



Muhammad Tanveer
Other

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Score

66.7% • 46 / 70
scored in CodePath TIP103: Unit 1 Assessment - Summer 2024 in 11 min 25 sec on 10 Jun 2024 20:28:32 PDT

Candidate Information

Email	tanveerm176@gmail.com
Test	CodePath TIP103: Unit 1 Assessment - Summer 2024
Candidate Packet	View
Taken on	10 Jun 2024 20:28:32 PDT
Time taken	11 min 25 sec/ 90 min
Personal Email Address	tanveerm176@gmail.com
Invited by	CodePath

Skill Distribution

No.	Skill	Score
1	Problem Solving Intermediate	0% <div></div>

Tags Distribution

Algorithms

0%

Easy







0%

Problem Solving

0%

Questions

Section 1 • 46.67 / 70.0

Status	No.	Question	Time Taken	Skill	Score
	1	CodePath Attendance Policy Multiple Choice	8 sec	-	2.5/5
	2	CodePath's Participation Policy Multiple Choice	5 sec	-	1.67/5
	3	CodePath's Assignment Policy Multiple Choice	2 sec	-	2.5/5
	4	Complexity of the Code Snippet Multiple Choice	12 sec	Problem Solving (Intermediate)	0/5
	5	Fill in the blank. Multiple Choice	12 sec	-	5/5
	6	Memoize this code snippet Multiple Choice	3 min 35 sec	-	0/5

	7	Technique of storing the previously calculated values Multiple Choice	8 sec	-	5/5
	8	Guess this complexity Multiple Choice	3 min 17 sec	-	5/5
	9	Complexity of Code Snippet Multiple Choice	1 min 23 sec	-	5/5
	10	True or False Multiple Choice	11 sec	-	5/5
	11	True or False Multiple Choice	11 sec	-	0/5
	12	Guess this complexity Multiple Choice	1 min 13 sec	-	5/5
	13	Shaking hands at a party Multiple Choice	6 sec	-	5/5
	14	Shaking hands at a party Multiple Choice	34 sec	-	5/5

1. CodePath Attendance Policy

 Partially correct

Multiple Choice

Question description

Technical Interview Prep Attendance Policy:

- Attendance at all sessions is mandatory.
- All students are allowed **up to 3 absences** throughout the entire program. Students do not need to submit a request to use these absences.
- Students will be marked as **late** if they arrive after the session starts.
- We check attendance multiple times throughout a class session and may mark you as absent if you are missing for the majority of a session.
- Students who are absent must still submit the coursework for a unit by the posted deadline.

If you have questions or concerns about your attendance, or to inform us of an extenuating circumstance involving a hospitalization or death in the family, please contact support@codepath.org. No other instructional team member, including instructors, TAs, coaches, or Program Managers can assist with attendance concerns.

Select **both** options if you understand the policy listed above.

Candidate's Solution

Options: (Expected answer indicated with a tick)

☒ I understand the attendance policy ✓

☐ I will contact support@codepath.org with any questions ✓

⚠ No comments.

2. CodePath's Participation Policy

✓ Partially correct

Multiple Choice

Question description

Technical Interview Prep Participation Policy:

- Students are expected to actively attend and participate in each session.

- Camera and microphone usage is required as part of active participation. Students are required to have their cameras on and verbally respond during breakout room sessions in order to be considered present for the session.


If you have questions or concerns about your participation, please contact support@codepath.org. No other instructional team member, including instructors, TAs, coaches, or Program Managers can assist with participation concerns. If you need to request an accommodation due to a documented disability, please submit our ADA request form and documentation [here](#).

Select **all** options if you understand the policy listed above.

Candidate's Solution

Options: (Expected answer indicated with a tick)

☒ I understand the Technical Interview Prep participation policy. 

☐ I have a working camera and microphone on my computer or phone that I can utilize during class sessions. 

☐ I will contact support@codepath.org with any questions 

 No comments.

3. CodePath's Assignment Policy

 Partially correct

Multiple Choice

Question description

Technical Interview Prep Assignment Policy:

- Students are required to submit one HackerRank assignment each week at the end of the unit. These HackerRanks are for you all to be able to log lots of practice, get your own scores, and become very familiar with HackerRank screens.
- You will be allowed two 48 hour deadline extensions in case you have an unexpected conflict.
- All HackerRanks must be submitted. If you do not submit any HackerRanks before the deadline or deadline extension, you will be withdrawn from the course.
- If you have technical difficulties that require your HackerRank to be reset, please email support@codepath.org before the deadline or your submission will still be counted as missing.

If you have questions or concerns about your assignment submissions, or to inform us of an extenuating circumstance involving a hospitalization or death in the family, please contact support@codepath.org. No other instructional team member, including instructors, TAs, coaches, or Program Managers can assist with assignment concerns.

Select both options if you understand the policy listed above.

Candidate's Solution

Options: (Expected answer indicated with a tick)

☒ I understand the Technical Interview Prep assignment policy. 

☐ I will contact support@codepath.org with any questions 

 No comments.

4. Complexity of the Code Snippet

 Incorrect

Multiple Choice

Algorithms

Easy

Problem Solving

Question description

Consider the following code snippet:

```
int a = 1;

while (a < n) {
    a = a * 2;
}
```

What is the complexity of the above code snippet?

Interviewer guidelines

Task is reducing exponentially by an order of 2.

Candidate's Solution

Options: (Expected answer indicated with a tick)

☒ $O(n)$

☐ $O(1)$

☐ $O(\log^2(n))$



☐ $O(2^n)$

 No comments.

5. Fill in the blank.

 Correct

Multiple Choice

Question description

By examining the recursion tree for computing fibonacci, we can deduce an exponential $O(2^n)$ complexity, with potential for speedups by using _____.

Candidate's Solution

Options: (Expected answer indicated with a tick)



memoization



recursive calls that are placed on an internal stack



stored intermediate results



none of the above

⚠ No comments.

6. Memoize this code snippet

⊗ Incorrect

Multiple Choice

Question description

A message containing letters from A-Z can be **encoded** into numbers using the following mapping:

'A' -> "1"

'B' -> "2"


```
...
'Z' -> "26"
```

To **decode** an encoded message, all the digits must be grouped then mapped back into letters using the reverse of the mapping above (there may be multiple ways). For example, "11106" can be mapped into:

- "AAJF" with the grouping (1 1 10 6)
- "KJF" with the grouping (11 10 6)

Note that the grouping (1 11 06) is invalid because "06" cannot be mapped into 'F' since "6" is different from "06".

Given a string `s` containing only digits, I tried to return *the number of ways to decode* it through memoization:

```
public int numDecodings(String s) {
    int n = s.length();
    int[] mem = new int[n];
    Arrays.fill(mem, -1);
    return numDecodings(s, 0, mem);
}

private int numDecodings(String s, int i, int[] mem) {
    int n = s.length();
    if (i == n)
        return 1;
    if (s.charAt(i) == '0')
        return 0;
    if (mem[i] != -1)
        return mem[i];
    int count = numDecodings(s, i + 1, mem);
    if (i < n - 1 && ((s.charAt(i) - '0') * 10 + (s.charAt(i + 1) - '0')) < 27) {
        count += numDecodings(s, i + 2, mem);
    }
    // insert code here
}
```

What piece of code is missing here to complete the `numDecodings` function?

Candidate's Solution

Options: (Expected answer indicated with a tick)

☐ return mem[i] = count;☒ return count;☐ return mem[count];☐ return mem[i, count];☐ return mem[count] = i;☐ none of the above

 No comments.

7. Technique of storing the previously calculated values

 Correct

Multiple Choice

Question description

What is the technique of storing the previously calculated values called?

Candidate's Solution

Options: (Expected answer indicated with a tick)



saving value property



storing value property



memoization



mapping



dynamic programming



greedy



No comments.

8. Guess this complexity

Correct

Multiple Choice

Question description

We can use the following algorithm to see if a numerical value exists in an array. The algorithm will find the first place where the number exists and return its index. What is the Big O runtime of this algorithm?

```
def find_first_index_of_number(number, array):  
    for i, value in enumerate(array):  
        if value == number:
```

```
    return i  
    return -1
```

Candidate's Solution

Options: (Expected answer indicated with a tick)

☐ $O(1)$

☒ $O(N)$



☐ $O(N^2)$

☐ Runtime Error

☐ Compile Time Error

☐ none of the above

 No comments.

9. Complexity of Code Snippet

 Correct

Multiple Choice

Question description

The following function checks to see if the last item in a data set is higher or lower than the first item in a data set — and returns *Higher*, *Lower*, or *Neither*.

```
const array = [36, 14, 1, 7, 21];

function higherOrLower(array) {
  if (array[array.length - 1] > array[0]) {
    return "Higher";
  } else if (array[array.length - 1] < array[0]) {
    return "Lower";
  } else {
    return "Neither";
  }
}
```

What is its Big O time complexity?

Candidate's Solution

Options: (Expected answer indicated with a tick)

☒ $O(1)$



☐ $O(\log N)$

☐ $O(N)$

☐ Runtime Error

☐ Compile Time Error

☐ none of the above

⚠ No comments.

10. True or False

✔ Correct

Multiple Choice

Question description

Time complexity of an algorithm quantifies the amount of time taken by an algorithm to run.

Candidate's Solution

Options: (Expected answer indicated with a tick)

☒ True

✔

☐ False

⚠ No comments.

11. True or False

✘ Incorrect

Multiple Choice

Question description

A program that uses an $O(n^2)$ algorithm will always take longer to run than a program that uses an $O(n \log n)$ algorithm.

Candidate's Solution

Options: (Expected answer indicated with a tick)

☒ True

☐ False



 No comments.

12. Guess this complexity

 Correct

Multiple Choice

Question description

Characterize the efficiency, using Big O notation, of the following function:

```
def do_something(n):  
    # n: int  
    # a: dictionary (int -> int)  
    a = {}  
    for i in range(0, n):  
        a[i] = i  
    for i in range(0, n):  
        for j in range(0, n):  
            print a[i] * a[j]
```

Assume print is $O(1)$.

Candidate's Solution

Options: (Expected answer indicated with a tick)

☐ $O(\log N)$

☒ $O(N^2)$



☐ $O(N)$

☐ none of the above

 No comments.

13. Shaking hands at a party

 Correct

Multiple Choice

Question description

After arriving at a party, you shake hands with each person there. Using Big O notation, indicate the time requirement in the worst case.

Candidate's Solution

Options: (Expected answer indicated with a tick)

☐ $O(1)$, where n is the number of people at the party under the assumptions that there is a fixed maximum time between handshakes, and there is a fixed maximum time for a handshake.

☒ $O(n)$, where n is the number of people at the party under the assumptions that there is a fixed maximum time between handshakes, and there is a fixed maximum time for a handshake. ✓

☐ none of the above

⚠ No comments.

14. Shaking hands at a party

✓ Correct

Multiple Choice

Question description

Each person in a room shakes hands with everyone else in the room. Using Big O notation, indicate the time requirement in the worst case.

Candidate's Solution

Options: (Expected answer indicated with a tick)



$O(n^2)$, where n is the number of people at the party under the assumptions that there is a fixed maximum time between handshakes, and there is a fixed maximum time for a handshake.



$O(n)$, where n is the number of people at the party under the assumptions that there is a fixed maximum time between handshakes, and there is a fixed maximum time for a handshake.



none of the above



No comments.