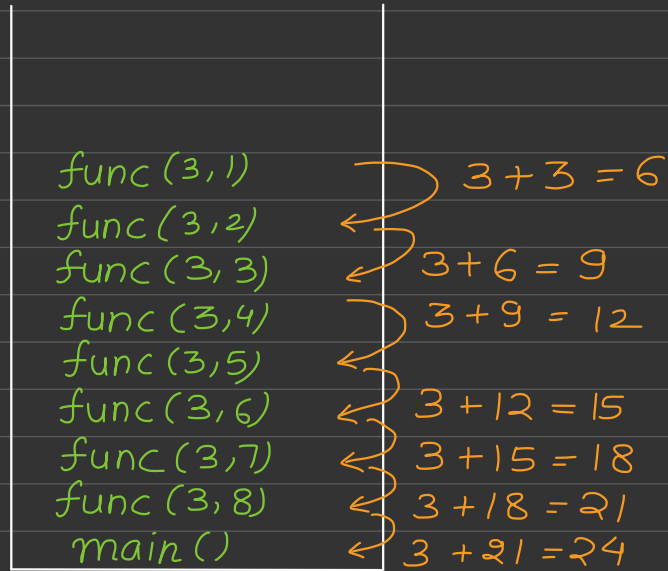


Quiz-7 Detailed Solutions

1. Stack is the data structure used to hold the entries of the function calls. We have already discussed about the function call stack.
2. Base condition is basically the stopping condition. If it is not written, then stack would be filled at some point of time & this is known as stack overflow.

3.

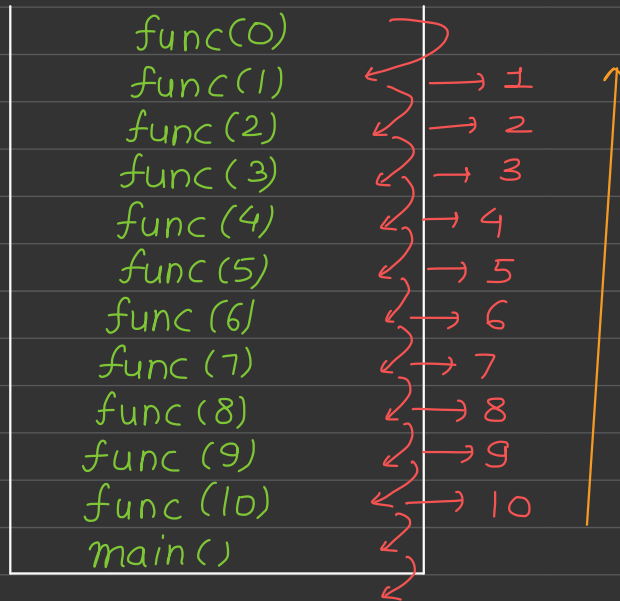


Ans

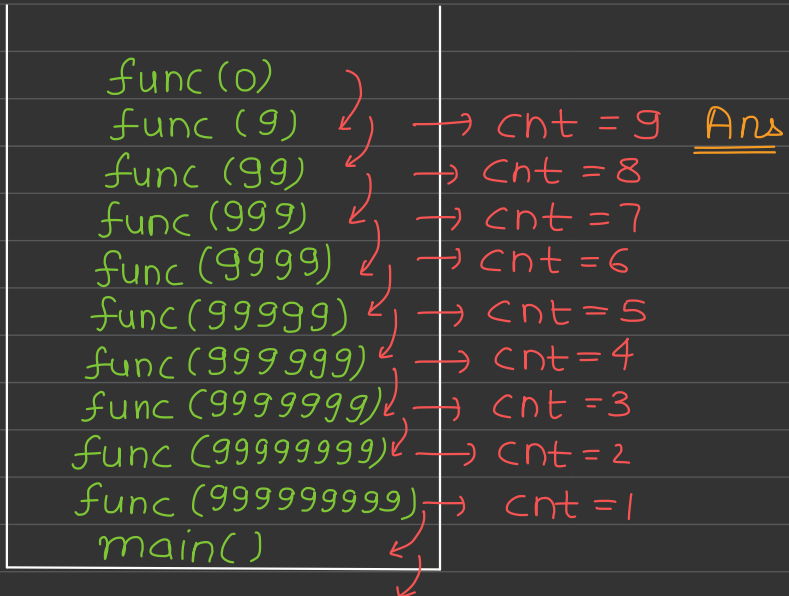
4. As there is no base case in the given code, so there is no stopping condition & stack

overflow will occur after some time.

5.



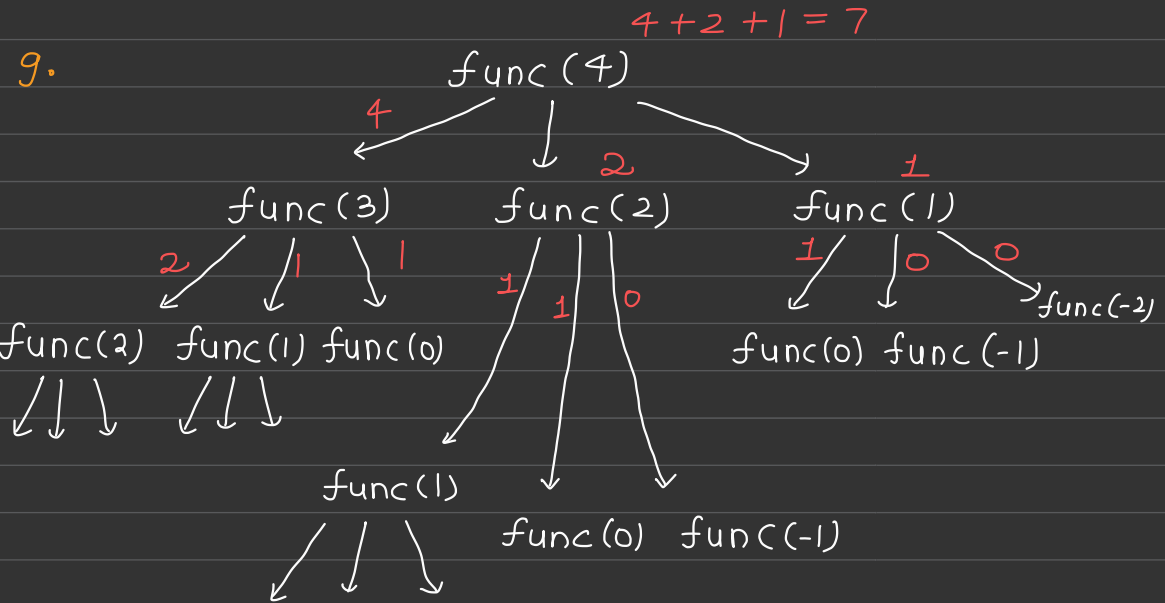
6.



7. Even \Rightarrow True (1024)
Odd \Rightarrow False (553)

8.

The condition inside base case is never achieved & hence this is a run time error.



Ans of `func(4) = 7`

10. No base case & hence hello world is printed infinite no. of times.

11. Tower of Hanoi is not a backtracking problem.

12.

Q1	x
	x

$n = 2$

(no 50^n)

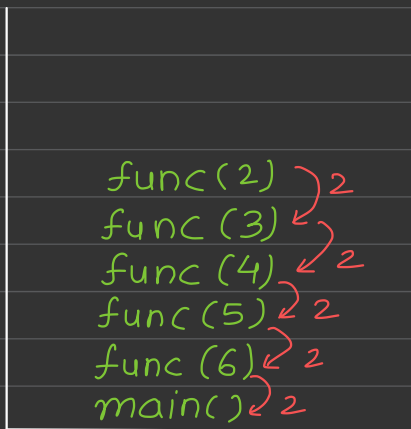
13.

	Q2		
			Q4
Q1			
		Q3	

} 3 1 4 2 is valid solution

14. Iteration requires less system memory than recursion as in recursion function call stack is used.

15.



++++
++++
+++
++
+

++++ 2 is answer

16. Backtracking is brute force as we are trying to find all the possible solutions.

17. All steps are there in backtracking.

18. $TC = O(n!)$ in n-queens problem

19. $TC = O(2^n)$ in subset
no. of subsets

20. a b a c d → a == a (T)

↑

x b a c d → b == a (F)

↑

x b a c d → a == a (T)

↑

x b x c d → c == a (F)

↑

x b x c d → d == a (F)

↑

Final array ⇒ x b x c d