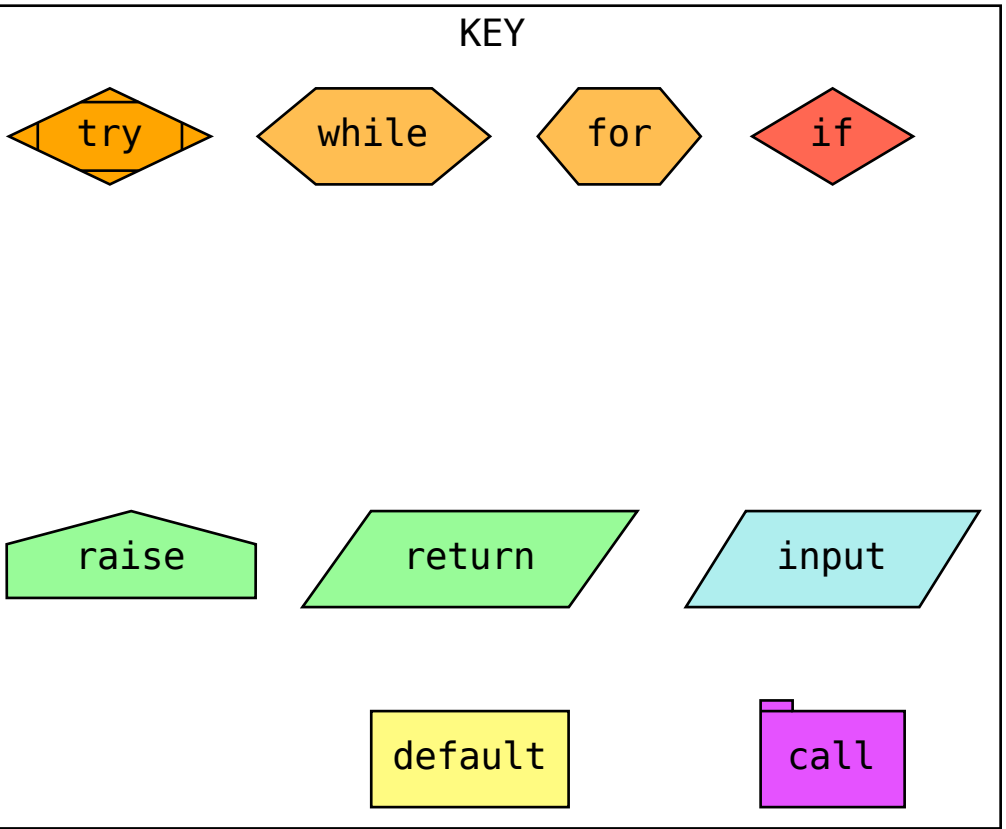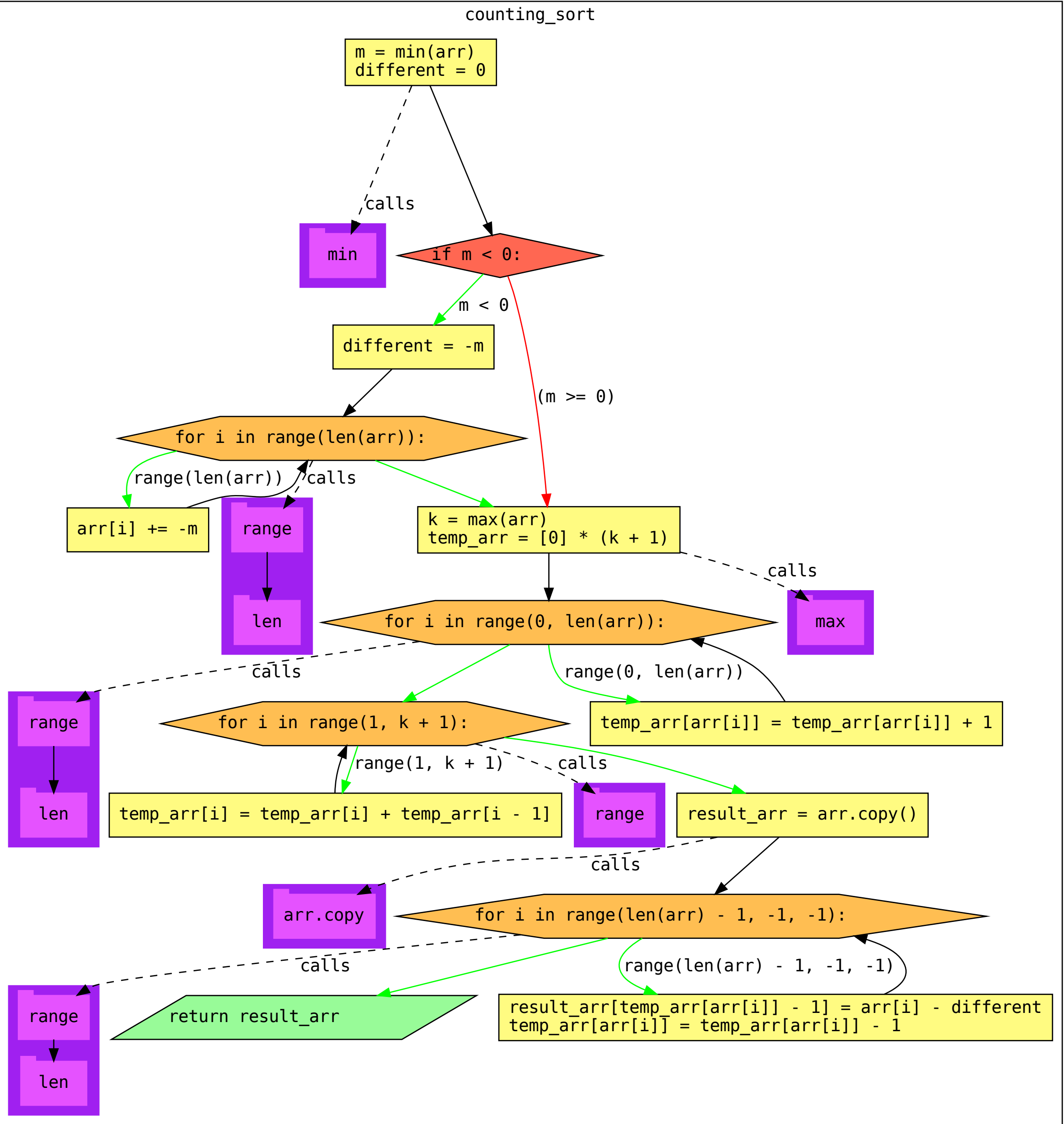```
"""
code from: https://github.com/keon/algorithms/blob/master/algorithms/sort/counting_sort.py
"""
    Counting_sort
    Sorting a array which has no element greater than k
    Creating a new temp_arr,where temp_arr[i] contain the number of
    element less than or equal to i in the arr
    Then placing the number i into a correct position in the result_arr
    return the result_arr
    Complexity: O(n)
    """
def counting_sort(arr):...
```

## counting_sort

```
m = min(arr)
different = 0
```

calls → min

if m < 0:

m < 0 → different = -m

(m >= 0) → k = max(arr)
temp_arr = [0] * (k + 1)

for i in range(len(arr)):

range(len(arr)) → arr[i] += -m

calls → range → len

k = max(arr)
temp_arr = [0] * (k + 1)

calls → max

for i in range(0, len(arr)):

calls → range → len

range(0, len(arr)) → temp_arr[arr[i]] = temp_arr[arr[i]] + 1

for i in range(1, k + 1):

range(1, k + 1) → temp_arr[i] = temp_arr[i] + temp_arr[i - 1]

calls → range → len

result_arr = arr.copy()

calls → arr.copy

for i in range(len(arr) - 1, -1, -1):

calls → range → len

range(len(arr) - 1, -1, -1) → result_arr[temp_arr[arr[i]] - 1] = arr[i] - different
temp_arr[arr[i]] = temp_arr[arr[i]] - 1

return result_arr

KEY

try | while | for | if

raise | return | input

default | call