# While Loop

Python while loop is used to run a block code until a certain condition is met.

The syntax of while loop is:

> **initialization**
> **while condition:**
>   **#body of while**
>   **increment/decrement**

1. **A while loop evaluates the condition**
2. **If the condition evaluates to True, the code inside the while loop is executed.**
3. **condition is evaluated again.**
4. **This process continues until the condition is False.**
5. **When condition evaluates to False, the loop stops.**
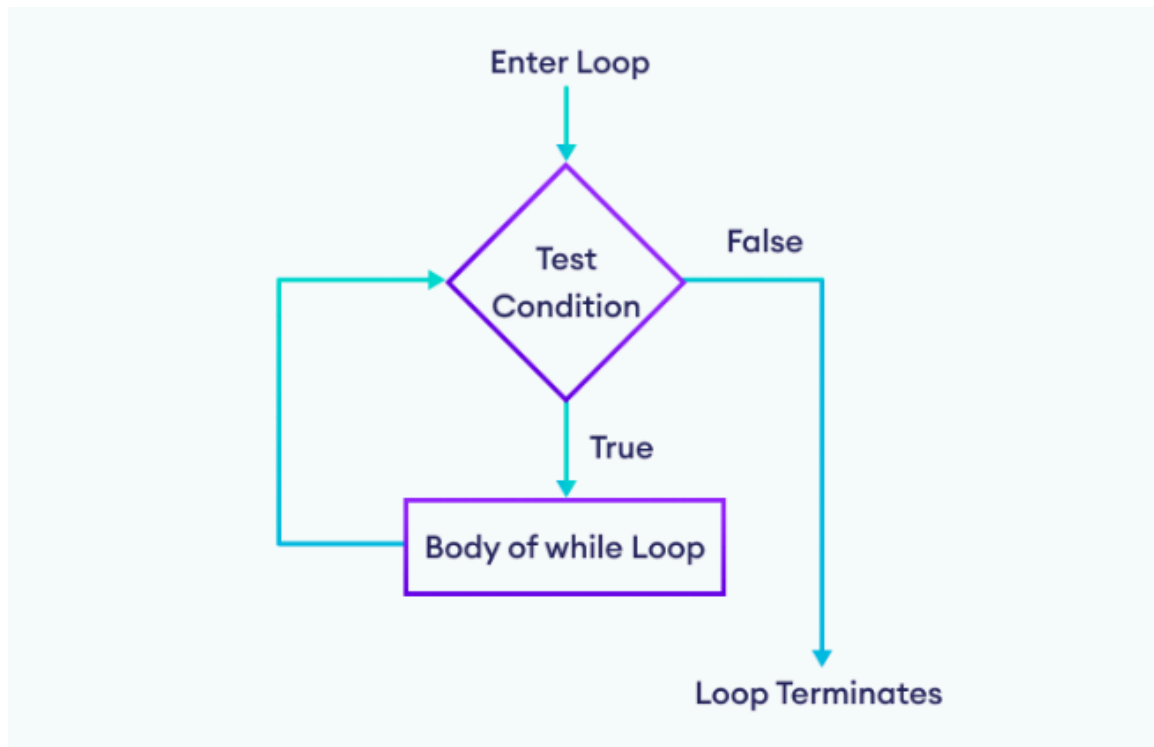

```
In [1]:  i = 1            #initialize
         while i<=5:      #while condition
```

```
    print(i)        #block of code
    i+=1            #increment/decrement
```

1
2
3
4
5

Variable	Condition: `i <= n`	Action
`i = 1` `n = 5`	True	`1` is printed. `i` is increased to **2**.
`i = 2` `n = 5`	True	`2` is printed. `i` is increased to **3**.
`i = 3` `n = 5`	True	`3` is printed. `i` is increased to **4**.
`i = 4` `n = 5`	True	`4` is printed. `i` is increased to **5**.
`i = 5` `n = 5`	True	`5` is printed. `i` is increased to **6**.
`i = 6` `n = 5`	False	The loop is terminated.

In [2]:
```python
i = 1
while i<=100:
    print(i,end=' ')
    i+=1
```

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59
60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87
88 89 90 91 92 93 94 95 96 97 98 99 100

In [4]:
```python
i = 1
while i<=100:
    print(i,end=' ')
    i+=2
```

1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45 47 49 51 53 55 57 59
61 63 65 67 69 71 73 75 77 79 81 83 85 87 89 91 93 95 97 99

In [5]:
```python
i = 0
while i<=100:
    print(i,end=' ')
    i+=2
```

```
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58
60 62 64 66 68 70 72 74 76 78 80 82 84 86 88 90 92 94 96 98 100
```

In [6]:
```python
i = 1
while i<=100:
    if i%2==0:
        print(i,end=' ')
    i+=1
```

```
2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 6
0 62 64 66 68 70 72 74 76 78 80 82 84 86 88 90 92 94 96 98 100
```

In [7]:
```python
i = 100
while i>=1:
    print(i,end=' ')
    i-=1
```

```
100 99 98 97 96 95 94 93 92 91 90 89 88 87 86 85 84 83 82 81 80 79 78 77 76 75 74 73
72 71 70 69 68 67 66 65 64 63 62 61 60 59 58 57 56 55 54 53 52 51 50 49 48 47 46 45
44 43 42 41 40 39 38 37 36 35 34 33 32 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17
16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
```

In [ ]:

WAPP to print numbers that are divisible by 5 between 100-200 in reverse order using while loop.

In [ ]:

In [ ]:

Infinite while Loop in Python

```
If the condition of a loop is always True, the loop runs for
infinite times (until the memory is full). For example.
```

This is an infinite loop

```
i = 1
while True:
    print(i)
    i += 1
```

Wapp to print multiplication table of entered number using while loop.

In [9]:
```python
n = int(input("Enter a number : "))

i = 1
while i<=10:
    print(n,'X',i,'=',n*i)
    i+=1
```

```
15 X 1 = 15
15 X 2 = 30
15 X 3 = 45
15 X 4 = 60
15 X 5 = 75
15 X 6 = 90
15 X 7 = 105
15 X 8 = 120
15 X 9 = 135
15 X 10 = 150
```

In [10]:
```python
#to reverse a string
a = 'Apple🍎'
print(a)
```

```
Apple🍎
```

In [11]:
```python
a[::-1]
```

Out[11]:
```
'🍎elppA'
```

In [12]:
```python
# to reverse a list
l = [2,6,4,8]
l.reverse()
print(l)
```

```
[8, 4, 6, 2]
```

In [ ]:

Wapp to reverse the digit of any integer using while loop.

In [ ]:

Wapp to recieve only 'rock','paper',or 'scissor' as input from user and print the same. if input is other than 'rock','paper',or 'scissor then ask user for input again and again.

In [ ]: