Exercise 96:

**1. Function Definition:**

def calculate(N):

S = 1

i = 1

while i <= N:

if i % 3 == 0:

S \*= i

i += 1

return S

* **S = 1**: Initializes S to 1.
* **i = 1**: Initializes i to 1.
* **while i <= N:**: This loop runs while i is less than or equal to N.
  + **if i % 3 == 0:**: If i is divisible by 3 (i.e., remainder is 0), then:
    - **S \*= i**: Multiply S by i.
  + **i += 1**: Increment i by 1 after each iteration.

The function returns S after the loop ends.

**2. Main Program Logic:**

N = 8

for i in range(1, 10):

if i > N:

print("====" + str(calculate(i)))

* **N = 8**: Sets N to 8.
* The for loop iterates i from 1 to 9.
  + **if i > N:**: If i is greater than N (i.e., 8), it calls the calculate(i) function and prints the result.

**Processing Logic:**

The calculate(N) function multiplies S by the values of i that are divisible by 3, up to N. Let's look at the results of calculate(i) when i > 8 (i.e., 9 in this case).

For i = 9, the function calculate(9) will:

Start with S = 1 and iterate from i = 1 to i = 9.

For i = 3, since 3 % 3 == 0, S \*= 3 (now S = 3).

For i = 6, since 6 % 3 == 0, S \*= 6 (now S = 18).

For i = 9, since 9 % 3 == 0, S \*= 9 (now S = 162).

The loop ends, and the function returns 162.

**Output:**

Since the only value of i greater than 8 is i = 9, the program will print: ====162