This script is about control flow statements

```python
In [ ]:  # conditonal operators in python
         # >, <, >=, <=, ==, !=
         # logical operators in python
         # and, or, not
         # control flow statements in python
         # if, elif, else
```

```python
In [3]:  food = ['samosa', 'samosa', 'pizza', 'burger', 'pasta']
```

```python
In [4]:  # for loop to iterate through the list
         for item in food:
             print(item)
```

```
samosa
samosa
pizza
burger
pasta
```

```python
In [1]:  # while loop to print numbers from 0 to 5
         i = 0
         while i < 6:
             print(i)
             i += 1
```

```
0
1
2
3
4
5
```

```python
In [6]:  # control statement control with break
         for item in food:
             if item == 'pasta':
                 break
             print(item)
```

```
samosa
pizza
burger
```

```python
In [7]:  # control statement control with continue
         for item in food:
             if item == 'burger':
                 continue
             print(item)
```

```
samosa
pizza
pasta
```

```python
In [8]:  # control flow statements with pass
         for item in food:
             if item == 'pasta':
                 pass
             print(item)
```

```
samosa
pizza
burger
pasta
```

```python
In [9]:  #  Nested if statement
         input_str = input("Enter a number: ")
         num = int(input_str)
         if num > 0:
             if num % 2 == 0:
                 print(f"{num} is a positive even number")
             elif num % 2 != 0:
                 print(f"{num} is a positive odd number")
             else:
                 print(f"{num} is a positive odd number")
```

```
66 is a positive even number
```

for loop and while loop

```python
In [10]:  list = ["hanzala", "ali", "umer", "hassan", "huzaifa"]
          for name in list:
              print(name)
```

```
hanzala
ali
umer
hassan
huzaifa
```

```python
In [11]:  # while loop to print numbers from 0 to 5
          i = 0
          while i < 6:
              print(i)
              i += 1
```

```
0
1
2
3
4
5
```

```python
In [12]:  cup_of_chai = 0
          while cup_of_chai < 5:
              print("Take a sip of chai")
              cup_of_chai += 1

          print("I have had enough chai for now.")
```

```
Take a sip of chai
Take a sip of chai
Take a sip of chai
Take a sip of chai
Take a sip of chai
I have had enough chai for now.
```

break and continue

```python
In [19]: cup_of_chai = 0
         while cup_of_chai < 5:
             cup_of_chai += 1
             print("I want more chai.")
             if cup_of_chai == 3:
                 print("I am full now, no more chai.")
                 break
             print("I have had", cup_of_chai, "cups of chai.")
```

```
I want more chai.
I have had 1 cups of chai.
I want more chai.
I have had 2 cups of chai.
I want more chai.
I am full now, no more chai.
```

continue

```python
In [20]: cup_of_chai = 0
         while cup_of_chai < 5:
             cup_of_chai += 1
             print("I want more chai.")
             if cup_of_chai == 3:
                 print("I am full now, no more chai.")
                 continue
             print("I have had", cup_of_chai, "cups of chai.")
```

```
I want more chai.
I have had 1 cups of chai.
I want more chai.
I have had 2 cups of chai.
I want more chai.
I am full now, no more chai.
I want more chai.
I have had 4 cups of chai.
I want more chai.
I have had 5 cups of chai.
```

Loop with range

```python
In [21]: for i in range(1, 11):
             print("i have had ", i, "cups of chai.")
```

```
i have had  1 cups of chai.
i have had  2 cups of chai.
i have had  3 cups of chai.
i have had  4 cups of chai.
i have had  5 cups of chai.
i have had  6 cups of chai.
i have had  7 cups of chai.
i have had  8 cups of chai.
i have had  9 cups of chai.
i have had  10 cups of chai.
```

In [22]:
```python
for i in range(1, 11, 2):
    print("i have had ", i, "cups of chai.")
```

```
i have had  1 cups of chai.
i have had  3 cups of chai.
i have had  5 cups of chai.
i have had  7 cups of chai.
i have had  9 cups of chai.
```

infinite loop

In [ ]:
```python
while True:
    print("This is an infinite loop.")
    break #be ware of infinite loops
```

```
This is an infinite loop.
```

In [27]:
```python
# anmpther way of handling infinite loop is by using a counter
count = 0
while True:
    print("This is loop number", count)
    count += 1
    if count == 5:
        break
```

```
This is loop number 0
This is loop number 1
This is loop number 2
This is loop number 3
This is loop number 4
```

pass statement and continue statement and difference in them.

In [ ]:
```python
# continune mai ignore hoti matlab skip hoti name se jese nahi k nahi hogi skip
cup_of_chai = 0
while cup_of_chai < 5:
    cup_of_chai += 1
    print("I want more chai.")
    if cup_of_chai == 3:
        print("I am full now, no more chai.")
        continue
    print("I have had", cup_of_chai, "cups of chai.")
```

```
I want more chai.
I have had 1 cups of chai.
I want more chai.
I have had 2 cups of chai.
I want more chai.
I am full now, no more chai.
I want more chai.
I have had 4 cups of chai.
I want more chai.
I have had 5 cups of chai.
```

In [ ]:
```python
# passs mai ignore nae hoti matlab skip nae hoti name se jese lagta
cup_of_chai = 0
while cup_of_chai < 5:
    cup_of_chai += 1
    print("I want more chai.")
    if cup_of_chai == 3:
        print("I am full now, no more chai.")
        pass
    print("I have had", cup_of_chai, "cups of chai.")
```

```
I want more chai.
I have had 1 cups of chai.
I want more chai.
I have had 2 cups of chai.
I want more chai.
I am full now, no more chai.
I have had 3 cups of chai.
I want more chai.
I have had 4 cups of chai.
I want more chai.
I have had 5 cups of chai.
```

exception handling (try, except, finally)

In [30]:
```python
try:
    print("Hello")
    print(10 / 0)
except ZeroDivisionError:
    print("Error: Division by zero is not allowed.")
finally:
    print("This code will run anyway.")
```

```
Hello
Error: Division by zero is not allowed.
This code will run anyway.
```

examples of control flow statements

In [45]:
```python
# for loop example

for num in range(5):
    print(num)
```

```
0
1
2
3
4
```

In [44]:
```python
# example two
for i in range(1,6):
    print(i * i)
```

```
1
4
9
16
25
```

In [37]:
```python
# ex no 3
name = "Hanzala"
for char in name:
    print(char)
```

```
H
a
n
z
a
l
a
```

In [49]:
```python
# # ex no 4
# i = 1
# for i in range(1, 20):
#     if i % 2 == 0:
#         print(f"{i} is even")
#     else:
#         print(f"{i} is odd")

# better way to check even odd
for i in range(1, 21, 2):
    print(f"{i} is odd")
for i in range(2, 21, 2):
    print(f"{i} is even")
```

```
1 is odd
3 is odd
5 is odd
7 is odd
9 is odd
11 is odd
13 is odd
15 is odd
17 is odd
19 is odd
2 is even
4 is even
6 is even
8 is even
10 is even
12 is even
14 is even
16 is even
18 is even
20 is even
```

In [47]:
```python
# ex 5
num = 1
for i in range(10, 1):
    print(num)
```

In [52]:
```python
total = 0
for i in range(1, 11):
    total += i
print("Sum:", total)
```

```
Sum: 55
```

In [54]:
```python
for i in range(1, 11):
    print("5 x", i, "=", 5 * i)
```

```
5 x 1 = 5
5 x 2 = 10
5 x 3 = 15
5 x 4 = 20
5 x 5 = 25
5 x 6 = 30
5 x 7 = 35
5 x 8 = 40
5 x 9 = 45
5 x 10 = 50
```

In [ ]:
```python
for i in range(10, 0, -1):
    print(i)

for i in range(1, 10):
    print("  ")
```

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

In [77]:
```python
text = "Hello World"
for ch in text:
    if ch.lower() in 'aeiou':
        print(ch)
```

```
e
o
o
```

In [126...
```python
rows = 5
for i in range(rows, 0, -1):
    print(" " * (rows - i) + "*" * (2 * i - 1))
```

```
*********
 *******
  *****
   ***
    *
```

ye mujhe pyramid ki log build krrne mai help kiya

While loop ki examples

In [133...
```python
# ex 1
i = 1
while i<=5:
    print(i)
    i += 1
```

```
1
2
3
4
5
```

In [ ]:
```python
# ex 2
i = 1
while i <=10:
    # if i % 2 == 0:
```

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

```
2
4
6
8
10
```

In [ ]:
```python
# ex 3
password = ""
while password != "1234":
    password = input("Enter password: ")

print("Access granted!")
```

Access granted!

In [141...
```python
# ex 3
i = input("Enter a number: ")
while i != '1234':
    i = input("Wrong number, try again: ")
print("Correct number entered!")
```

Correct number entered!

In [155...
```python
# ex 4
i = 1
while i <= 10:
    print("5 x", i, "=", 5 * i)
    i += 1
```

```
5 x 1 = 5
5 x 2 = 10
5 x 3 = 15
5 x 4 = 20
5 x 5 = 25
5 x 6 = 30
5 x 7 = 35
5 x 8 = 40
5 x 9 = 45
5 x 10 = 50
```

In [144...
```python
# ex 4
i = 1
while i <= 10:
    print(5 * i)
    i += 1
```

```
5
10
15
20
25
30
35
40
45
50
```

```python
# ex 5

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

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