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Questions

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System Safe State

1 point possible (graded, results hidden)
A system has 19 magnetic tape drives and 5 processes : P1, P2, P3, P4, P5. The allocation of resources and the need for resources by the processes are described in the table. Which of the following is possible **safe state** of the system?

Hint: A system is in a **safe state** if there is a sequence in which all the processes can be executed without getting into a **deadlock**.

processes	Need	Allocated
P1	13	5
P2	10	1
P3	10	1
P4	15	1
P5	15	0

- ◉ [1, 2, 3, 4, 5]
- ○ [3, 2, 5, 4, 1]
- ○ [2, 1, 5, 4, 3]

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Answer submitted.

LinkedList

1 point possible (graded, results hidden)

```
function foo(start) {
    if (start == NULL)
        return

    print(start.value)

    if (start.next != NULL)
            foo(start.next.next);

    print(start.value);
}
```

What will be the output of the the following function if **start** pointing to **first node** of following linked list?

[85, 10, 73, 14, 64, 93]

- ○ 85, 64, 93, 10, 73
- ○ 85, 14, 73, 64, 10, 93
- ◉ 85, 73, 64, 64, 73, 85
- ○ 85, 10, 93, 14, 73

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ℹ Answer submitted.

Identical Stacks

1 point possible (graded, results hidden)

Each row below are the stacks of water bottles with their respective heights(n)

1. | 4 | 2 | 2 | 4 | 5 |

2. | 5 | 4 | 4 | 1 | 3 | 4 | 1 | 4 |

3. | 4 | 4 | 4 | 5 | 1 | 5 |

The rightmost element shows the top of the stack. Adding up the heights of the bottles on a stack will give you the overall height of the stack. You can pop the bottles from each stack any number of times to change the height of the stack.

Determine the maximum height of each stack where all of the three stacks are equal in terms of height.

- ○ 4
- ◉ 17
- ○ 8
- ○ 5

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1 point possible (graded, results hidden)

```
Our CPU executes processes in bursts of 100ms and then calculates the next process
to execute after each burst.
3 processes are fed into our CPU's process scheduler with the following attributes

Process A
Arrival Time: 0
Burst Time: 1100

Process B
Arrival Time: 200
Burst Time: 1000

Process C
Arrival Time: 900
Burst Time: 1700

There are four main algorithms which our CPU uses to schedule processes:
FCFR: Firct Come First Serve
SJF:  Shortest Job First
SRTF: Shortest Remaining Time First
RR:   Round Robin

If we are using the SJF algorithm to schedule processes, which will processes will
have been completed after 2200 ms?
```

Answer as a comma separated list e.g. A,B or B,C,A

B,A

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1 point possible (graded, results hidden)

How many iterations of binary search are required to find **451** in **[51, 88, 101, 168, 172, 201, 224, 287, 348, 391, 442, 451, 489, 553, 594, 699, 720, 770, 895]**?

- ○ 6
- ◉ 5
- ○ 7
- ○ 3

Submit

ℹ Answer submitted.

Hash Clash

1 point possible (graded, results hidden)

*An array is used here to represent a Hash Table. Array index starts from **0** and ends at **size_of_array - 1***

Which slot would the number 35 hash to in the following Hash Table?

50	20	35	--	--	--	--	32	43	--	--

size_of_table = 11

The hash function is :

$$hash\,(number)\,:\,number\,\%\,size\_of\_table$$

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5

Submit

Answer submitted.

XOR and XNOR

1 point possible (graded, results hidden)

Let **A : "01101010"** , **B=?**, If **{ A (Ex-nor) B }** is a resultant string of **ALL ZEROES [00000000]** then:

- ○ B is 10000101
- ◉ B is 10010101
- ○ B is 10101010

Submit

Answer submitted.

Inheritance Code Snippet

1 point possible (graded, results hidden)

What will be the output of this code snippet? (__init__ is constructor of class)

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```
        self.i = 41 * i;

class B(A):
    def __init__(self):
        super().__init__()
        print("i from B is", self.i)

    def calc_i(self, i):
        self.i = 59 * i;

b = B()
```

You can select only one option.

- ◉ 39943
- ○ 65075
- ○ 24746
- ○ 62426

Submit

ℹ Answer submitted.

Travelkitties

1 point possible (graded, results hidden)

Travelkitties is a travel aggregator which allow users to book recreational trips using their app from all arround the world. You've been given a task to find out top 1 travel desitination (city) to help business team in making data driven decisions.

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uid	name	age
1	Joe Smith	27
2	Joe Johnson	52
3	John Smith	48
4	John Johnson	45
5	Andy Smith	39

city

cid	lat	lng	city	country_code
1	34.95303	-120.43572	Austin	US
2	42.16808	-88.42814	Columbus	US
3	39.96097	-75.60804	Dallas	US
4	34.09668	-117.71978	San Antonio	US
5	46.09273	-88.64235	Los Angeles	US

trips

tid	uid	origin_id	destination_id
1	3	4	5

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6	1	2	3
7	5	1	5

With given tables what would be output of following SQL query:

```
SELECT
  city_name
FROM (
  SELECT
        city AS city_name,
                count(t.destination_id) AS trips
  FROM city AS c
  INNER JOIN trips AS t
  ON c.cid = t.destination_id
  GROUP BY city, t.destination_id
) AS ranked_trips
ORDER BY trips DESC
LIMIT 1;
```

You can select only one option.

- ◯ Dallas
- ◯ Austin
- ◯ Columbus
- ◉ Los Angeles

Submit

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1 point possible (graded, results hidden)

Given the following processes with their arrival and burst time given below, calculate the average waiting time using the First Come First Serve approach.

Arrival time: Time when the process is ready for its execution on the CPU.
Burst time: Time required by the process to complete its execution on the CPU.
Waiting time: Time spent by the process waiting for the CPU after its arrival.

Process	Arrival Time	Burst Time
P1	4.0	13.0
P2	11.0	12.0
P3	20.0	28.0
P4	25.0	33.0

11.75

Submit

Answer submitted.

Inheritance

1 point possible (graded, results hidden)

What should be the result of running the following pseudocode snippet?

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```
        print("b")


class Class2:
    function function_1(self):
        print("c")

    function function_3(self):
        print("d")


class Class3:
    function function_2(self):
        print("e")

    function function_3(self):
        print("f")


class ClassA(Class3, Class1):
    function function_3(self):
        print("h")


class ClassB(Class2):
    function function_2(self):
        print("i")

    function function_3(self):
        print("j")


class ClassC(Class1):
    function function_2(self):
        print("k")

    function function_3(self):
        print("l")


ClassC().function_1()
```

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Submit

Answer submitted.

Age Selection

1 point possible (graded, results hidden)

Table: A

id	name	age
32	Zara	55
50	Abdullah	56
81	Fatima	53
60	Faran	60

Table: B

id	name	age
15	Abdullah	57
38	Fatima	59
54	Zia	25
108	Mahnoor	31
170	Ayesha	55

How many rows does the result of the following SQL query contains?

SELECT A.id
FROM A
WHERE A.age > **ALL** (**SELECT** B.age **FROM** B **WHERE** B. name in ['Gohar', 'Faran', 'Fatima'])

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2

1

Submit

Answer submitted.

Truth Harmony

1 point possible (graded, results hidden)

Braden speaks truth in **58%** of cases and Fred in **78%** of cases. In what percentage of cases are they likely to contradict each other, talking about the same incident.

45.52

Submit

Answer submitted.

Propositional Logic

1 point possible (graded, results hidden)

We found 3 children discussing something about cows, fish and cats but it was hard to tell if what they were speaking was True(T) or False(F). Can you apply some sort of Propositional Logic to deduce if what they are saying is True(T) or False(F)

Child-1: Cat cannot Fly and Fish can do programming.

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Child-1: T/F

F

Child-2: T/F

T

Child-3: T/F

F

Submit

Answer submitted.

Round and Round

1 point possible (graded, results hidden)

We have come upon a 'longRunning' method in our code. In order to check its lengthy execution time, we are calculating its iterations against different inputs.

Can you figure out the number of iterations it will take to execute the following input:

[0, 11, 15, 18]

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```
        idx = j
      }
    }
    swap( array[i], array[idx] )
  }
}
```

- ○ 6
- ◉ 1
- ○ 4
- ○ -2

Submit

ℹ Answer submitted.

Imaginary String Printer

1 point possible (graded, results hidden)

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```
        arr_3 = sort_ascending (arr_3)

        a = [2, 4, 3, 5, 0, 1]
        i = 0

        while (i < length(arr_3))
        {
                print arr_3[ a[i] ]
                i = i + 1
        }

}
```

What will the imaginaryString() function print?

- (●) LPOYDG
- ( ) 243501
- ( ) PGYLDO
- ( ) Raise Index Error
- ( ) LPODQWYNGRE
- ( ) YLVPXDBGJOK

Submit

ⓘ Answer submitted.

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of item.

We have to balance these storage systems (move items between storages so that there are equal number of items in both). Keeping in mind the functionalities of stacks and queues, we have to balance them!

STACK STORAGE: *oldest* **[3, 7, 2, 11]** *newest*

QUEUE STORAGE: *oldest* **[22, 26, 28, 24, 25, 21, 19, 27]** *newest*

What is the oldest item in queue storage after balancing the storages?

You can select only one option.

- ○ 22
- ○ 3
- ○ 21
- ◉ 28

Submit

ℹ Answer submitted.

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Second number is: 2

Every successing number is calculated as: F_n = 1xF_{n-2} + 1xF_{n-1} e.g.

Third number is: F_3 = 1xF_1 + 1xF_2 = 1x2 + 1x2 = 4

What is 6th number in the series

- (●) 16
- ( ) 26
- ( ) 42
- ( ) 68

Submit

Answer submitted.

Novel Arrangement

1 point possible (graded, results hidden)

Anaya has three Urdu novels **(C, G, B)** and Four English novels **(E, F, D, A)**. She wants to arrange her novels in a way that following conditions must be met:

- No english novel can be placed immediate after another english novel.

- B must be placed earlier than D.

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Choose the best sequence of novels:

- ○ A, G, E, B, F, C, D
- ○ G, B, F, A, D, C, E
- ○ D, C, F, B, A, G, E
- ◉ E, B, A, G, F, C, D

Submit

ℹ Answer submitted.

Bank Loan

1 point possible (graded, results hidden)

As per agreement with a bank, a businessman had to refund a loan in some equal installments without interest. After paying "33" installments he found that "80.49" percent (approximately) of his loan was refunded. How many installments were there in the agreement?

- ◉ 41
- ○ 45
- ○ 43

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Answer submitted.

People in a Row

1 point possible (graded, results hidden)

In a cinema ticket line, A has 9 people ahead of it, while B has 13 people behind it. After they swap the positions, A has 18 people ahead. How many people are there in the line including A and B.

32

Submit

Answer submitted.

Valid Binary Search Tree

1 point possible (graded, results hidden)

Suppose that we have numbers between 1 and 100 in a binary search tree and we want to search for the number 16. Which of the following sequences could not be the sequence of nodes examined ?

- ◯ [30, 5, 9, 11, 21, 13, 16]
- ◯ [63, 59, 22, 12, 17, 16]

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Submit

Answer submitted.

Bubble Sort Integration

1 point possible (graded, results hidden)

What will be the condition of following array after 1 iteration(s) of Bubble Sort while sorting in ascending order

[62, 54, 50, 6, 27, 63, 41, 41, 32]

- ○ [41, 6, 50, 27, 62, 32, 41, 54, 63]
- ○ [41, 32, 27, 6, 50, 62, 54, 41, 63]
- ◉ [54, 50, 6, 27, 62, 41, 41, 32, 63]
- ○ [27, 6, 62, 41, 41, 32, 54, 50, 63]

Submit

Answer submitted.

FIFO Page Fault

1 point possible (graded, results hidden)

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Submit

Answer submitted.

Find Me If You Can

1 point possible (graded, results hidden)

Find the missing operators:

10 ? 6 ? 7 ? 8 = 346

```
Operators allowed:  +  -  *
```

Answer format: a+b-c*d

10+6*7*8

Submit

Answer submitted.

Balancing Parantheses

1 point possible (graded, results hidden)

A stack can be used to check whether the parentheses in an expression are balanced or not, by pushing an opening parenthesis to the stack and popping it whenever a closing parenthesis is encountered. What is the maximum possbile number of elements on the stack

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Submit

Answer submitted.

Algorithm

1 point possible (graded, results hidden)

What is the output of the following code?

```
func min_jumps(arr[], start, end)
{
    if(start == end)
        return 0;

    int min = INT_MAX;  // Max value of int

    for(idx = 1; arr[start] >= idx AND end >= start + idx; idx++)
    {
        int jumps = min_jumps(arr, start + idx, end) + 1;
        if(min > jumps)
            min = jumps;
    }
    return min;
}

main()
{
    arr[] = [1, 1, 2, 1, 3, 1, 1, 2, 1, 1],
    ans = min_jumps(arr, 0, lenOfArr);
    print ans;
}
```

◉ 5

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4

Submit

Answer submitted.

Set Theory

1 point possible (graded, results hidden)

If

A = {1, {7}, 5, 7, 9, {2, 5}}

B = {8, 3, 4, 5, {9}}

C = {1, {7}, 3, 4, 5, 8, 9}

D = {10, 3, 4, 5, {9}}

Then the set (A ∩ A) - (C U B) is:

- {8, {2, 5}}
- {1, 3, 4, 5, 7, 8, 9, 10, {9}}
- {}
- {{2, 5}, 7}

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Mode, Mean, Median

1 point possible (graded, results hidden)

M = [47, 11, 41, 47, 'N']

What is the value of N if the mode, mean and median of the list M are equal to each other? Express your answer to the nearest whole number.

Note:

- The mode of a set of data values is the value that appears most often.
- The mean is the average of the numbers: a calculated "central" value of a set of numbers.
- Median is the middle number in a sorted list of numbers.

41

Submit

Answer submitted.

Employee Salaries

1 point possible (graded, results hidden)

Table: employee_age

emp_id	age
102	23
101	27
100	28
103	34

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105	35000
103	60000

With given tables what would be output of following SQL query:

```
SELECT
    MIN(eSal.salary)
FROM
    employee_age as eAge INNER JOIN employee_salary as eSal
ON
    eAge.emp_id = eSal.emp_id

    WHERE eAge.age > 23
GROUP BY eAge.emp_id
    HAVING MIN(eSal.salary) > 35000
```

- ○ 35000
- ○ 60000
- ○ 54000
- ◉ 45000

Submit

ℹ Answer submitted.