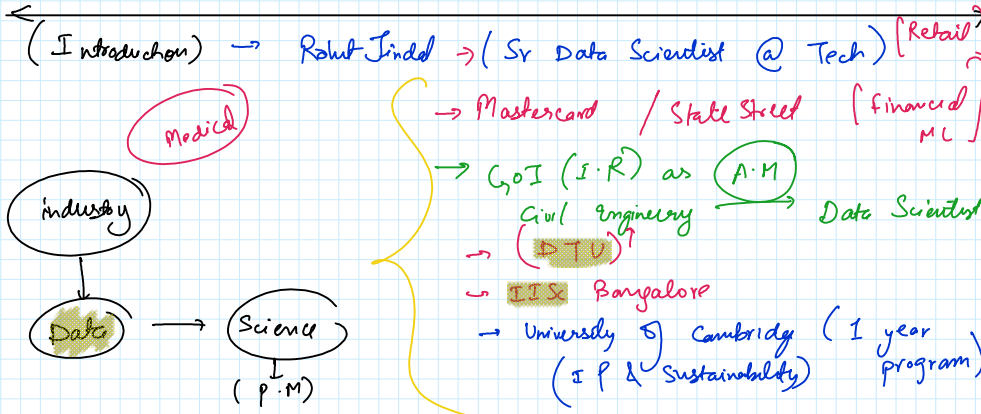


Agenda → (Introduction)

I Jump Statements
→ Pass
→ Continue
→ Break

II Nested Loop (loop inside a loop)

III (GCD) & (LCM) (Connect everything)

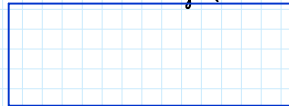


Quick Revision of Loops

For loop

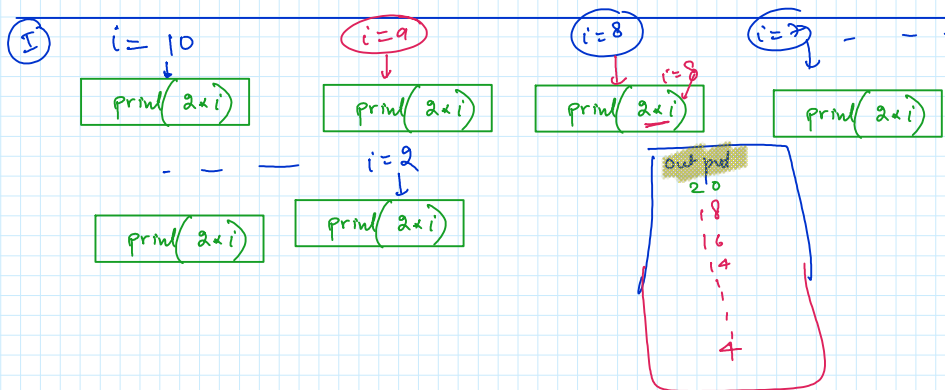
A for loop lets you repeat a block of code for a set number of times.

for i in range(start, stop, step):



for i in range(10, 1, -1):

print(2*i)



while loop

A while loop runs as long as a condition is True. It's like saying, "Keep doing this until something changes."

Ex

count = 5

row = 5

while count > 0:

print("hello")

hello

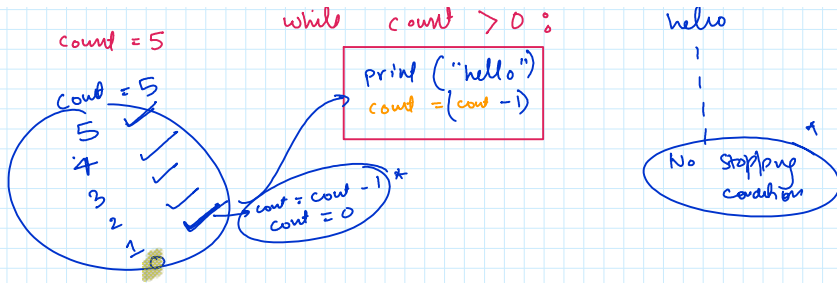
hello

hello

!

!

Ex



Question: Write a code to print the following numbers -

1, 4, 7, 10, 13, 16

1, (+3) 4, (+3) 7, (+3) 10, (+3) 13, (+3) 16

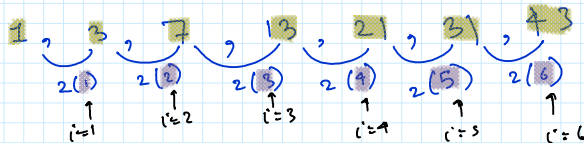
i = 1 increment by 3, till i = 16, or 17

```

for i in range(1, 17, 3):
    if i == 16:
        print(i, end = "")
    else:
        print(i, end = ", ")
  
```

Ques

Question: Write a loop to print the following numbers - 1, 3, 7, 13, 21, 31, 43



num = 1

i = 1

num = 1

i = 1

while (num <= 43):

```

print(num)
num = num + 2(i)
i = i + 1
  
```

Plain English

while num < 44

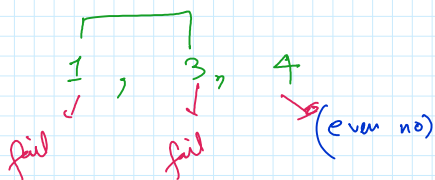
Print (num) & increment num by 2 & increment i by 1

Jump statements

Pass

Does nothing. It's a placeholder for future code.

After two days



Casino (L.V)

(odd → fail)

(even → Reward)

```

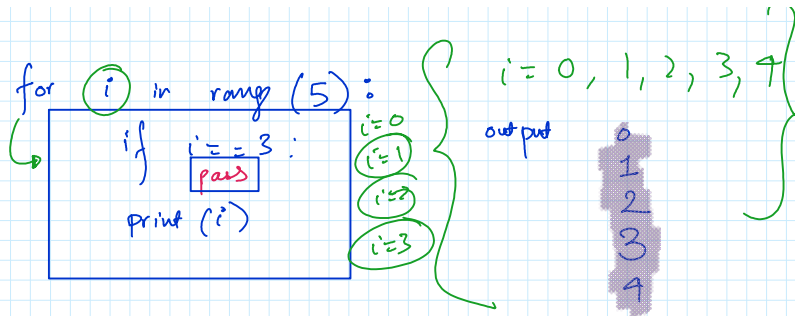
if i % 2 != 0:
    print("fail")
else:
    print("even no.")
  
```

num

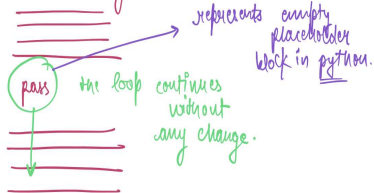
for (i) in range(5):

i = 0, 1, 2, 3, 4

Ques 2

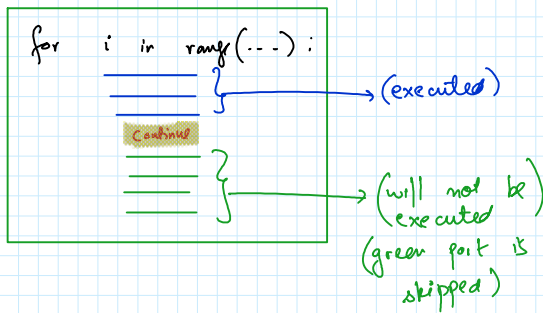


for i in range(...):



continue

if skip the iteration



Break

10:17 PM

What will be the output of the following code snippet?

```

x = 0
while x < 5:
    x += 1
    if x == 3:
        continue
    print(x)
  
```

- 1
- 2
- 4
- 5

Break

Exits the loop entirely.

I for i in range(1, 7):
print(i)

- 1
- 2
- 3
- 4
- 5
- 6

II for i in range(1, 7):
if i == 3:
break
print(i)

i=1 → 1
i=2 → 2
i=3 →

What will be the output of the following code snippet?

```

x = 0
while x < 5:
    x += 1
    if x == 3:
        break
    print(x)
  
```

- 1
- 2

```

while x < 5:
    x += 1
    if x == 3:
        break
    print(x)
print("Loop finished")

```

1
2
X
(Loop finished)

What will be the output of the following code?

```

count = 0
while True:
    if count == 5:
        break
    print(count)
    count += 1

```

Which statement is used to skip the current iteration of a loop and move on to the next iteration?

4 options
Active Duration: (not answered) (30 seconds)

Appears for: 25 Secs

- ☐ A. break
- ☒ B. continue
- ☐ C. pass
- ☐ D. None of these

Nested Loops

(Loop inside a loop)

```

for i in range(3):
    for j in range(3):
        print(i, j)

```

$i=0$ → $j=0 \rightarrow (0,0)$
 $j=1 \rightarrow (0,1)$
 $j=2 \rightarrow (0,2)$
 $i=1$ → $j=0 \rightarrow (1,0)$
 $j=1 \rightarrow (1,1)$
 $j=2 \rightarrow (1,2)$
 $i=2$ → $j=0 \rightarrow (2,0)$
 $j=1 \rightarrow (2,1)$
 $j=2 \rightarrow (2,2)$

$N=3$

(3×3)

$i=0$ * * *
 $i=1$ * * *
 $i=2$ * * *

$N=2$
 (2×2)

* *
* *

$N = \text{int}(\text{input}())$

```

for i in range(N):
    for j in range(N):
        print("x")

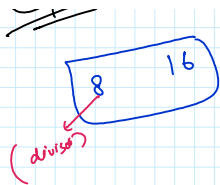
```

$N=4$
 (4×4)
 $i=0$ * * * *
 $i=1$ * * * *
 $i=2$ * * * *
 $i=3$ * * * *

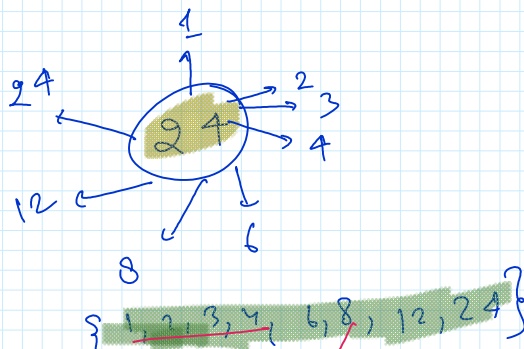
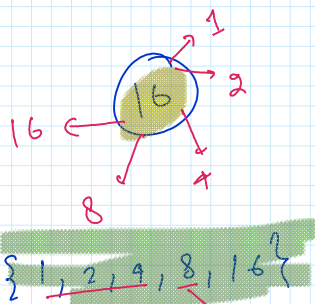
GCD (greatest Common Divisor)

8 16

$\text{GCD}(a, b) = \text{greatest common}$



$(\text{GCD}(a, b) = \text{greatest common divisor})$



max common divisor
(GCD) of
(16, 24)

$$\text{GCD} \leq \min(A, B)$$

$$\begin{pmatrix} * \\ 2, 100 \end{pmatrix}$$

$\text{GCD} \leq 2$ 3, 4, ...

$A = \text{int}(\text{input}())$
 $B = \text{int}(\text{input}())$

* (16, 24)

100% GCD will be ≤ 16 ?
→ Yes

8, 9, 10, 11, 12, 13, 14, 15, 16

(A) (B)
* (16, 64)

```
for i in range(16, 0, -1):
    if A % i == 0 and B % i == 0:
        print(i)
        break
```

A, B
 $X = \min(A, B)$

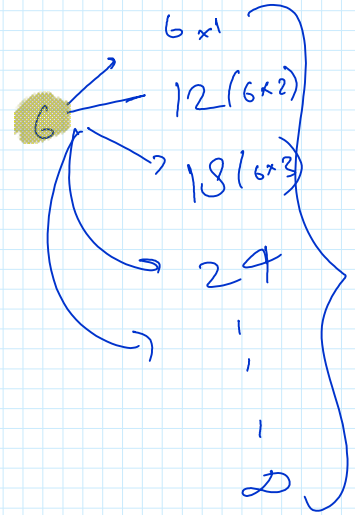
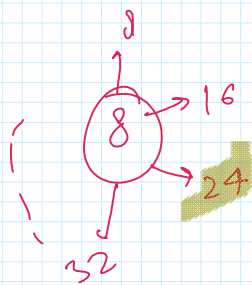
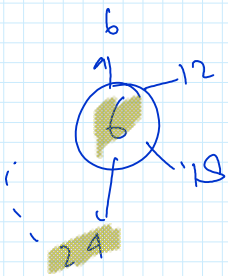
$$X = \min(A, B)$$

```

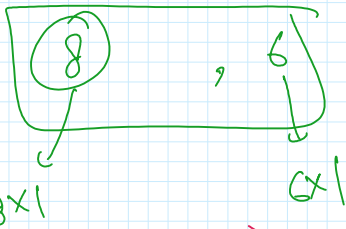
for i in range(X, 0, -1):
    if A % i == 0 and B % i == 0:
        print(i)
        break

```

(LCM → Lowest Common Multiple)



24 is the lowest number which is common multiple of 8 and 6



$$\text{LCM}(A, B) \geq \max(A, B)$$

8, 9, ..., 12, ..., 24

$$X = \max(A, B)$$

LCM will

```

while True:
    if X % A == 0 and X % B == 0:
        print(X)
        break
    X = X + 1

```

1
2
3
1
1
7

8, 6

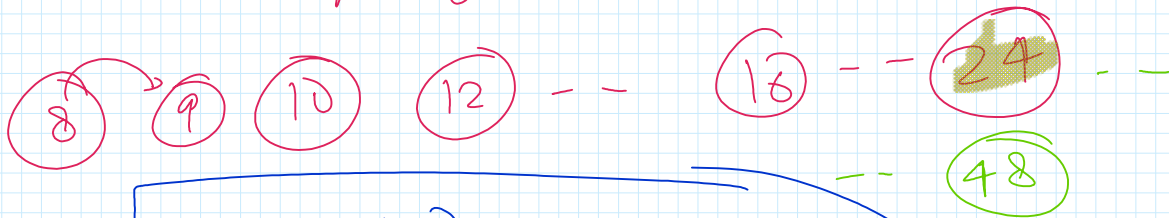
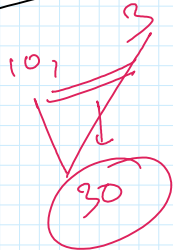
LCM

240

can never be multiple of (6 and 7)

24

LCM
for loop



```

x = max(a, b)
y = a * b
for i in range(x, y + 1):
    if x % A == 0 and x % B == 0:
        print(x)
        break
    
```

$T = \text{int}(\text{input}(\text{"no of test cases"}))$

for i in range(T):

$N = \text{int}(\text{input}(\text{"Enter the number"}))$

if $N == 0$:

print(1)

else

print(len(str(N)))

$N = 123$

str(N)
= "123"

len("123")

3