21st April 2021:-

Previous Day:-

Pyramid Question

Python Pattern Problem:-

Lecture Flow:-

- Nested loop
- Continue
- Break
- Pass
- MCQs

Topics & Explanation:-

1.   Nested Loop:-

Question-1
Let's say we have 5 working days in one week and we wanted to print
week1 - day1
-
-
-
-
week2 - day5
Program

```
77    for week in range(1, 3):
78        for day in range(1, 6):
79            print("Week-", week, " Day-", day)
```

- Loop under a loop is called a nested loop.
- In line 77 the loop goes from 1 to 3 - to print week from 1 to 2.
- In line 78 the loop goes from 1 to 5 - to print days 1 to 5 of every week.
- In line 79 we print the statement (string"Week- ", loop of line 77, string"Days- ", loop of line 78.
- So, Under

```
week1          line 77 (loop-1)
        day1            line78 (loop-1)
        day2            line78 (loop-2)
        day3            line78 (loop-3)
        day4            line78 (loop-4)
        day5            line78 (loop-5)
week2          line 77 (loop-2)
        day1            line78 (loop-1)
        day2            line78 (loop-2)
        day3            line78 (loop-3)
        day4            line78 (loop-4)
        day5            line78 (loop-5)
```

Output

```
~/RichBiodegradableLicenses$ python3 lecture13_notes.py
Week- 1  Day- 1
Week- 1  Day- 2
Week- 1  Day- 3
Week- 1  Day- 4
Week- 1  Day- 5
Week- 2  Day- 1
Week- 2  Day- 2
Week- 2  Day- 3
Week- 2  Day- 4
Week- 2  Day- 5
~/RichBiodegradableLicenses$ 
```

Question-1
Let's say we have 5 working days in one week and we wanted to print

```
        week1 - day1

            -

            -

            -

            -
        week2 - day5
```

also print if the day is odd print normal class else print doubt class

```
77    for week in range(1, 4):
78      for day in range(1, 6):
79        print("Week-", week, " Day-", day, end = "")
80        if day%2 == 1:
81          print(" Normal Class")
82        else:
83          print(" Doubt Class")
```

- Same problem as above we just added if-else.
- So, every time the (line 78) loop runs we check if the day is odd or not.
- We check by taking mod of day/2, if remainder is 1, means odd (line 80).
- If the day is odd, print Normal Class.
- If the day is even, print Doubt Class.

Output

```
~/RichBiodegradableLicenses$ python3 lecture13_notes.py
Week- 1  Day- 1 Normal Class
Week- 1  Day- 2 Doubt Class
Week- 1  Day- 3 Normal Class
Week- 1  Day- 4 Doubt Class
Week- 1  Day- 5 Normal Class
Week- 2  Day- 1 Normal Class
Week- 2  Day- 2 Doubt Class
Week- 2  Day- 3 Normal Class
Week- 2  Day- 4 Doubt Class
Week- 2  Day- 5 Normal Class
Week- 3  Day- 1 Normal Class
Week- 3  Day- 2 Doubt Class
Week- 3  Day- 3 Normal Class
Week- 3  Day- 4 Doubt Class
Week- 3  Day- 5 Normal Class
~/RichBiodegradableLicenses$
```

2. Break:-

```
88    for week in range(1, 4):
89        for day in range(1, 6):
90            print("Week-", week, " Day-", day, end = "")
91            if day%2 == 1:
92                print(" Normal Class")
93            else:
94                print(" Doubt Class")
95            if week == 3 and day == 3:
96                break
```

When the condition reaches week=3 and day=3 it breaks out of week loop as well as days loop also.

Output

```
~/RichBiodegradableLicenses$ python3 lecture13_notes.py
Week- 1  Day- 1 Normal Class
Week- 1  Day- 2 Doubt Class
Week- 1  Day- 3 Normal Class
Week- 1  Day- 4 Doubt Class
Week- 1  Day- 5 Normal Class
Week- 2  Day- 1 Normal Class
Week- 2  Day- 2 Doubt Class
Week- 2  Day- 3 Normal Class
Week- 2  Day- 4 Doubt Class
Week- 2  Day- 5 Normal Class
Week- 3  Day- 1 Normal Class
Week- 3  Day- 2 Doubt Class
Week- 3  Day- 3 Normal Class
~/RichBiodegradableLicenses$
```

3. Continue:-

```
105   for week in range(1, 6):
106       if week == 4:
107           continue
108       for day in range(1, 6):
109           print("Week-", week, " Day-", day, end = "")
110           if day%2 == 1:
111               print(" Normal Class")
112           else:
113               print(" Doubt Class")
```

When the week loop reaches 4 it's condition says "continue" which means it will skip week 4 and go to week 5.

Output:-

```
~/RichBiodegradableLicenses$ python3 lecture13_notes.py
Week- 1  Day- 1 Normal Class
Week- 1  Day- 2 Doubt Class
Week- 1  Day- 3 Normal Class
Week- 1  Day- 4 Doubt Class
Week- 1  Day- 5 Normal Class
Week- 2  Day- 1 Normal Class
Week- 2  Day- 2 Doubt Class
Week- 2  Day- 3 Normal Class
Week- 2  Day- 4 Doubt Class
Week- 2  Day- 5 Normal Class
Week- 3  Day- 1 Normal Class
Week- 3  Day- 2 Doubt Class
Week- 3  Day- 3 Normal Class
Week- 3  Day- 4 Doubt Class
Week- 3  Day- 5 Normal Class
Week- 5  Day- 1 Normal Class
Week- 5  Day- 2 Doubt Class
Week- 5  Day- 3 Normal Class
Week- 5  Day- 4 Doubt Class
Week- 5  Day- 5 Normal Class
~/RichBiodegradableLicenses$ []
```
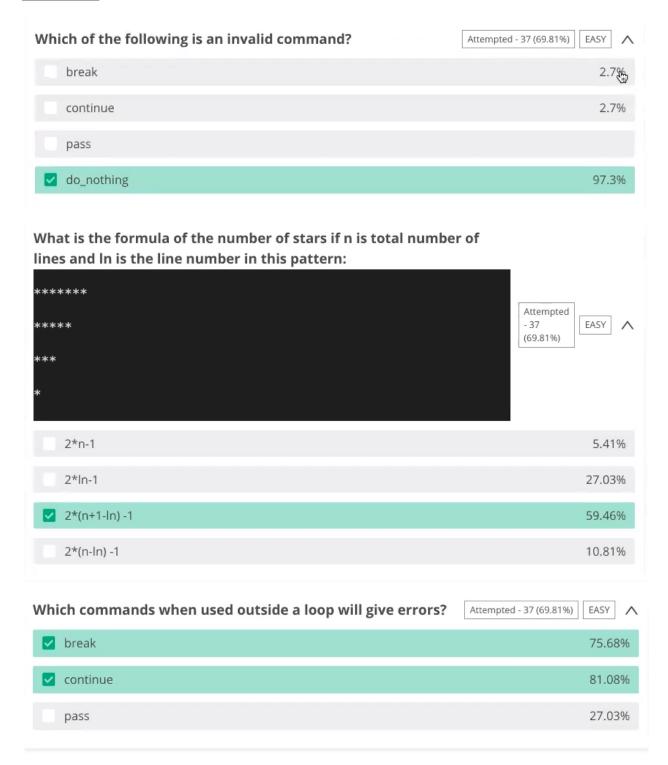
4. Pass:-

Program:-

```
118
119    for week in range(1, 5):
120        for day in range(1, 8):
121            print("Week-", week, " Day-", day, end = "")
122            if day == 1:
123                pass
124            if 1 <= day <= 5:
125                if day%2 == 1:
126                    print(" Normal Class")
127                else:
128                    print(" Doubt Class")
129            else:
130                print(" No Class. Weekend")
131
```

Output:-

```
~/RichBiodegradableLicenses$ python3 lecture13_notes.py
Week- 1  Day- 1 Normal Class
Week- 1  Day- 2 Doubt Class
Week- 1  Day- 3 Normal Class
Week- 1  Day- 4 Doubt Class
Week- 1  Day- 5 Normal Class
Week- 1  Day- 6 No Class. Weekend
Week- 1  Day- 7 No Class. Weekend
Week- 2  Day- 1 Normal Class
Week- 2  Day- 2 Doubt Class
Week- 2  Day- 3 Normal Class
Week- 2  Day- 4 Doubt Class
Week- 2  Day- 5 Normal Class
Week- 2  Day- 6 No Class. Weekend
Week- 2  Day- 7 No Class. Weekend
Week- 3  Day- 1 Normal Class
Week- 3  Day- 2 Doubt Class
Week- 3  Day- 3 Normal Class
Week- 3  Day- 4 Doubt Class
Week- 3  Day- 5 Normal Class
Week- 3  Day- 6 No Class. Weekend
Week- 3  Day- 7 No Class. Weekend
Week- 4  Day- 1 Normal Class
Week- 4  Day- 2 Doubt Class
Week- 4  Day- 3 Normal Class
Week- 4  Day- 4 Doubt Class
Week- 4  Day- 5 Normal Class
Week- 4  Day- 6 No Class. Weekend
Week- 4  Day- 7 No Class. Weekend
~/RichBiodegradableLicenses$
```

Pass doesn't do anything, it let the program run as it is. It doesn't give errors either.

MCQs

Which of the following is an invalid command?

Attempted - 37 (69.81%) | EASY

☐	break	2.7%
☐	continue	2.7%
☐	pass	
☑	do_nothing	97.3%

What is the formula of the number of stars if n is total number of lines and ln is the line number in this pattern:

Attempted - 37 (69.81%) | EASY

```
*******

*****

***

*
```

☐	2*n-1	5.41%
☐	2*ln-1	27.03%
☑	2*(n+1-ln) -1	59.46%
☐	2*(n-ln) -1	10.81%

Which commands when used outside a loop will give errors?

Attempted - 37 (69.81%) | EASY

☑	break	75.68%
☑	continue	81.08%
☐	pass	27.03%

Predict the output:

```
for week in range(1,3):

for day in range(1, 5):

print((week-1)*5+day, end = "")

break
```

☐ 1 2 3 4 5 6 7 8 9 10	2.86%
☐ 1 6 11	8.57%
☑ 1 6	85.71%
☐ 1 \n 6	8.57%