CIVICPLUS Incorporated

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**Screening Questions Interview for the Position of a Junior Software Engineer (Remote).**

**Instructions**: Please precede all your answers with the question you are answering.

   Use acronyms only after you've explained them.

    Use correct spelling and grammar.

**Arsene MANZI HIRWA**

Are you currently employed? **NO**

Do you work well within a team? **YES**

**How has your background prepared you for this role?** *Knowing the field, I am very certain that I will be working in a team utilizing some sort of project management framework. Therefore, I believe that my experience as a team lead at RadicalX will enable me to continue working well with people in and out of my team. Furthermore, my current project for a coursehub application that uses agile methodology keeps my team working blood hot.*

*Additionally, knowing that there is or will be a lot of work to do including repetitive tasks. My past experience at Greenbrier where I helped automate a lot of the day-to-day workflows will come in handy as I aim to make my and other people’s work simpler and automated.*

**Will you be able to devote 20 to 40 hours of your time weekly to the company?** *YES*

**How can you recognize system error messages and carry out the steps to resolve them?** *Depending on the environment being utilized, you will notice an error when the application is not responding as planned or when error messages appear as mentioned. When error message is spotted, the best way to go about it is;*

1. *Identify and carefully read the error message displayed. This usually provides clues about the issue's source, such as error codes, stack traces, or descriptions.*
2. *If you don't understand or know what the error message is, search for the error code in ChatGPT, forums, or communities like Stack Overflow. This helps understand the error's nature and potential causes, especially if it's a common problem.*
3. *Look at the code or process that triggered the error, and consider recent changes or inputs that might have led to the issue. This usually helps you understand what caused the error.*
4. *Based on the research and analysis, work on potential fixes. This may involve modifying code, or updating dependencies.*
5. *After applying a solution, thoroughly test the system to confirm the error is resolved and hasn't introduced new issues.*
6. *And finally, document the error, troubleshooting steps, and final solution for future reference, which helps in resolving similar issues more efficiently in the future when you or someone else encounters similar issues.*

**What would you do differently if you were to start over with the project?** *If i had ran into problems and get the chance to go back in time with current knowledge and restart the project, best thing is to have thorough planning of the project( well documented requirements) and introduce automated testing from the beginning in order to help identify bugs earlier, making the development process smoother and reducing time spent on debugging later.*

**As a team leader, what were your responsibilities?** *My responsibilities were to identify strengths and weaknesses of my team members and use that information to assign tasks to each individual. However, the best way I served as a team leader was taking first steps for each project assigned and communicating well with members throughout the process. Needless to say that there were issues here and there, being understanding and proactive in helping resolve issues helped the team work better together. Furthermore, the team consisted of different engineers who were better engineers than I was. But treating everyone as a very capable person further strengthened their abilities.*

*And upon completion of x project, I would document and present the final result via zoom call.*

**How would you rank yourself as an Android developer? Web developer?** *I have worked on many web applications, front-end dev carries the highest tally whereas back end comes second, so I am very confident in my ability in those areas. As for Android development, I have never developed an android application, though I have and am also working on another iPhone/iOS application.*

**What are your individual projects? And are there any others not listed on your resume?** *As mentioned, I have 2 individual projects listed on my resume(ai powered personal assistant and python computer game). But I also have about 12 more individual projects on my github of which some are, mobile ai powered task-tracker, a couple of Vue and React webapps, Cutting edge e-commerce webapp, a program that warns users about what could possibly drain their wallets on said sites (Web3 and NFT related) and custom discord bots.*

**What was your role on the team during these projects?** *The above projects are individual as asked. But during projects where I was working on a team, roles varied depending on the project. Most times I worked on front-end since that just comes easy. Other times I would set up and maintain the back end when I’m perceived best at that, and other times I worked on setting up projects and guiding members as they go.*

**Tell us about a large project you worked on, the team you were working with, your role on the team, technology and languages used to develop the project, and methodologies the team used to develop the project to completion?** *The largest project I worked on as and in a team is the e-commerce webapp. I worked on this project with one other team member who was my superior. Just like him we both worked on the same thing pretty much. The project used Javascript(React), Css, HTML, Shell and Dockerfile. The project basically enabled sellers to take a picture of any item they would like to sell and then our trained ai model analyzes the picture, quality and state of product alongside product model and or name. Compute and generate name and detailed description of product as well as a price for it. The pricing of the product is generated from thousands of other products on the internet that the model knows. This stage of production was aided by ChatGPT-turbo 3 model. After having all that information, the seller can then list the item for sale, on which it goes to the global marketplace of the webapp where anyone can view the item and buy it. However, unlike most webapps, they never show users prices of items as final prices. You will see a shoe for $90 and when you are about to finally checkout, the total is $120. The innovative part on our end is that as you loaded the webapp, we collected your general location from your ip address and precomputed the delivery price as well as tax on the item. So the price you see as you browse is the final price. Additionally, we had to incorporate stripe payments to handle transactions between buyer and seller meaning we had to work on all those API calls. And finally, we use uber and lyft for delivery( the delivery fees are from uber. So we make a dummy api call that makes an uber order to the current location). This project took about 4 months to do with constant testing at every stage.*

**What makes you a great fit for the role?**  *My strong foundation in software engineering, combined with hands-on experience working on diverse projects, makes me an ideal candidate for this role. I’ve consistently demonstrated the ability to adapt to new technologies, which is essential for a junior software engineer. My practical knowledge of programming languages, frameworks, and version control tools ensures I can hit the ground running. Additionally, having worked on projects in both collaborative and independent settings, I've developed problem-solving skills and a proactive mindset that allow me to tackle challenges efficiently.*

*Moreover, my experience in Linux-based systems, project management, and AI-related projects has given me a well-rounded understanding of how different components integrate, ensuring I can contribute to various aspects of the software development lifecycle. I’m also eager to learn, open to feedback, and genuinely passionate about delivering high-quality solutions, making me a valuable team player.*

**How do you identify and communicate potential problems and issues to project team?** *I start by closely monitoring the project’s progress through regular code reviews, testing, and performance evaluations. I also pay attention to warning signs such as unexpected behavior in the code, delayed timelines, or feedback from team members. Whenever I identify potential problems, I investigate further to understand the root cause and its potential impact on the project. And when communicating issues, I make sure to mention it as soon as possible, specific and detailed on the problem, propose a solution when possible and finally make sure I involve the best person.*

**What is a unique thing that you offer that no one else can?** *Integrity is at the core of everything I do, setting me apart in a way that's both rare and invaluable. It means being honest, trustworthy, and taking responsibility, even when it’s challenging.*

**How would you resolve bugs reported to you? How do you debug code?** *I have extensively mentioned the process of how I debug code on question 5, however, when working with teams, there is an additional step which is to ask other team members for help when I am stuck or having other troubles. I think that that’s the magic of working in teams, helping each other.*

**Can you explain the consequence of throwing an Exception?** *When an exception occurs and is not handled well in a catch block, it usually crashes the program. When this happens, we can expect them to leave resources like file handles and network connections open, which can lead to resource leaks or memory leaks. Additionally, if an exception is thrown in the middle of a process, it might leave the program's state inconsistent if no cleanup occurs.*

**At a High-Level (HL), how would you design the architecture of a simple messaging application?** *Designing a simple messaging application involves three main components which are, Frontend, Backend, and Database. So, When a user sends a message, it goes from the client to the server(here we make sure to encrypt data for security), which processes it, stores it in the database, and delivers it to the recipient in real-time(here we use WebSocket technology to maintain active connections). This structure ensures the app is efficient, responsive, and scalable for more users.*

**Have you been in the military before?** *No. However, this summer I was at a military camp for 7 weeks where I received military and cultural training from my home country. Upon completion of the camp, we do not have any ranks or military numbers. However, we can be called upon by the country to serve when in dire need.*

**How would you like to be paid: Direct Deposit or Check?** *Direct deposit.*

**Do you have a bank account?** *Yes.*

**Can you confidently handle this post effectively?** *Yes!*

**Why do you think you should be given this job?** *I believe that the team needs a capable candidate like myself who is willing to learn and grow with the team. I admit that there is still a lot to learn and look forward to doing so at CIVICPLUS, the company’s values and mission is one I would like to be a part of. But most importantly, I think that being a person of integrity can lead you to great heights wherever you may be.*