DAAPY 14 FINAL

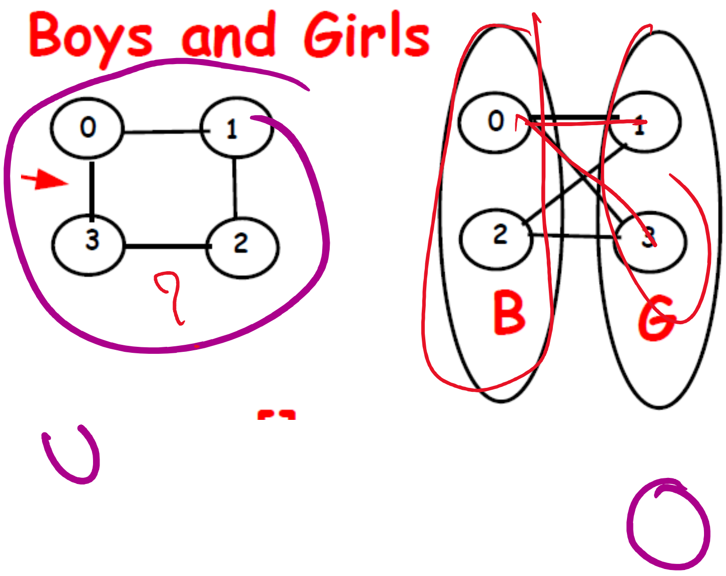
Saturday, December 9, 2023 9:24 PM

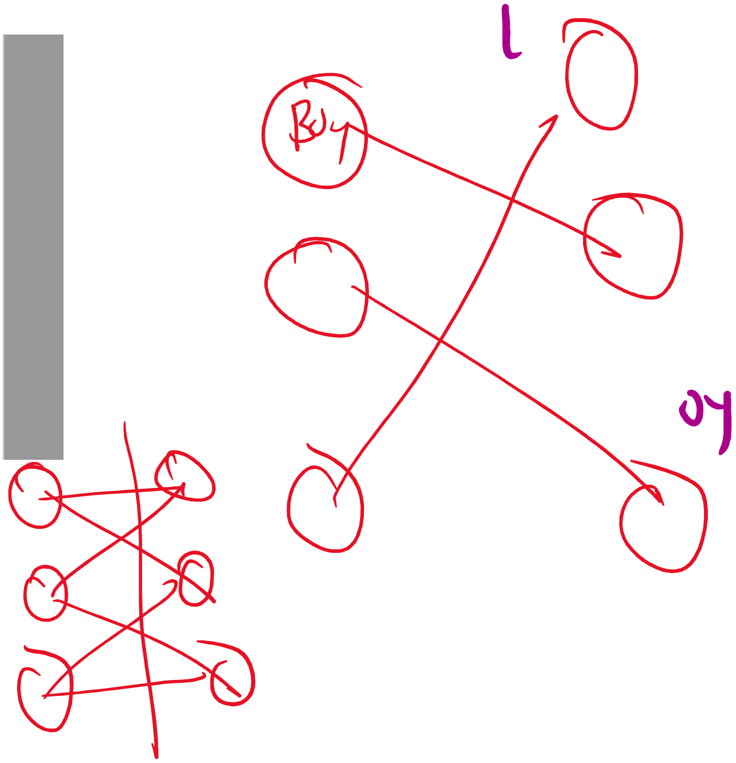
✓ 10 → 11 → 12 → 1 → 2

↗ 2 PM PST

100

Sunday, December 10, 2023 9:00 AM





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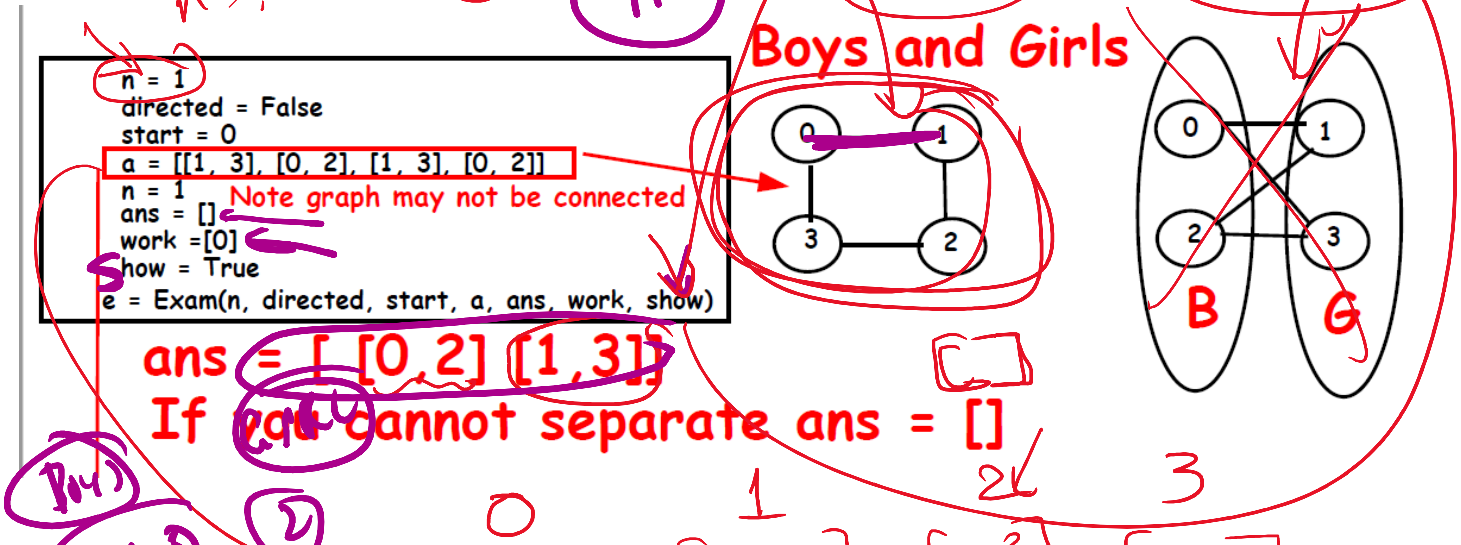
n =1, n

1

True



```
n = 1
directed = False
start = 0
a = [[1, 3], [0, 2], [1, 3], [0, 2]]
n = 1
ans = []
work =[0]
show = True
e = Exam(n, directed, start, a, ans, work, show)
```

Note graph may not be connected

Boys and Girls

ans = [[0,2] [1,3]]

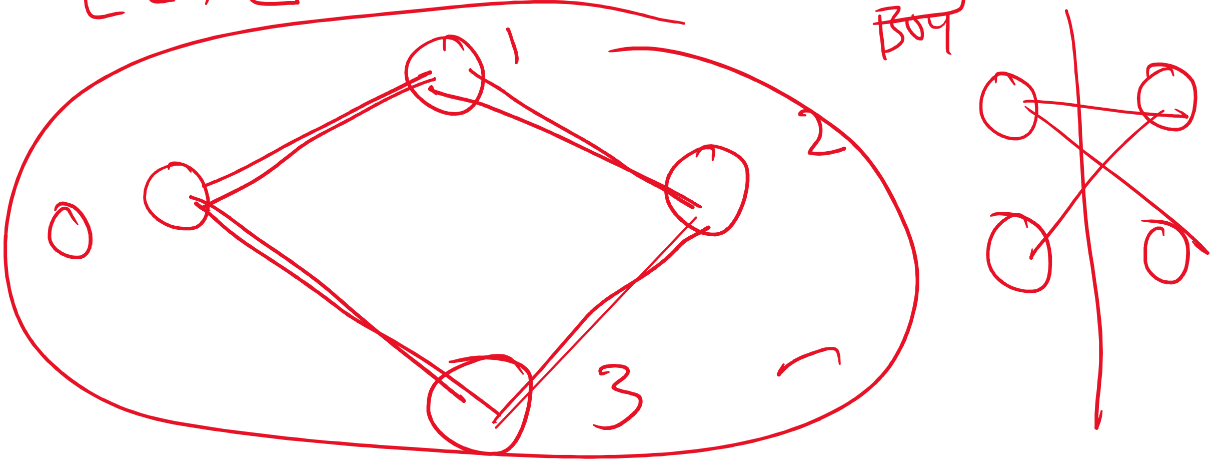
If you cannot separate ans = []

0 1 2 3

[[1, 3] [0, 2] [1, 3] [0, 2]

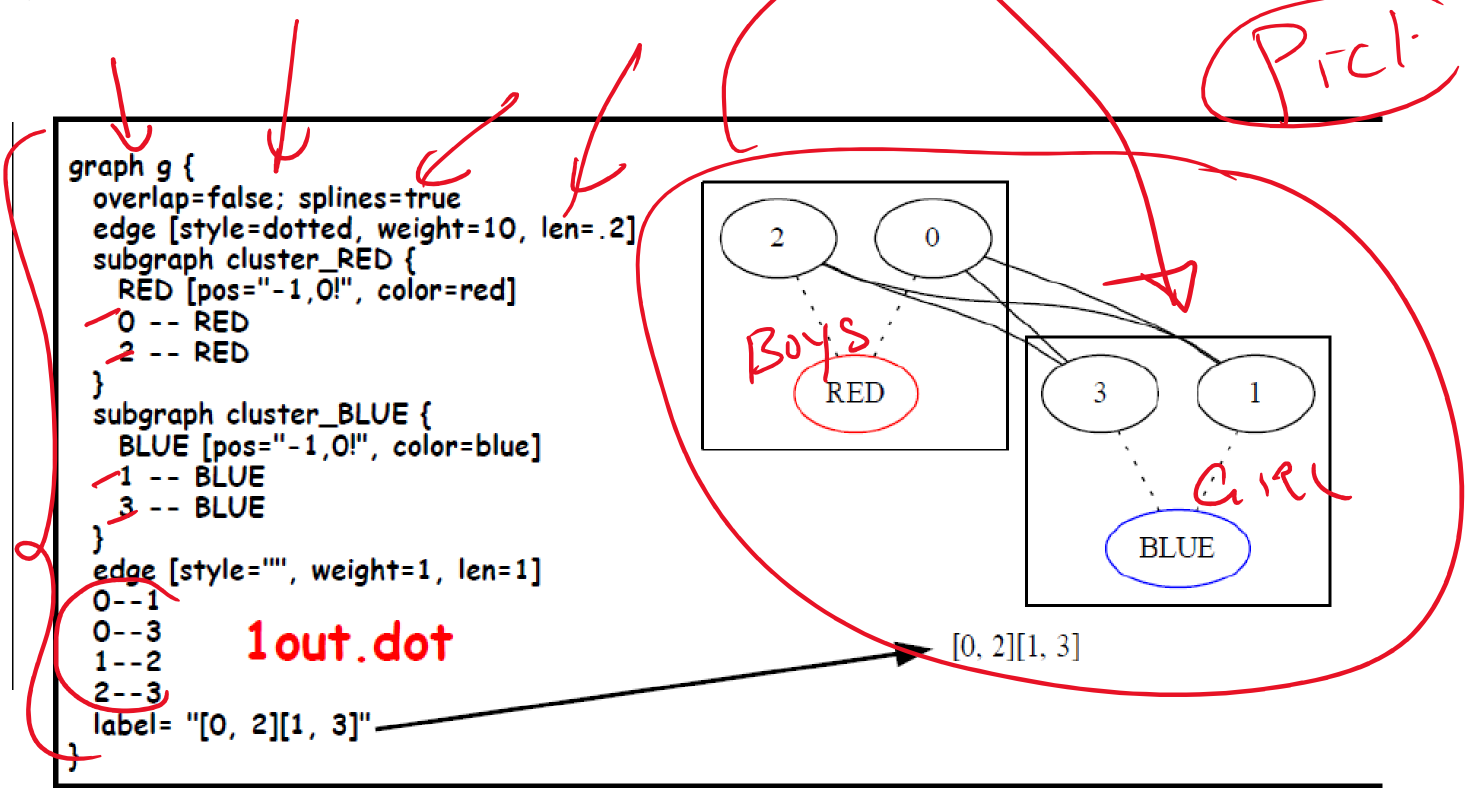
Boy

Girl



3

Sunday, December 10, 2023 9:09 AM



```
graph g {
  overlap=false; splines=true
  edge [style=dotted, weight=10, len=.2]
  subgraph cluster_RED {
    RED [pos="-1,0!", color=red]
    0 -- RED
    2 -- RED
  }
  subgraph cluster_BLUE {
    BLUE [pos="-1,0!", color=blue]
    1 -- BLUE
    3 -- BLUE
  }
  edge [style="", weight=1, len=1]
  0--1
  0--3
  1--2
  2--3
  label= "[0, 2][1, 3]"
}
```

1out.dot

4

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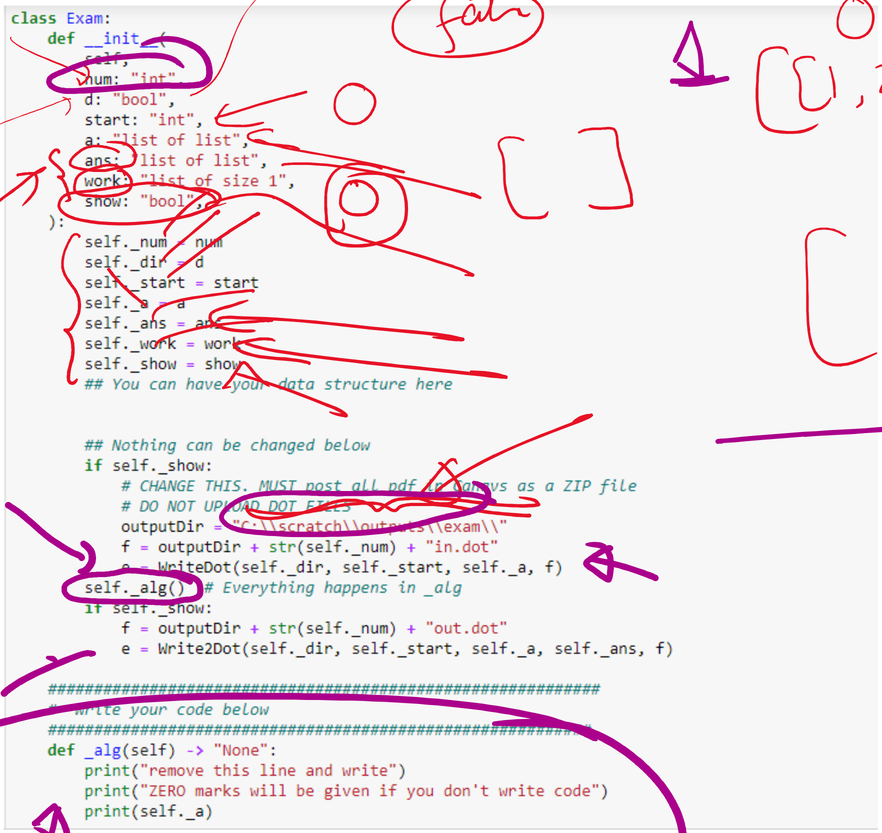
d : True

false

PASS #s



```
class Exam:
    def __init__(
        self,
        num: "int",
        d: "bool",
        start: "int",
        a: "list of list",
        ans: "list of list",
        work: "list of size 1",
        show: "bool",
    ):
        self._num = num
        self._dir = d
        self._start = start
        self._a = a
        self._ans = ans
        self._work = work
        self._show = show
        ## You can have your data structure here


        ## Nothing can be changed below
        if self._show:
            # CHANGE THIS. MUST post all pdf in canvas as a ZIP file
            # DO NOT UPLOAD DOT FILES
            outputDir = "C:\\scratch\\outputs\\exam\\"
            f = outputDir + str(self._num) + "in.dot"
            e = WriteDot(self._dir, self._start, self._a, f)
        self._alg() # Everything happens in _alg
        if self._show:
            f = outputDir + str(self._num) + "out.dot"
            e = Write2Dot(self._dir, self._start, self._a, self._ans, f)

    ############################################################
    # write your code below
    ############################################################
    def _alg(self) -> "None":
        print("remove this line and write")
        print("ZERO marks will be given if you don't write code")
        print(self._a)
```

0 1

0

1 2 3

4

[[1,2) (2,]]

0

[ ]

1 2 3 4

[ ]

in.dot

out.dot

1 in.dot

1 out.da

5

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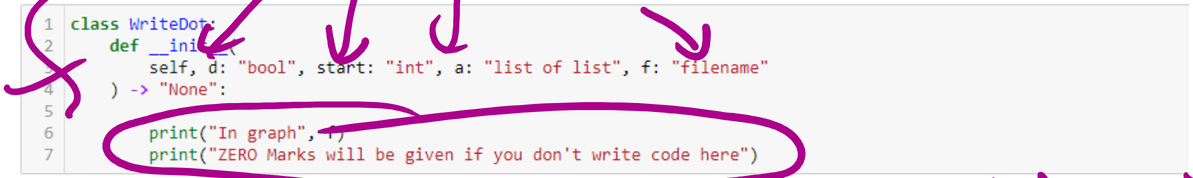
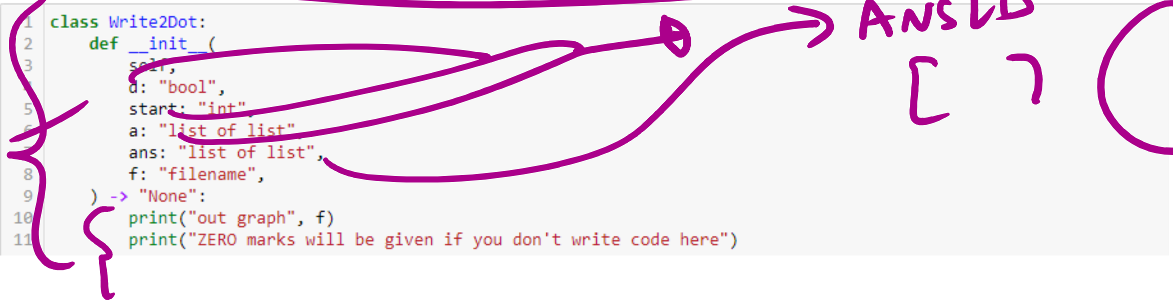
[(1, 5] (2, 7)



```python
class WriteDot:
    def __init__(
        self, d: "bool", start: "int", a: "list of list", f: "filename"
    ) -> "None":

        print("In graph", f)
        print("ZERO Marks will be given if you don't write code here")
```



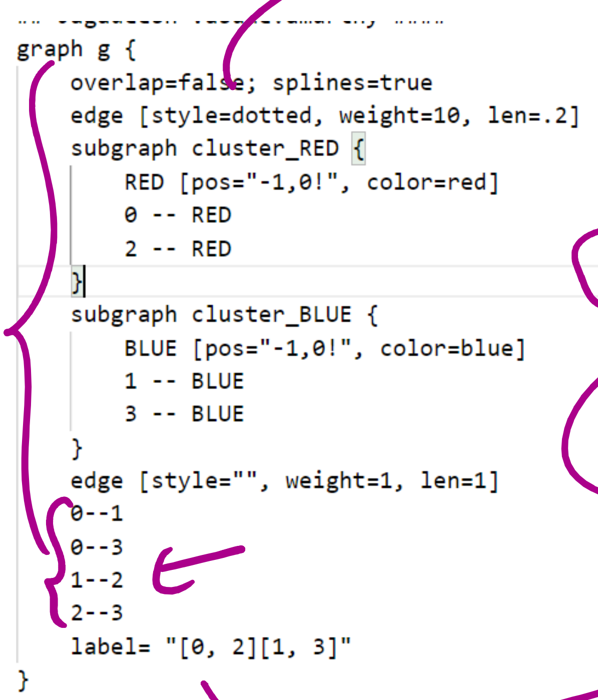
```python
class Write2Dot:
    def __init__(
        self,
        d: "bool",
        start: "int",
        a: "list of list",
        ans: "list of list",
        f: "filename",
    ) -> "None":
        print("out graph", f)
        print("ZERO marks will be given if you don't write code here")
```

ANSW

[ ]

6

Sunday, December 10, 2023 9:20 AM



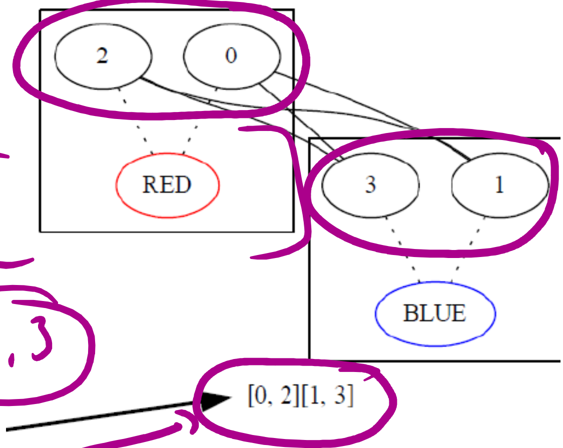
```
graph g {
    overlap=false; splines=true
    edge [style=dotted, weight=10, len=.2]
    subgraph cluster_RED {
        RED [pos="-1,0!", color=red]
        0 -- RED
        2 -- RED
    }
    subgraph cluster_BLUE {
        BLUE [pos="-1,0!", color=blue]
        1 -- BLUE
        3 -- BLUE
    }
    edge [style="", weight=1, len=1]
    0--1
    0--3
    1--2
    2--3
    label= "[0, 2][1, 3]"
}
```

3

1,2

0,3

0



7

Sunday, December 10, 2023 9:23 AM

① [ ] ✓ [[ ] [ ]] Boys Girl

② $\boxed{O}$ ✓ ← Σ Polyno

$\Theta(n)$

$O(n^2)$

$O(2^n)$

③ lin.dot

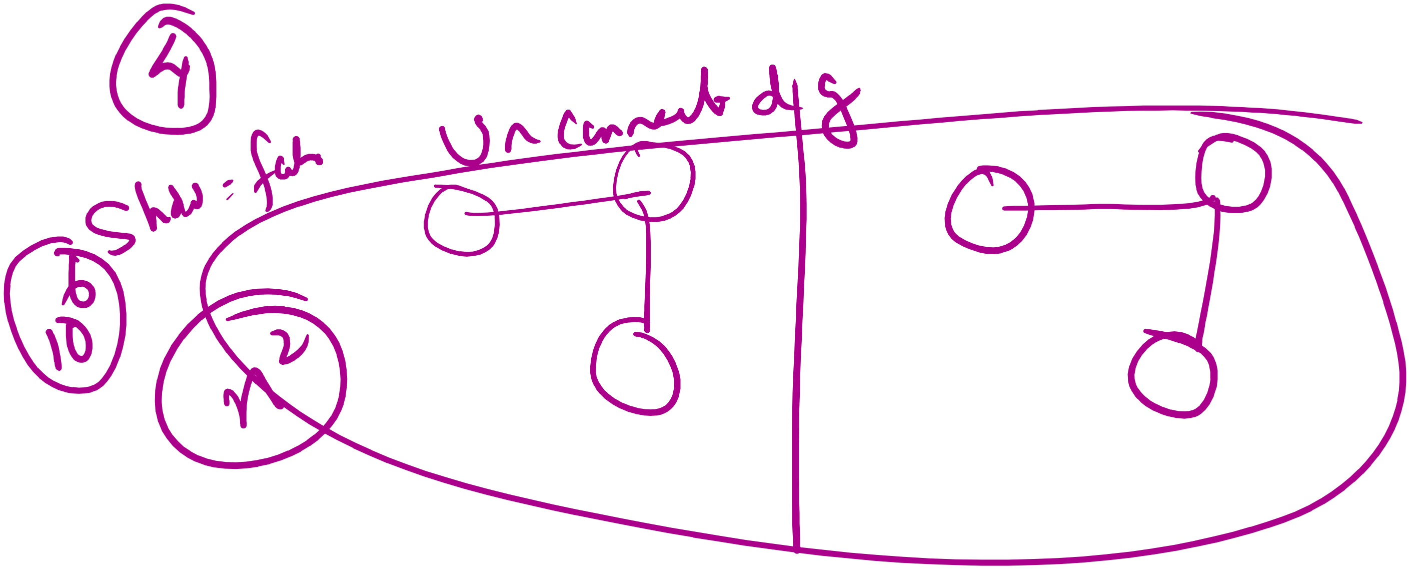
CHANCE

outputDir = "C:\\scratch\\outputs\\exam\\"

lin.dot

~~10ut.dol~~

④



8

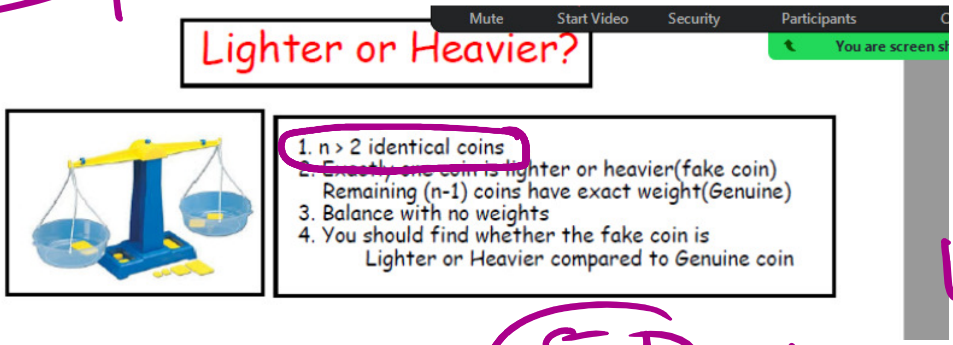
Sunday, December 10, 2023 9:27 AM

ONE FAKE

Ligh

FAKE CO.IN

~~n = 2~~ n>2



Lighter or Heavier?

1. n > 2 identical coins
2. Exactly one coin is lighter or heavier(fake coin)
   Remaining (n-1) coins have exact weight(Genuine)
3. Balance with no weights
4. You should find whether the fake coin is
   Lighter or Heavier compared to Genuine coin

5 1

Lightest

Equal

less

great

FAKE

85

1

3 3

5T

5 5 1

Light

1 1 5

High

85

8

80

80

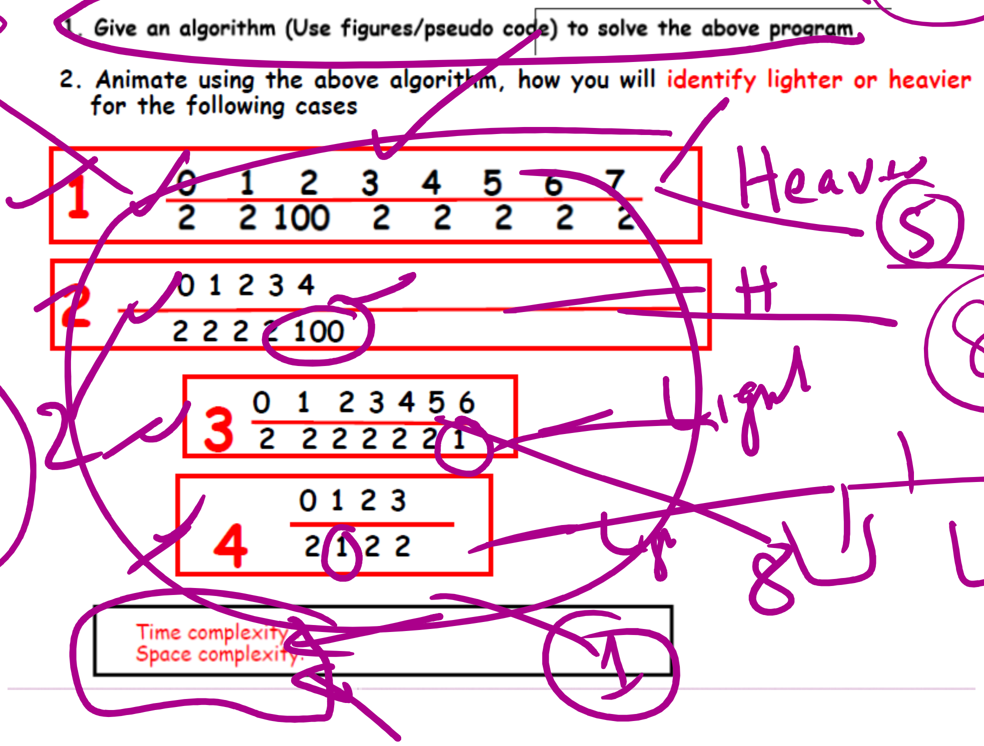
5

50

5

N

x x



1. Give an algorithm (Use figures/pseudo code) to solve the above program.

2. Animate using the above algorithm, how you will identify lighter or heavier for the following cases

1	0	1	2	3	4	5	6	7
	2	2	100	2	2	2	2	2

2	0	1	2	3	4
	2	2	2	2	100

3	0	1	2	3	4	5	6
	2	2	2	2	2	2	1

4	0	1	2	3
	2	1	2	2

Time complexity
Space complexity

Light

Jorj

n = 2

1 2

11 2

Hg 3

Heavy

5

H

8J

85

2

Light

Up

8

1

Heavy

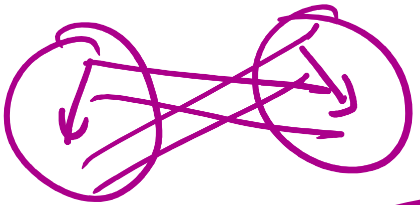
2 4 2

L

8l

80

UNDIRECTED



Undirected