Leap Year

In [1]:
```
year = 2000
if (year%400==0) and (year%100==0):
    print(f'{year} is a leap year')
elif (year%4==0) and (year%100!=0):
    print(f'{year} is a leap year')
else:
    print(f'{year} is not a leap year')
```

```
2000 is a leap year
```

Prime Number

In [5]:
```
num = 407
if num == 1:
    print(num, "is not a prime number")
elif num>1:
    for i in range(2, num):
        if(num%i==0):
            print(num, "is not a prime number")
            break
    else:
        print(num, "is a prime number")
else:
    print(num, "is not a prime number")
```

```
407 is not a prime number
```

Second largest number in array

In [6]:
```
x = [1, 3, 4, 6, 5, 2]
x.sort()
print(x[-2])
```

```
5
```

Odd or Even

In [20]:
```
x = 10
if x%2==0:
    print(x, "is even")
else:
    print(x, "is odd")
# print("Even" if x%2==0 else "Odd")
```

```
10 is even
```

Palindrome

In [9]:
```
x = "malayalam"
if x==x[::-1]:
    print("Palindrome")
else:
    print("Not a palindrome")
```

```
Palindrome
```

Fibonacci series

In [11]:
```
n = 10
a = 1
b = 2
for i in range(0, n):
    print(a, end=" ")
    c = a+b
    a = b
    b = c
```

```
1 2 3 5 8 13 21 34 55 89
```

Anagram

In [14]:
```
st1 = "Care"
st2 = "Race"
st1 = st1.lower()
st2 = st2.lower()
if len(st1)==len(st2):
    if sorted(st1)==sorted(st2):
        print("Anagram")
    else:
        print("Not anagram")
else:
    print("Not anagram")
```

```
Anagram
```

In [27]:
```
i = 1
while i<=6:
    for j in range(1,i):
        print(j, end=" ")
    print(end="\n")
    i+=1
```

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

In [16]:
```
i = 6
while i>=1:
    for j in range(1,i):
        print(j, end=" ")
    print(end="\n")
    i-=1
```

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

In [17]:
```
i = 6
while i>=1:
    for j in range(5,i-1, -1):
        print(j, end=" ")
#         print("*", end=" ")
    print(end="\n")
    i-=1
```

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

In [18]:
```
i = 1
while i<=6:
    for j in range(5,i-1,-1):
        print(j, end=" ")
    print(end ="\n")
    i+=1
```

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

In [25]:
```
n = 5
for i in range(1, n + 1):
    for _ in range(n - i):
        print(" ", end="")
    for j in range(1, i + 1):
        print(j, end=" ")

    print(end="\n")
```

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

In [23]:
```
n = 5
for i in range(1, n+1):
    for _ in range(i - 1):
        print(" ", end="")
    for j in range(i,n+1):
        print(j, end=" ")
    print(end="\n")
```

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

In [26]:
```
n = 5
for i in range(n, 0, -1):
    for _ in range(i - 1):
        print(" ", end="")
    for j in range(i, n + 1):
        print(j, end=" ")
    print(end="\n")
```

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

Sum of natural Numbers

In [31]:
```
num = int(input("Enter a positive number: "))
sums = 0
for i in range(1, n+1):
    sums += i
print(sums)
```

```
Enter a positive number: 5
15
```

Substring using loop

In [12]:
```
st = "Maths"
index = 0
for i in st:
    print(st[:index+1])
    index+=1
```

```
M
Ma
Mat
Math
Maths
```

In [19]:
```
st = "Maths"
length = len(st)
for i in range(length, 0, -1):
    print(st[:i])
```

```
Maths
Math
Mat
Ma
M
```