Algorithm Interview Questions

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Introduction to Algorithm Interview Questions and Answers

Preparing for a job interview in Algorithm. I am sure you want to know the most common 2019 Algorithm Interview Questions and Answers that will help you crack the Algorithm (https://www.educba.com/what-is-an-algorithm/) Interview with ease.

Here is the list of top Algorithm (https://www.educba.com/algorithm-in-programming/) Interview Questions and answers at your rescue.

Below is the list of 2019 Algorithm Interview Questions and answers, which can be asked during an Interview for fresher and experience.

1.Write an algorithm to reverse a string. For example, if my string is “vahbunA” then my result will be “Anubhav”.

Answer:

Step 1: Start

Step 2: Take two variable I and j.

Step 3: j is positioned on last character (Technically we can do this by length(string)-1)

Step 4: I is positioned on first Character (we can do this by string[0])

Step 5: String[i] is interchanged String[j] Step 6: Increment I by 1

Step 7: Increment J by 1

Step 8: If ‘I’ > ‘j’ then go to step 3

Step 9: Stop

2.Write an algorithm to insert a node in linked list assuming the linked list is sorted already.

Answer:

Case 1: If linked list is empty then make the node as head and return it.

Code: New_node-> Next = head;

head = New_node

Case 2: Insert node in middle

Code: While (P!= insert_position)

{

>Next;

}

Store_next=P->Next;

P->Next = New_Node;

New_Node->Next = Store_next;

Case 3: Insert a node at the end

Code: While (P->next!= null)

{

P= P->Next;

}

P->Next = New_Node;

New_Node->Next = null;

3.Write an algorithm for bubble sort.

Answer: We are going to implement the bubble sort algorithm through C language.

Step 1: Repeat Step 2 and step 3 for I = 1 to 10

Step 2: Set j = 1

Step 3: Repeat while j <= n (Where n is number of elements in the array)

{ If a[i] < a[j] Then interchange a[i] and a[j] [End of if] }

Set j = j + 1

[End of inner loop] [End of step 1 outer loop] Step 4: Exit

4.Write an algorithm for Heapsort.

Answer:

Step 1: Since the tree satisfies max-Heap property, then the largest item is stored at the root node.

Step 2: Remove the root element and put at the end of the array (nth position) put the last item of the tree (heap) at the vacant place.

Step 3: Reduce the size of the heap by 1 and heap the root element again so that we have the highest element at the root.

Step 4: The process is repeated until all the items of the list is sorted.

5.Write an algorithm for Fibonacci search.

Answer:

Step 1: A is sorted_int_array;

Step 2: take one variable c

Step 3: Fib2 = 1, Fib1 = 1 and fib = 2

Step 4: While fib < n do (where n is number of element in list)

Step 5: Assign the variable

Fib2 = Fib1

Fib1 = Fib

Fib = Fib1 + Fib2

End while

Step 6: Assign the value to temporary variable I = 0, offset = 0;

Step 7: While Fib > 1 do

I = min (offset + Fib2, n)

If c < A[i] then

Fib = Fib2

Fib1 = Fib1 – Fib2

Fib2 = Fib – Fib1

Else if c > A[i] then

Fib = Fib1;

Fib1 = Fib2;

Fib2 = Fib – Fib1;

Offset = I;

Else

Return true

End if

End while

Return false

Write an algorithm of push and pop operation in the stack.

Answer: For Push Operation

Procedure Add(Item, Stack, N, Top)

(Insert 'Item' into the 'stack' of maximum size 'n', top is the number of elements currently

in 'Stack')

Step 1: Check Stack is overflow?

If (Top >= N)

Stack is overflow

Exit

Step 2: If the stack does not overflow, increment the loop

Top = Top + 1

Step 3: Insert the element

Stack [Top] = Item

Step 4: Exit

For POP Operation

Step 1: Check Stack is underflow means empty

If (Top <= 0)

Stack is empty

Exit

Step 2: If stack is not underflow, then deleting the element

Item = stack[top] Step 3: decrementing the top value

Top = Top – 1

Step 4: Exit

Write an algorithm for insert and delete operation in Queue.

Answer: For insertion operation

Procedure add(queue, F, R, N, item)

(This will insert ‘item’ in the ‘queue’ after ‘R’(rare) where ‘n’ is the size of the array.)

Step 1: Check Queue is overflow means queue is full

If (R >= N)

Queue is full

Exit

Step 2: If Queue is not overflowed, then increment the loop

R = R + 1

Step 3: Insert an element into the queue

Queue[R] = item

Step 4: Setting the ‘F’(Front) Pointer

If (F = 0)

F = 1

Exit

For Deletion operation in Queue

Procedure delete(queue, F, R, item)

(Delete ‘item’ from the ‘stack’, ‘F’ is the Front-end pointer and ‘R’ is the rare end pointer.

Step 1: Check Queue is underflow means empty

If (R < = 0)

Queue is empty

Exit

Step 2: Deleting an element from the queue

Item = queue [F] Step 3: Incrementing the value of F

Rear = -1

Step 4: Checking the empty queue

If (F <= R)

Then F = R = 0

Exit

8.Write an algorithm to find the minimum depth of a binary tree.

Answer: Let “node” be the pointer to the root node of a subtree.

Step 1: If the node is equal to Null, return 0

Step 2: If the node is a leaf node return 1.

Step 3: Recursively, find the minimum depth of left and right sub-tree, let it be left Min Depth and right min depth respectively.

Step 4: To get the minimum height of tree rooted at the node, we will take a minimum of left min depth and right min depth and 1 for the root node.

Program:

Procedure minDepth (Node)

Step 1: if (root = null)

Return 0

Step 2: if (root -> Left = Null and root -> right = Null)

Return 1

Step 3: if (root -> left is not null)

Return minDepth (root -> right) + 1;

Step 4: If (root -> Right is not null)

Return minDepth (root -> left) + 1;

Step 5: return min(minDepth (root -> left), minDepth (root -> right)) + 1

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This has been a comprehensive guide to the Algorithm Interview Questions and answers so that the candidate can crackdown these Algorithm Interview Questions easily. You may also look at the following articles to learn more –

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