Home Work 3

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1 Section

Select eight exercises from the Appendix.

- Write down the number and the problem statement.
- Provide the code for your solution.
- Display the output to verify your solution.

```python
# Apx 1. Use a loop to print numbers from 1 to 10.
print('Appendix 1 Output')
print('-'*17)

i = 0
while i < 10:
    i += 1
    print(i)
```

```
Appendix 1 Output
-----------------
1
2
3
4
5
6
7
8
9
10
```

```python
# Apx 2. Create a list of the first ten natural numbers multiples of 10.
print('\nAppendix 2 Output')
print('-'*17)
x = 0
nat10x = []
for x in range(1,11):
    nat10x.append(x*10)
```

```
        x += 1
print(nat10x)
```

Appendix 2 Output

[10, 20, 30, 40, 50, 60, 70, 80, 90, 100]

```python
# Apx 3. Return the largest number from a list.
print('\nAppendix 3 Output')
print('-'*17)
import random

def genRandList(list):
    i = 0
    while i < 5:
        i += 1
        list.append(random.randint(1,1000))
    return list

myList  = []
genRandList(myList)

myList.sort()
print(myList[0])
```

Appendix 3 Output

124

```python
# Apx 4. Return the smallest number from a list.
print('\nAppendix 4 Output')
print('-'*17)

print(myList[-1])
```

Appendix 4 Output

898

```python
# Apx 5. Check if a number is positive, negative, or zero.
print('\nAppendix 5 Output')
print('-'*17)

def getRandomNum():
    return random.randint(-1000,1000)
num = getRandomNum()
```

```python
if num == 0:
    print('Number is Zero, ', num)
elif num > 0:
    print('Number is Positive, ', num)
else:
    print('Number is Negative, ', num)
```

```
Appendix 5 Output
-----------------
Number is Positive,  814
```

```python
[ ]: # Apx 6. Convert a string into a list of its characters.
print('\nAppendix 6 Output')
print('-'*17)

myString = 'Hello World!'
listOfString = list(myString.upper())
print(listOfString)
```

```
Appendix 6 Output
-----------------
['H', 'E', 'L', 'L', 'O', ' ', 'W', 'O', 'R', 'L', 'D', '!']
```

```python
[ ]: # Apx 7. Return the square number from a list of numbers.
print('\nAppendix 7 Output')
print('-'*17)

randInd = random.randint(0, len(myList))
numby = myList[randInd]
print(f'Number to square: {numby}, squared: {pow(numby,2)}')
```

```
Appendix 7 Output
-----------------
Number to square: 415, squared: 172225
```

```python
[ ]: # Apx 8. Reverses a string using a for loop'
print('\nAppendix 8 Output')
print('-'*17)

pyString = 'Python is cool'
newString = ''
for x in range(1, len(pyString) + 1):
    newString += pyString[-x]
newString
```

```
Appendix 8 Output
-----------------
```

[ ]: `'looc si nohtyP'`

2 Section

Select 2 exercises from the Appendix different from section 1.

- Write down the number and the problem statement.
- Provide two different solutions to arrive at the same solution.
- Display the output to verify your solution.

[ ]:
```python
#Apx 24. Generate the first 10 Fibonacci numbers using a loop.
# Solution 1
fibSeq = []
count = 0
a = 0
b = 1
while count < 10:
    fibSeq.append(a)
    oldA = a
    a = b
    b = b + oldA
    count += 1
print(f'Solution 1: {fibSeq}')

# Solution 2
a = 0
b = 1
newfibSeq = []
for x in range(1,11):
    newfibSeq.append(a)
    a, b = b, a + b
print(f'Solution 2: {newfibSeq}')

if fibSeq == newfibSeq:
    print('Both solutions have the same result!')
else:
    print('Both are not the same, try again')
```

```
Solution 1: [0, 1, 1, 2, 3, 5, 8, 13, 21, 34]
Solution 2: [0, 1, 1, 2, 3, 5, 8, 13, 21, 34]
Both solutions have the same result!
```

[ ]:
```python
#Apx 20. From an arbitrary random list of numbers only print the even numbers
# Solution 1
```

```python
evens = []
count = 0
while count < len(myList):
    if myList[count] % 2 == 0:
        evens.append(myList[count])
    count += 1

print(f'Solution 1: All even numbers from random list: {evens}')

# Solution 2
evens.clear()
for i in range(len(myList)):
    if myList[i] % 2 == 0:
        evens.append(myList[i])
print(f'Solution 2: All even numbers from random list: {evens}')
print("The Random List: ", myList)
```

```
Solution 1: All even numbers from random list: [124, 160, 898]
Solution 2: All even numbers from random list: [124, 160, 898]
The Random List:  [124, 160, 415, 621, 898]
```

3   Section

Engage in Peer Learning on Canvas.

- Create one exercise of your own.
- Draft a concise explanation and post it on a discussion forum in Canvas for your classmates to see.
- Then copy and paste your post in your homework PDF document to get the credit.
- This is a great opportunity to share your creativity and learn from your peers!

```python
[ ]: # My Exercise
# Convert a date to a to a julian date.
# The julian date calendar is sequential, ex: 06/07/2024 would be Julian date:␣
 ↪159, 01/01/2024 would be JD: 1
# Write a program that takes input of month, day, and year as integer values␣
 ↪and returns the julian date dont forget to account for leap years.

# My Solution
month = int(input('Month(1-12): '))
day = int(input('Day(1-31): '))
year = int(input('Year(>0): '))

julianDate = 0
calendar = {1:31, 2:28, 3:31, 4:30, 5:31, 6:30, 7:31, 8:31, 9:30, 10:31, 11:30,␣
 ↪12:31}
if year % 4 == 0:
```

```python
    calendar = {1:31, 2:29, 3:31, 4:30, 5:31, 6:30, 7:31, 8:31, 9:30, 10:31, 11:
 ↪30, 12:31}

for x in range(1,month):
    julianDate += calendar[x]
julianDate += day

print(f'The Julian date for {month}/{day}/{year} is {julianDate}')
```

The Julian date for 6/7/2024 is 159