Data Science Lab Exam

Billan Jacob John

Roll No: 34

Qn 1.

Program

```
 import numpy as np
A = np.array([1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16])
B = np.array([16,15,14,13,12,11,10,9,8,7,6,5,4,3,2,1])

print("Before transforming:")
print("A:",A)
print("B:",B)

A = A.reshape(4,4)
B = B.reshape(4,4)
print("\nAfter transforming:")
print("A: \n",A)
print("B: \n",B)

print("\nMultiplication:\n", np.multiply(A,B))
print("\nTranspose of A:\n", np.transpose(A))
print("\nAT X B\n", np.multiply(np.transpose(A),B))
print("\nLast 2 elements of 3rd and 4th row:")
print(B[2:,(2,3)])
```

Output

Before transforming:

A: [1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16]

B: [16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1]

After transforming:

A:

[[1 2 3 4]

[5 6 7 8]

[9 10 11 12]

[13 14 15 16]]

B:

[[16 15 14 13]

[12 11 10 9]

[8 7 6 5]

[4 3 2 1]]

Multiplication:

[[16 30 42 52]

[60 66 70 72]

[72 70 66 60]

[52 42 30 16]]

Transpose of A:

[[1 5 9 13]

[2 6 10 14]

[3 7 11 15]

[4 8 12 16]]

AT X B

[[16 75 126 169]

[24 66 100 126]

[24 49 66 75]

[16 24 24 16]]

Last 2 elements of 3rd and 4th row:

[[6 5]

[2 1]]

Process finished with exit code 0

Qn. 2

```
import nltk
from nltk import ngrams

text = "Steve has a cat called Tom. A mouse is always after a piece of cheese. Tom ate the mouse."
sentence = nltk.sent_tokenize(text)

for i in sentence:
    words = nltk.word_tokenize(i)
    tags = nltk.pos_tag(words)
    print("Tag: ",tags)
    N = ngrams(sequence=words, n=3)
    print("ngram: ")
    for i in N:
        print(i)
```

Output

```
Tag:  [('Steve', 'NNP'), ('has', 'VBZ'), ('a', 'DT'), ('cat', 'NN'), ('called', 'VBN'), ('Tom', 'NNP'), ('.', '.')]
ngram:
('Steve', 'has', 'a')
('has', 'a', 'cat')
('a', 'cat', 'called')
('cat', 'called', 'Tom')
('called', 'Tom', '.')
Tag:  [('A', 'DT'), ('mouse', 'NN'), ('is', 'VBZ'), ('always', 'RB'), ('after', 'IN'), ('a', 'DT'), ('piece', 'NN'), ('of', 'IN'), ('cheese', 'NN'), ('.', '.')]
```

ngram:

('A', 'mouse', 'is')

('mouse', 'is', 'always')

('is', 'always', 'after')

('always', 'after', 'a')

('after', 'a', 'piece')

('a', 'piece', 'of')

('piece', 'of', 'cheese')

('of', 'cheese', '.')

Tag: [('Tom', 'NNP'), ('ate', 'VBP'), ('the', 'DT'), ('mouse', 'NN'), ('.', '.')]

ngram:

('Tom', 'ate', 'the')

('ate', 'the', 'mouse')

('the', 'mouse', '.')

Process finished with exit code 0