Warm up Problem

Reverse the number

```python
n = 1523

while n > 0:
    dig = n % 10
    n = n // 10
    print(dig)
```

```
3
2
5
1
```

```python
# rev

n = 1523

rev = 0
while n > 0:
    dig = n % 10
    rev = rev * 10 + dig
    n = n // 10
print(rev)
```

```
3251
```

```python
n = 153000

rev = 0
while n > 0:
    dig = n % 10
    rev = rev * 10 + dig
    n = n // 10
print(rev)
```

```
351
```

```python
n = 1234

rev = 0
while n > 0:
    dig = n % 10
    rev = rev * 10 + dig
    n = n // 10
print(rev)
```

4321

Pattern

```python
for i in range(4):
    print(i)
```

```
0
1
2
3
```

```python
n = int(input())

for i in range(1, n+1):
    # how many spaces for each row
    for j in range(n-i):
        print(" ", end="")
    # How many stars for each row
    for k in range(i):
        print("*", end="")
    # after every row print a new line
    print()
```

```
 3

   *
  **
 ***
```

Pattern 2

```python
n = int(input())

for i in range(1, n+1):
    # How many spaces for each row
    for j in range(i-1):
        print(" ", end="")
    # How many stars
    for k in range(n - i + 1):
```

```
        print("*", end="")
    print()
```

 4

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

```
n = int(input())

for i in range(1, n+1):
    # How many stars
    for k in range(n - i + 1):
        print("*", end="")
    # How many spaces for each row
    for j in range(i-1):
        print(" ", end="")

    print()
```

 4

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

Upper part of hollow diamond

```
n = int(input())

for i in range(1, n+1):
    # stars
    for j in range(n-i+1):
        print("*", end="")
    # total spaces
    for k in range(2*(i-1)):
        print(" ", end="")
    # remaining stars
    for m in range(n-i+1):
        print("*", end="")
    print()
```

```
  3

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

Lower part of Hollow diamond

```python
n = int(input())

for i in range(1, n+1):
    # stars
    for j in range(i):
        print("*", end="")
    # total spaces
    for k in range(2*(n-i)):
        print(" ", end="")
    # remaining stars
    for m in range(i):
        print("*", end="")
    print()
```

```
  4

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

Full Hollow diamond

```python
n = int(input())

for i in range(1, n+1):
    # stars
    for j in range(n-i+1):
        print("*", end="")
    # total spaces
    for k in range(2*(i-1)):
        print(" ", end="")
    # remaining stars
    for m in range(n-i+1):
        print("*", end="")
    print()
for i in range(1, n+1):
```

```python
    # stars
    for j in range(i):
        print("*", end="")
    # total spaces
    for k in range(2*(n-i)):
        print(" ", end="")
    # remaining stars
    for m in range(i):
        print("*", end="")
    print()
```

```
 3
```

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

```python
n = int(input())

for i in range(1, n):
    # stars
    for j in range(n-i+1):
        print("*", end="")
    # total spaces
    for k in range(2*(i-1)):
        print(" ", end="")
    # remaining stars
    for m in range(n-i+1):
        print("*", end="")
    print()
for i in range(1, n+1):
    # stars
    for j in range(i):
        print("*", end="")
    # total spaces
    for k in range(2*(n-i)):
        print(" ", end="")
    # remaining stars
    for m in range(i):
        print("*", end="")
    print()
```

```
 3
```

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

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

Filled diamond

```python
n = int(input())

for i in range(1, n):
    # stars
    for j in range(n-i+1):
        print(" ", end="")
    # total spaces
    for k in range(2*(i-1)):
        print("*", end="")
    # remaining stars
    for m in range(n-i+1):
        print(" ", end="")
    print()
for i in range(1, n+1):
    # stars
    for j in range(i):
        print(" ", end="")
    # total spaces
    for k in range(2*(n-i)):
        print("*", end="")
    # remaining stars
    for m in range(i):
        print(" ", end="")
    print()
```

```
 5
```

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

```python
# HW add 1 star at top and bottom
```

Doubts

```python
res = 0
for i in range(1, 6):
    res += i
    print(res, end=' ')
```

1 3 6 10 15