6.6.2022

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1 PYTHON MODULE

1.1 Exercise 1

Determine the output of the three following blocks of Python code. Justify your answer with a short explanation.

[1]:
```
s = "abcd"
pos = 0
items = []
while pos < len(s):
    for i in range(pos+1,len(s)):
        items.append((s[pos],s[i]))
    pos += 1
print(items)
```

```
[('a', 'b'), ('a', 'c'), ('a', 'd'), ('b', 'c'), ('b', 'd'), ('c', 'd')]
```

[2]:
```
r = list(range(10))
[r[x-1] if (x % 3 != 0) else r[x] for x in range(10) if x % 2 == 1]
```

[2]:
```
[0, 3, 4, 6, 9]
```

[3]:
```
import numpy as np
A = [[1, 3], [4, 3]]
B = [[2, 4], [2, 1]]
M = np.dot(A,B)
print(M.T)
```

```
[[ 8 14]
 [ 7 19]]
```

1.2 Exercise 2

Explain what are the effects of choosing the parameter `k` in the `k-NN` algorithm too small or too large relative to the training set size.