1. Upload the notebook of week one.

py4e_04-7.py

```python
def comgrade( Score ):
    if (( Score > 10 ) or ( Score < 0 )):
        return 'Bad score'
    if ( Score >= 8 ):
        return 'A'
    if ( Score >= 6 ):
        return 'B'
    if ( Score >= 4 ):
        return 'C'
    if ( Score >= 2 ):
        return 'D'
    if ( Score < 2 ):
        return 'F'

# program start

triger = True

while triger:
    try:
        score = input('Enter score: ')
        print( comgrade( float( score ) ) )
    except:
        print('Bad score')
        triger = False
```

$ python py4e_04-7.py
Enter score: 1
F
Enter score: 3
D
Enter score: 5
C
Enter score: 8
A
Enter score: 10
A
Enter score: perfect score
Bad score

2. Sorting a list of random numbers. Generate a list of 100 random numbers ranged between 0 to 100 and sort them in increasing order based on loops and if conditionals.

HW1-2.py

```python
import random

listname=[] # Creating empty list

for i in range(1,101):
    listname.append( random.randint( 0, 100 ) ) #a Adding elements to a list

# quick sort function
def quick_sorted(arr):
    if len(arr) > 1:
        pivot = arr[len(arr)-1]
        left, mid, right = [], [], []
        for i in range(len(arr)-1):
            if arr[i] < pivot:
                left.append(arr[i])
            elif arr[i] > pivot:
                right.append(arr[i])
            else:
                mid.append(arr[i])
        mid.append(pivot)
        return quick_sorted(left) + mid + quick_sorted(right)
    else:
        return arr

print(listname)
print('\n')
print(quick_sorted(listname))
```

$ python HW1-2.py
[56, 91, 16, 55, 32, 29, 87, 72, 73, 42, 19, 15, 68, 78, 47, 19, 89, 2, 100, 85, 34, 93, 87, 98, 100, 4, 81, 83, 84, 66, 98, 0, 68, 2, 45, 22, 81, 62, 44, 24, 77, 17, 43, 68, 99, 53, 10, 36, 84, 57, 90, 47, 31, 41, 60, 33, 90, 98, 27, 68, 2, 37, 0, 32, 47, 26, 53, 56, 90, 41, 33, 77, 55, 19, 94, 66, 8, 42, 4, 84, 89, 85, 65, 96, 54, 27, 67, 66, 89, 23, 70, 39, 92, 46, 29, 32, 1, 85, 54, 48]

[0, 0, 1, 2, 2, 2, 4, 4, 8, 10, 15, 16, 17, 19, 19, 19, 22, 23, 24, 26, 27, 27, 29, 29, 31, 32, 32, 32, 33, 33, 34, 36, 37, 39, 41, 41, 42, 42, 43, 44, 45, 46, 47, 47, 47, 48, 53, 53, 54, 54, 55, 55, 56, 56, 57, 60, 62, 65, 66, 66, 66, 67, 68, 68, 68, 68, 70, 72, 73, 77, 77, 78, 81, 81, 83, 84, 84, 84, 85, 85, 85, 87, 87, 89, 89, 89, 90, 90, 90, 91, 92, 93, 94, 96, 98, 98, 98, 99, 100, 100]

3. Write a program which repeatedly reads numbers until the user enters "done". Once "done" is entered, print out the total, count, and average of the numbers. If the user enters anything other than a number, detect their mistake using try and except and print an error message and skip to the next number.

HW1-3.py

```python
# total function
def total(li):
    total = 0
    arr = li[:]
    while ( arr != [] ):
    total = total + arr.pop()
    return total

# average function
def average(li):
    return total(li)/len(li)

# Create list of input numbers
def numbers():
    arr = []
    while True:
    number_str = input('Enter numbers: ')
    if ( number_str == 'done' ):
        return arr
    try:
        number = int( number_str )
        arr.append( number )
    except:
        print('Enter right numbers')

# program start
num_list = numbers()
print()
print( 'total =', total( num_list ) )
print( 'count =', len( num_list ) )
print( 'average =', average( num_list ) )
```

$ python HW1-3.py
Enter numbers: 2
Enter numbers: 7
Enter numbers: 9

Enter numbers: 13
Enter numbers: 17
Enter numbers: 43
Enter numbers: 88
Enter numbers: 107
Enter numbers: hello
Enter right numbers
Enter numbers: done

total = 286
count = 8
average = 35.75

4. Write a program that prompts an input to ask whether to convert from Celsius, Farenheit and Kelvin to any other form. Call a function to make the conversion. Once the data is input print out the converted result.

Hint: TC = (TF-32)*5/9, TC=TK-273.15

HW1-4.py

```python
# function to converted A into B
def convert( T, A, B ):
    if ( A == B ):
    return T
    if ( A == 'TC' ):
    if ( B == 'TF' ):
        return T * 9/5+32
    if ( B == 'TK' ):
        return T + 273.15
    if ( A == 'TF' ):
    if ( B == 'TC' ):
        return (T-32)*5/9
    if ( B == 'TK' ):
        return convert( convert( T, 'TF', 'TC' ), 'TC', 'TK' )
    if ( A == 'TK' ):
    return convert( T - 273.15, 'TC', B )

# program start
print('Temperature type: [ TC, TF, TK ]')

A = input('Enter Temperature type before convert: ')
while ( (A != 'TC') & (A != 'TF') & (A != 'TK') ):
    A = input('Enter right Temperature type before convert: ')

T = input('Enter Temperature: ')
while True:
    try:
        Temp = float(T)
        break
    except:
        T = input('Enter right Temperature: ')

B = input('Enter Temperature type after convert: ')
while ( (B != 'TC') & (B != 'TF') & (B != 'TK') ):
    B = input('Enter right Temperature type after convert: ')
```

```
print( convert( float(T), A, B ) )
```