Amazon's Online Coding Challenge Prep (via HackerRank)

Congratulations! You've been selected to proceed to the 1st round interview with Amazon. The 1st round consists of an online Coding Challenge via HackerRank that is constructed of two parts:

1) Coding Questions – 2 questions, up to 105 minutes to complete + detailed explanation to your approach
2) Work Style Questions - 15 minute cultural assessment

Coding Questions (up to 105 minutes to complete)

- This portion will test your knowledge on basic programming, data structures and algorithms, logical and maintainable code. We're interested in your demonstration of problem solving, writing correct/clean code, applying patterns/data structures, and optimizing for algorithmic performance. The goal here is to try to come up with an optimal solution that is logical and maintainable. You will be given 2 questions with 105 minutes in total to complete.
- ***Tip: The first question is typically easier than the second, so don't spend all your time on the first question and not enough time on the second.***

➤ **What Type of Questions to Expect?**

- The coding portion consists of two questions. The first questions is a much easier question, while the second is a bit harder. It's important to be disciplined with time and not spend all your time on question 1 and leave no time for question 2, **or you will fail**.

- You will most likely be asked to write a function, method, or algorithm that helps simplify a real-life problem. Take your time to understand the question.

- Be familiar with Data Structures and Algorithms going into the test. **If you do not brush up and study you will most likely fail**. I HIGHLY recommend trying practice questions online on tools such as LeetCode or Hackerrank.

- Brush up on Graphs, Search/Sort, Maps and Trees before starting the assessment so that you have a higher chance of succeeding.
    i. Links to refresh your memory on common data structures
        1. Brushing up on Maps, Trees, Tables and Algorithms: https://www.youtube.com/channel/UCxX9wt5FWQUAAz4UrysqK9A
        2. Brushing up on Algorithms and Data Structures https://www.youtube.com/watch?v=BchPukWb0CU

➤ **Grading**

- You're graded on the following:
    1. Completion of Code:
        - The most important part of this assessment is to make sure you complete each question. Keep in mind you only have 90 minutes to complete two questions. **DO NOT spend all your time on the first questions and not enough time for the second. This is the most common mistake when taking the assessment and easiest way to fail.**
    2. Correctness/Cleanness of Code:

- Whether or not the output of your code matches the expected output/results. Can you deliver an optimal solution? Is your code Logical/Maintainable?

3. Complexity of Code:
    - The complexity level of your code:
        - Basic / Advanced / Edge

➤ **Coding Languages**

- You may select from any of the following languages:
    - Java, C, C++, C#, Python, Ruby, JavaScript, Swift, Clojure, Erlang, Go, Julia, Kotlin, Lua, Objective-C, Perl, PHP, R, Ruby, Scala
- Find supported compiler versions here.

➤ **Time**

- The coding test itself is up to 90 minutes in total for the 2 coding questions.
- You MUST be aware and cautious of time. Sometimes people tend to take 75+ minutes trying to complete the first question and leave only 15 minutes or less for the second…common mistake. **Please be alert and mindful of time.**
- Manage your time effectively by checking the on-screen timer regularly.
- **Complete the entire assessment in one sitting** - the timer can't be paused once the assessment starts.

➤ **Practice**

- This test is done through Hackerrank. Here is a link to the demo version of the online assessment. You can use this to get a feel for the interface and functionality:
    - Coding Assessment Demo
- You can use free online tests to help you practice/prep. I HIGHLY recommend practicing a few questions on LeetCode before attempting our coding challenge as you may find a few similar questions that will prepare you well.
    - **LeetCode -** https://leetcode.com/problemset/algorithms/
    - **Hackerrank -** https://www.hackerrank.com/domains/algorithms

➤ **Resources/Videos**

- Data Structures:
    - **Commonly Used Data Structures (Recommended)**
        - https://www.freecodecamp.org/news/the-top-data-structures-you-should-know-for-your-next-coding-interview-36af0831f5e3/
    - **Commonly Asked Data Structure Interview Questions**
        - https://www.geeksforgeeks.org/commonly-asked-data-structure-interview-questions-set-1/
- Algorithms:
    - **Essential Algorithms to Know for Coding Interviews (Recommended)**
        - https://levelup.gitconnected.com/must-know-algorithms-for-coding-interviews-937d807064e0
    - **7 Common Algorithms for Programmers to Know**
        - https://u.osu.edu/cstutorials/2016/11/21/7-algorithms-and-data-structures-every-programmer-must-know/

- Practice Questions:
  - **Leetcode (Highly Recommended)**
    - https://leetcode.com/problemset/algorithms/
  - **HackerRank (Highly Recommended)**
    - https://www.hackerrank.com/domains/algorithms

Work Style Questions (up to 15 minutes to complete)

- This is the 15 minute multiple choice questionnaire that is part of the assessment. This will help assess and determine your success at Amazon from a cultural perspective.
- PLEASE familiarize yourself with Amazon's Leadership Principles (link below):
  - https://www.amazon.jobs/en/principles

Tips, Insight and Advice

1. **Please be sure that it is you taking the assessment and not anyone else…**The system knows if code is "copied and pasted" – so try to avoid getting around the system.
2. Make sure you have enough time to complete the assessment all at once. You cannot stop, then go back to take the test. Typically takes around 1.5 to 2 hours to complete.
3. **During the coding portion…please make sure you don't spend all your time on question 1 and leave no time for question 2.** This is the most common mistake…not enough time. If you feel you are running out of time, my suggestion is to at least try completing the question. Set yourself a limit of no more than 30-45 minutes for the first question so that you have at minimum 45 minutes or more on the second question.
4. This will replace a phone interview. Pending your result, you move onto an On-Site interview. If you do not do well…don't worry! You can always re-attempt taking a similar coding challenge in the near future.
5. **If you feel like your solution is mostly correct but you are facing some final compile issues, do not worry. Attempt to solve both of the challenges to the best of your ability. We will be reading the code ourselves looking the above-mentioned strengths even if it does not compile.**
6. We're not looking for perfection! My best advice to you is to at least try completing both questions in full even if these are basic solutions. You will fail even if you 100% complete the first question and are not able to finish the second.
7. The time remaining will be clearly displayed on the screen. **You will not be able to stop the timer once you have started each test**, so we recommend that you complete each test in one sitting.
8. Note that efficiency and optimization, as opposed to brute force solutions, earn more points! **Your code must compile for all code questions in order to move forward in the interview process. Be sure to test your code and ensure it runs before you submit your code or before time runs out.**
9. You can compile your code as many times as you like during the assessment, but there must a 15 second interval between consecutive compilations.
10. Edge Cases: Ensure your solutions consider all edge cases and handle large inputs effectively. This is key to doing well in the assessment.
11. Your code is being auto-saved periodically, and you can also save it clicking on the SAVE button. In case of a system failure you can resume from the last saved instance. Your code will also auto-save when you click on NEXT QUESTION if you are going back and forth.

Best of luck!

****This is a confidential document meant to assist YOU specifically, so please do not share****