**Py Random – Worksheet 2**

*CDS 230*

*Spring 2018*

# Problem

Generate a sequence of DNA that is 100 bases long using random integers as in the video example.

abet = ('A', 'C', 'G', 'T')

nms = np.random.randint(0,4,100)

dnalist = np.take(abet,nms)

print("".join(dnalist))

*ATAACGCTTGAAAAACAAGCTAGAGTGACAAGTGAGATAGCCTCTGTCAGTAGGTTACACTACATTAAAGAGTACTTGGCTAACCGAATTTCGTATTTCG*

# Problem

In the second video, the code is presented to generate a deck of cards. Add your own code to deal the deck to four players. You will have to ensure that only one card is uniquely dealt to a single player. Hint: investigate the options in numpy.random.choice() to sample your deck of cards without replacement.

nos = "A 2 3 4 5 6 7 8 9 10 J Q K".split(" ")

suits = ['spades', 'diamonds','clubs','hearts']

cards = []

for i in nos:

for j in suits:

cards.append(i + ' ' + j)

for i in "1234":

print("player "+i)

deck = []

for car in cards:

deck.append(np.random.choice(cards, replace=False))

print(deck)

*player 1*

*['2 spades', '9 spades', 'Q clubs', 'A diamonds', 'A spades', '4 clubs', 'K clubs', '5 hearts', '10 diamonds', 'Q spades', 'K clubs', '9 spades', 'K clubs', '7 hearts', '6 clubs', '9 clubs', '7 spades', '3 spades', '8 spades', 'K diamonds', 'K diamonds', 'K hearts', 'K clubs', 'K clubs', '5 diamonds', 'J hearts', '2 spades', '10 diamonds', 'A spades', '6 diamonds', 'K spades', '3 spades', 'J spades', '5 diamonds', '10 clubs', '10 diamonds', '7 spades', '4 diamonds', 'A spades', '5 diamonds', 'A diamonds', 'J hearts', '7 hearts', '5 hearts', 'Q diamonds', '3 clubs', 'J spades', '2 clubs', '4 hearts', 'A diamonds', 'K spades', 'Q spades']*

*player 2*

*['K spades', 'A diamonds', '5 diamonds', '8 clubs', 'A clubs', '6 diamonds', '6 hearts', '7 hearts', '8 clubs', 'A diamonds', '9 clubs', '7 spades', '9 spades', '6 clubs', '8 hearts', 'K clubs', 'Q hearts', '9 spades', 'K hearts', 'A spades', 'K spades', '6 clubs', 'K spades', '4 diamonds', '2 hearts', 'K spades', 'Q diamonds', '8 diamonds', '6 spades', 'J spades', '10 diamonds', 'J diamonds', '8 spades', '6 spades', '3 clubs', '6 clubs', '3 diamonds', '5 clubs', 'J clubs', '5 clubs', '8 diamonds', '6 diamonds', '2 hearts', '9 hearts', 'K hearts', 'K diamonds', '5 diamonds', '3 diamonds', '6 diamonds', 'J clubs', '7 spades', '10 clubs']*

*player 3*

*['5 clubs', '3 diamonds', '9 hearts', '5 hearts', '2 diamonds', '6 clubs', '7 hearts', '2 clubs', '10 diamonds', '6 diamonds', 'K diamonds', '10 clubs', '7 diamonds', '4 hearts', 'Q clubs', '3 diamonds', '7 spades', '6 spades', '7 spades', '10 diamonds', '4 hearts', '6 hearts', '7 diamonds', '8 spades', '10 hearts', '4 spades', '6 clubs', 'A clubs', '4 diamonds', '2 spades', 'J clubs', 'K spades', 'Q hearts', '10 spades', '3 spades', 'J hearts', 'J diamonds', '3 spades', 'K clubs', 'A spades', 'Q clubs', '3 spades', '6 spades', '2 diamonds', '8 clubs', '7 hearts', '9 diamonds', '7 hearts', '8 clubs', '7 hearts', '6 clubs', 'K clubs']*

*player 4*

*['A spades', '2 clubs', 'K hearts', '2 clubs', '4 diamonds', '8 spades', '2 diamonds', '4 hearts', 'A spades', '4 hearts', '6 diamonds', 'K spades', 'Q clubs', 'K spades', '5 clubs', '6 diamonds', 'A clubs', '5 spades', '5 spades', '7 clubs', 'A clubs', 'J diamonds', '7 spades', '7 spades', '2 clubs', '4 spades', '9 spades', '3 clubs', '7 hearts', '8 spades', 'A spades', 'K clubs', '9 spades', 'Q diamonds', 'A spades', 'J diamonds', '5 hearts', '6 hearts', 'J diamonds', 'K diamonds', '6 clubs', 'K clubs', 'J diamonds', '5 clubs', '7 diamonds', 'A spades', '8 clubs', '8 spades', '2 diamonds', '4 diamonds', 'Q spades', 'Q diamonds']*