

WGU C949 DATA STRUCTURES AND ALGORITHMS I  
OBJECTIVE ASSESSMENT EXAM 300 QUESTIONS AND  
CORRECT DETAILED ANSWERS WITH RATIONALES  
(VERIFIED ANSWERS) | A GRADE

What is a characteristic of keys in an associative dictionary data type? -  
ANSWER- **They are unique and immutable.**

Which method can be used to take a value out of a dictionary? -  
ANSWER- **D1[key].remove(value)**

Given this data dictionary in Python:  
**dict = {'white':0x0000, 'black':0x1111}**

Which command/function generates the output ['white','black']? -  
ANSWER- **dict.keys()**

Items were added sequentially in this stack starting with 'ham':  
'sausage'  
'toast'  
'eggs'  
'ham'

What is the correct order of contents after the push operation is performed with the value 'bacon'? - ANSWER- **'bacon'**

**'sausage'**  
**'toast'**  
**'eggs'**  
**'ham'**

Items were added sequentially in this stack starting with "dog":

"bird"  
"rabbit"  
"cat"  
"dog"

What is the return value of the pop operation? - ANSWER- "bird"

Which sequence of letters represents preorder traversal of the nodes of this tree?

```
A
/\
B C
/\
/\
D E
/>\
F G H
/
```

I - ANSWER- A B C D F E G I H

An array soc of size 1009 is used where the index is an integer in [0,1008] and the hash-function  $key \% 1009$ .

Where will the data associated with the key given by the last 4 social security digits '2023' be stored? - ANSWER- In soc[5]

A stack s, a queue q, and a max value priority queue p each have a single 3 in them. Next s.push(4), q.push(4), and p.push(4) are executed.

What is the triple (s.pop(), q.pop(), p.pop())? - ANSWER- (4,3,4)

This stack reads left to right with the top to the right:

'green'  
'yellow'  
'blue'

'red'

What could be the stack after a push operation? - ANSWER-  
['red','blue','yellow', 'green', 'purple']

Items were added sequentially onto the stack starting with 'red':

'green'

'yellow'

'blue'

'red'

What is the stack after a pop operation? - ANSWER- 'yellow'

'blue'

'red'

Which command helps to speed up comparisons using dictionary keys during a dictionary (d) lookup in this pseudocode clip?

```
h = hash(key)
```

```
for pair in d:
```

```
    if h == pair[0]:
```

```
        return pair[1] - ANSWER- hash(object)
```

What does the method any(b) return in Python if b is a dictionary? -  
ANSWER- Returns True if any key of the dictionary is true.

Which Java method is used to read bytes from a standard file? -

ANSWER- `Java.io.FileInputStream`

Which command will retrieve an item from the top of the stack? -

ANSWER- `Pop()`

Which command will insert object x at position index in a list? -

ANSWER- `Add(int index, Object x)`

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Which command will return true if x is in a list, otherwise return false? - ANSWER- **Contains(Object x)**

When should a dictionary be used instead of a list? - ANSWER- **When the program uses key-value pairs as its data**

The reference of the head of the doubly linked list is passed to the reverse() method:

1<-->2<-->3<-->4<-->5<-->6

What is the modified linked list when complete? - ANSWER- 6<-->5<-->4<-->3<-->2<-->1

Which data structure is indexed? - ANSWER- **Array**

Which data structure may only store homogeneous data elements? - ANSWER- **Arrays**

What is a hierarchical data structure? - ANSWER- **Tree**

What is an attribute of a binary tree? - ANSWER- **Each node has at most two children.**

Which data structure uses a last in, first out (LIFO) removal of items? - ANSWER- **Stack**

Given:

heapList = [22, 33, 44, 55, 66]

Which index is the right child of item 22? - ANSWER- **44**

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