What are loops?

- A loop is a control structure that is used to perform a set of instructions for a specific number of times.

Loops are a programming element that repeat a portion of code a set number of times until the desired process is complete. Repetitive tasks are common in programming, and loops are essential to save time and minimize errors.

```
print(1 <= 5)
```

```
True
```

```
x = 2
x += 1
print(x)
```

```
3
```

```
# initialization
count = 0
# When loop should run
while count <= 5:
    print("Helicopter Shot")
    count += 1   # Updation part
```

```
Helicopter Shot
Helicopter Shot
Helicopter Shot
Helicopter Shot
Helicopter Shot
Helicopter Shot
```

```
# Infinite loop
# count = 1
# while count <= 10:
#     print(10)
```

While loop

- The while loop keeps iterating over a certain set of operations as long as a certain condition holds True.

```
## Shopping list example
```

image

```
## print numbers from 1 to 10

# Quiz

count = 1
while count <= 10:
    print(count)
    count += 1
```

```
1
2
3
4
5
6
7
8
9
10
```

```
count = 1
while count < 10:
    print(count)
    count += 1
```

```
1
2
3
4
5
6
7
8
9
```

```
## print numbers from 10 to 1

count = 10
while count >= 1:
    print(count)
    count -= 1
```

```
10
9
8
7
6
5
4
3
2
1
```

```
count = 10
while count <= 1:
    print(count)
    count -= 1
```

```
## print all even numbers between 2 to 10

# check for a number if it is even

# Quiz 2

count = 3
if count % 2 == 0:
    print(True)

count = 2
while count <= 10:
    if count % 2 == 0:
        print(count)
    count += 1
```

```
2
4
6
8
10
```

```
count = 2
while count <= 10:
```

```
    print(count)
    count += 2
```

```
2
4
6
8
10
```

```
N = 2
while i <= N:
    print(i)
    i += 1

print(5)
```

```
---------------------------------------------------------------------------
-----
NameError                                 Traceback (most recent call
last)
/var/folders/zn/hkv6562d6_d30glfs8yc76900000gn/T/ipykernel_22856/17336
1336.py in <module>
      1 N = 2
----> 2 while i <= N:
      3     print(i)
      4     i += 1
      5

NameError: name 'i' is not defined
```

```
count = 2
while count <= 10:
    if count % 2 == 0:
        print(count)
        # count += 1
    count += 1
```

```
2
4
6
8
10
```

```
## Print all Odd number from 1 to 10
```

```python
# odd

count = 1
while count <= 10:
    print(count)
    count += 2
```

```
1
3
5
7
9
```

```python
N = 2
i = 0
while i <= N:
    print(i)
    i += 1

print(5)
```

```
0
1
2
5
```

```python
# Print all even numbers from 1 to 10 in a single line

# Go for print statement

n = int(input())
i = 1

while i <= n:
    print(i, end="")
    i += 1
```

```
 10
```

```
12345678910
```

```
n = int(input())
i = 1

while i <= n:
    print(i, end='\n')
    i += 1
```

```
 10
```

```
1
2
3
4
5
6
7
8
9
10
```

```
n = int(input())
i = 1

while i <= n:
    print(i, end=" ")
    i += 1
```

```
 10
```

```
1 2 3 4 5 6 7 8 9 10
```

```
n = int(input())
i = 1

while i <= n:
    print(i, end=",")
    i += 1
```

```
 10
```

```
1,2,3,4,5,6,7,8,9,10,
```

```
n = int(input())
i = 1

while i <= n:
    print(i, end=" rahul ")
    i += 1
```

```
 10
```

```
1 rahul 2 rahul 3 rahul 4 rahul 5 rahul 6 rahul 7 rahul 8 rahul 9
rahul 10 rahul
```

```
n = int(input())
i = 1

while i <= n:
    print(i, end=" -> ")
    i += 1
```

```
 10
```

```
1 -> 2 -> 3 -> 4 -> 5 -> 6 -> 7 -> 8 -> 9 -> 10 ->
```

```
print("a",end="b")
print("b", end="c")
```

```
abbc
```

```
print("a")
print("b", end="c")
print("d")
print("e")
```

```
a
bcd
e
```

```
print("Hi how are you", end=" ")
print("Hi I am doing well!!")
```

```
Hi how are you Hi I am doing well!!
```

```
# print multiple table of 4 in a single line

count = 4
while count <= 40:
    print(count, end=" ")
    count += 4
```

```
4 8 12 16 20 24 28 32 36 40
```

```python
# print multiple table of N

n = int(input())
count = n

while count <= n * 10:
    print(count, end=" ")
    count += n
```

```
 4

4 8 12 16 20 24 28 32 36 40
```

```python
# Taking T inputs from user

# 3 inputs
n = input("Input for n")
n1 = input("Input for n1")
n2 = input("Input for n2")
```

```
Input for n Rahul
Input for n1 janghu
Input for n2 Akash
```

```python


T = int(input())
count = 0
while count < T:
    n = input()
    count += 1
```

```
 5
 1
 2
 3
 4
 5
```

```
# DO hit and Trial at home under the supervision of Stackoverflow


T = int(input())
count = 0
while count < T:
    n = int(input("Table:"))
    count += 1
    # Next code is for table of n
    i = n
    while i <= n * 10:
        print(i, end=" ")
        i += n
    print()
```

```
 3
Table: 5

5 10 15 20 25 30 35 40 45 50

Table: 4

4 8 12 16 20 24 28 32 36 40

Table: 3

3 6 9 12 15 18 21 24 27 30
```

```
# not equal !=
```