (e.g., assignments, projects)

☐ Yes, I have worked on personal programming projects

☐ No, I have not had any previous exposure to computer programming

20. If you have received computer programming education or training, how would you rate the quality of the training received?

0	1	2	3	4	5	6	7	8	9	10

Poor   Excellent

21. How would you rate the level of support you receive from your parent/guardian/spouse in learning computer programming? *

Note this is not restricted to only financial support

○ Very supportive

○ Somewhat supportive

○ Neutral

○ Not very supportive

○ Not supportive at all

○ I don't have parental/guardian/spouse support

22. What source of income have you used to support your previous exposure to programming? *

☐ I have not had previous exposure to programming

☐ Scholarships or grants

☐ Personal savings

☐ Part-time job or employment

☐ Financial support from parents/guardian/spouse

☐ Financial support from friends or relatives

☐ Government funding or assistance programs

☐ Student loans or educational funding

☐ Sponsorship from organizations or companies

☐ Crowdfunding or donations

☐ Other

Mindset

23. How would you describe your current perception of learning computer programming? *

☐ Exciting and valuable: Learning programming is an exciting opportunity that provides valuable skills for the future

☐ Challenging but worthwhile: Learning programming can be challenging, but the benefits and rewards make it worth the effort

☐ Not interested or relevant: Learning programming is not of interest to me or relevant to my personal goals

☐ Overwhelming and difficult: Learning programming seems overwhelming and too difficult for me

☐ Limited awareness: I have limited knowledge or understanding of programming and its benefits

☐ Other

24. How often do you engage in computer programming activities? *

○ Daily

○ Several times a week

○ Once a week

○ Occasionally

○ Rarely or never

25. What is the major factor limiting your engagement? *

[   ]

26. To what extent do you agree or disagree with the following statements *

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Not Applicable
I am confident in my problem-solving abilities related to computer programming	○	○	○	○	○	○
Programming is primarily for individuals with strong mathematical or technical backgrounds	○	○	○	○	○	○
I am aware of the various career opportunities available for individuals with computer programming skills	○	○	○	○	○	○
It is important for me to have access to mentors or role models in the field of computer programming	○	○	○	○	○	○
It is important for me to see more representation of my cultural or societal background in the programming industry	○	○	○	○	○	○

Motivation

27. How would you describe your programming competence? *

○ Not applicable: has no programming experience

○ Beginner: at the very early stages of learning programming, with limited knowledge and experience, able to write simple code but requiring significant guidance.

○ Novice: has a better understanding of programming principles and can write code with more confidence compared to beginners; they may still require some assistance and guidance but are more capable of independently tackling coding tasks.

○ Intermediate: has a solid understanding of programming principles; with moderate experience and skills to work on substantial projects; they may still require occasional guidance or assistance with more advanced topics.

○ Proficient: demonstrates a high level of programming knowledge and skill, has extensive experience, and the ability to tackle complex programming challenges with high proficiency and independence. They are skilled at optimizing code performance and they are trusted to make critical decisions and design robust solutions.

○ Advanced: possesses an in-depth understanding of advanced programming concepts; proficient in multiple programming languages and frameworks; and has a track record of successfully delivering complex projects.

○ Expert: displays exceptional expertise in programming and related domains; considered a subject matter expert in specific programming areas; and has extensive experience and contributions to the programming community.

28. On a scale of 1 to 10, how interested are you in learning computer programming or improving on your skills? *

0	1	2	3	4	5	6	7	8	9	10

Not at all interested   Extremely interested

29. Which of the following factors most strongly motivates you to learn computer programming? *

Please select at most 3 options.

☐ Career advancement and job prospects

☐ Personal interest and curiosity

☐ Ability to create and develop software or applications

☐ Solving real-world problems through programming

☐ Desire to work in the tech industry

☐ Influence of friends, family or role models

☐ Other

30. Which programming languages are you most interested in learning? *

☐ C/C++

☐ Flutter

☐ Java

☐ JavaScript

☐ Kotlin

☐ PHP

☐ Python

☐ R

☐ React JS

☐ Ruby

☐ Not sure

☐ Other

31. What is your motivation for selecting the programming language above?

[   ]

32. Would you be more motivated to learn computer programming if there were more coding communities or meetups in your area? *

○ Yes

○ No

○ Maybe

33. What career paths are you interested in pursuing with your computer programming skills? *

○ Web Development

○ Mobile App Development

○ Software Engineering

○ Data Science and Analytics

○ Artificial Intelligence and Machine Learning

○ Cybersecurity

○ Data Engineering

○ Game Development

○ IT Project Management

○ UI/UX Design

○ Cloud Computing

○ E-commerce Development

○ Database Administration

○ Robotics and Automation

○ Digital Marketing and Advertising

○ Computer Networking

○ Research

○ Teaching

○ Research and Teaching (Academia)

○ Technology Entrepreneurship

○ Not sure

○ Other

Challenges

34. Which of the following challenges have you faced in learning or improving your computer programming skills? *
Select all that applies

☐ Lack of access to reliable internet, computer, and electricity

☐ Insufficient guidance or mentoring from experienced programmers

☐ Insufficient learning resources (books, online tutorials, etc.)

☐ Lack of clarity on where to begin or how to proceed

☐ High costs associated with programming training

☐ Limited awareness of available opportunities

☐ Cultural or social factors discouraging participation

☐ Fear of failure or difficulty in grasping programming concepts

☐ Time constraints due to other commitments (e.g., studies, work)

☐ Feeling overwhelmed by the vastness of programming languages and technologies

☐ Not having a supportive learning environment or community

☐ Other

35. Have you faced any English language barrier in learning programming? *

○ Yes

○ No

36. To what extent do you agree or disagree with the following statements with respect to learning programming *

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Not Applicable
I have encountered societal beliefs that discourage my pursuit of computer programming	○	○	○	○	○	○
I have faced gender-related barriers or stereotypes that discourage my involvement in programming	○	○	○	○	○	○
My immediate family is supportive of my decision to pursue programming	○	○	○	○	○	○
I have experienced societal pressure to pursue traditional career paths instead of programming	○	○	○	○	○	○
There are societal expectations within my community that prioritises other subjects of study over programming	○	○	○	○	○	○

37. To what extent do you agree or disagree with the following statements with respect to applying your programming skills *

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Not Applicable
I have faced significant barriers in finding relevant opportunities to apply my programming skills	○	○	○	○	○	○
I lack practical guidance or mentorship in applying my programming skills to real-world scenarios	○	○	○	○	○	○
I sometimes feel there are gaps in my skills that hinder the application of my programming abilities	○	○	○	○	○	○
I have faced challenges in adapting my programming skills to the specific requirements of different projects	○	○	○	○	○	○
It is important for me to have access to practical projects, internships, or work experiences in enhancing the application of my programming skills	○	○	○	○	○	○

38. Suppose you come across a paid internship opportunity in some area of computer programming, would you apply? *

○ Yes

○ No

○ Maybe

39. If you have not answered yes above, can you tell us why? *

Also, can you tell us under what condition you would confidently answer YES above

Support

40. What type of learning resources do you find most helpful for learning computer programming? (Select all that apply) *

- ☐ Online tutorials and courses
- ☐ Books and textbooks
- ☐ Interactive coding platforms
- ☐ Video tutorials and lectures
- ☐ Coding bootcamps or workshops
- ☐ Peer-to-peer learning and collaboration
- ☐ Mentorship programs
- ☐ Access to coding communities and forums
- ☐ Other

41. Have you found online coding platforms or communities specifically tailored to the needs of young Africans? *

- ○ Yes
- ○ No

42. If yes, can you provide their name or a URL to their website *

[   ]

43. To what extent do you agree with the following statements *

	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree	Not Applicable
Online learning platforms tailored to the needs of young Africans will enhance my learning process	○	○	○	○	○	○
I will not be able to effectively learn online without internet support	○	○	○	○	○	○
I will not be able to effectively learn online/physically without computer support	○	○	○	○	○	○
I will not be able to effectively learn online/physically without childcare support	○	○	○	○	○	○
I will not be able to effectively learn online without electricity support	○	○	○	○	○	○

44. With your family/study/work responsibilities, how much time can you commit to learning coding per day? *

- ○ Less than 1 hour
- ○ 1 hour
- ○ 3 hours
- ○ 5 hours
- ○ More than 5 hours

45. With your responsibilities, what type/structure of learning programming would work for you? (select all that apply) *

- ☐ Online Learning: Online tutorials, courses, and coding platforms accessible from anywhere
- ☐ Tailored Curriculum: Learning resources that aligns with my cultural context, local industries, and societal challenges
- ☐ Physical Learning: Occasional in-person workshops, mentoring sessions, or coding camps in local communities
- ☐ Peer-to-Peer Learning: Through coding clubs, study groups, or online communities
- ☐ Project-Based Learning: Practical projects or internships where I can apply my programming skills to real-world problems
- ☐ Mobile Learning: Bite-sized coding lessons, quizzes, and interactive activities optimised for mobile devices
- ☐ Other

46. What would you suggest to CSA Africa to help you advance on your programming journey? *

Please itemize if more than one suggestion. Avoid typing long sentence.

[   ]

47. Would you want CSA Africa to contact you via email for future workshops/internships/mentorships, etc? *

- ○ Yes
- ○ No

48. Your email address *

Ambassador

49. Which of the following CSA Africa Ambassadors collected this data? *

○ Angel Idoko (Togo)

○ Boemo Mokgadi (Botswana)

○ Christine Nakyejjwe (Uganda)

○ Chukwuemeka Obasi (Nigeria)

○ Edith Ndagire (Uganda)

○ Emmanuel Obiechina (Nigeria)

○ Gofiwa Koma (Botswana)

○ Hammed Opeyemi Rasaq (Algeria)

○ Isaac Nugbemado (Ghana)

○ Joseph Mark Kavuma (Uganda)

○ Kehinde Adepetun (Nigeria)

○ Kutwano Omponye (Botswana)

○ Mathews Kandoko (Zambia)

○ Melvin Khakabo (Kenya)

○ Mercy Dafe (Nigeria)

○ Michael Oyalana (Nigeria)

○ Michelle Olasumbo (Nigeria)

○ Mtwa Mgimwa (Tanzania)

○ Musa Aka'aba (Nigeria)

○ Mussa Milanzi (Malawi)

○ Mutaka Mohammed Seidu (Ghana)

○ Noel Banda (Malawi)

○ Odobulu Ogechukwu Benedicta (Nigeria)

○ Okunoye David (Nigeria)

○ Opegbemi Matthias Busoye (Nigeria)

○ Rodney Omukuti (Kenya)

○ Romoke Lasisi (Nigeria)

○ Sunday Amos (Nigeria)

○ Tobiloba Adedeji (Nigeria)

○ Victory Abiodun-Omoniyi (Nigeria)

○ Vincent Omondi (Kenya)

○ Yusuf Sani (Nigeria)

○ Peace Ayegba (Glasgow)

○ Sofiat Olaosebikan (Glasgow)

○ All of the above

○ None of the above