Lab test 1

1.maximum sub array:

```
def maxSubArray(nums):
    max_sum = current_sum = nums[0]
    for num in nums[1:]:
        current_sum = max(num, current_sum + num)
        max_sum = max(max_sum, current_sum)


    return max_sum
nums = [-2, 1, -3, 4, -1, 2, 1, -5, 4]
print(maxSubArray(nums))
```

2.count and say:

```
def countAndSay(n):
    if n == 1:
        return "1"
    prev = countAndSay(n - 1)
    result = ""
    count = 1
    for i in range(len(prev)):
        if i + 1 < len(prev) and prev[i] == prev[i + 1]:
            count += 1
        else:
            result += str(count) + prev[i]
            count = 1
    return result
n = 1
print(countAndSay(n))
```

3.remove element:

```
def remove_element(nums, val):
    nums[:] = [x for x in nums if x != val]
    return len(nums)
nums = [0, 1, 2, 2, 3, 0, 4, 2]
val = 2
result = remove_element(nums, val)
print(result)
```

4.permutation sequence:

```
def getPermutation(n, k):
    factorial = [1]
    for i in range(1, n):
        factorial.append(factorial[-1] * i)
    numbers = [str(i) for i in range(1, n + 1)]
    result = ""
    k -= 1
    for i in range(n):
        index = k // factorial[n - 1 - i]
        result += numbers[index]
        numbers.pop(index)
        k %= factorial[n - 1 - i]
    return result
n = 3
k = 3
print(getPermutation(n, k))
```

5.maximum sub array:

```
def maxSubArray(nums):
    max_sum = current_sum = nums[0]
    for num in nums[1:]:
        current_sum = max(num, current_sum + num)
        max_sum = max(max_sum, current_sum)
```

```
    return max_sum
nums = [-2, 1, -3, 4, -1, 2, 1, -5, 4]
print(maxSubArray(nums))
```