```python
# Grade Calculator using Nested Conditions

marks = float(input("Enter your marks (0 - 100): "))

if marks >= 0 and marks <= 100:
    if marks >= 90:
        grade = "A+"
    else:
        if marks >= 80:
            grade = "A"
        else:
            if marks >= 70:
                grade = "B"
            else:
                if marks >= 60:
                    grade = "C"
                else:
                    if marks >= 50:
                        grade = "D"
                    else:
                        grade = "Fail"
    print("Your Grade is:", grade)
else:
    print("Invalid marks! Please enter marks between 0 and 100.")
```

Run

1

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main.py | **Output**

```
Enter your marks (0 - 100): 85
Your Grade is: A


=== Code Execution Successful ===
```

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main.py   Output

```python
# Take input from the user
a = float(input("Enter first side: "))
b = float(input("Enter second side: "))
c = float(input("Enter third side: "))

# Check if it is a valid triangle
if a + b > c and a + c > b and b + c > a:
    if a == b == c:
        print("Equilateral Triangle")
    elif a == b or b == c or a == c:
        print("Isosceles Triangle")
    else:
        print("Scalene Triangle")
else:
    print("Invalid Triangle")
```

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main.py	**Output**

```
Enter first side: 2
Enter second side: 2
Enter third side: 1
Isosceles Triangle

=== Code Execution Successful ===
```

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main.py | Output

```python
a = float(input("Enter first number: "))
b = float(input("Enter second number: "))

# Arithmetic operations
print("Addition:", a + b)
print("Subtraction:", a - b)
print("Multiplication:", a * b)

# To avoid division by zero
if b != 0:
    print("Division:", a / b)
    print("Modulus:", a % b)
else:
    print("Division and Modulus not possible
        (division by zero)")

print("Exponentiation:", a ** b)
print("Floor Division:", a // b if b != 0
    else "Not possible")
```

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main.py   Output

```
Enter first number: 1
Enter second number: 3
Addition: 4.0
Subtraction: -2.0
Multiplication: 3.0
Division: 0.333333333333333
Modulus: 1.0
Exponentiation: 1.0
Floor Division: 0.0

=== Code Execution Successful ===
```

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| main.py | Output |

```python
a = bool(int(input("Enter first value (0 or 1): ")))
b = bool(int(input("Enter second value (0 or 1): ")))

print("\nLogical AND (a and b):", a and b)
print("Logical OR (a or b):", a or b)
print("Logical NOT of a (not a):", not a)
print("Logical NOT of b (not b):", not b)
```

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main.py | Output

```
Enter first value (0 or 1): 1
Enter second value (0 or 1): 2

Logical AND (a and b): True
Logical OR (a or b): True
Logical NOT of a (not a): False
Logical NOT of b (not b): False


=== Code Execution Successful ===
```

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main.py	Output

```python
1   a=1
2   b=10.5
3   c =1+5j
4   print(a)
5   print(type(a))
6   print(type(b))
7   print(type(c))
```

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main.py   Output

```
1
<class 'int'>
<class 'float'>
<class 'complex'>

=== Code Execution Successful ===
```

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main.py   Output

```python
a= b= c = 1
print(a)
print(type(a))
```

Run

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main.py   Output

```
1
<class 'int'>


=== Code Execution Successful ===
```