The Complete Python Course: Zero to Advance

Task 1

Review "**The Complete Python Course: Zero to Advance**" Course on Accelerating Intelligence page.

Page link: http:// fb.me/accelerating.Intelligence

Task 2

Solve the below problems

Problem 1: Write a function to compute 5/0 and use try/except to catch the exceptions.

Problem 2: Implement a Python program to generate all sentences where subject is in ["Americans","Indians"] and verb is in ["Play", "watch"] and the object is in ["Baseball","cricket"].
Hint: Subject,Verb and Object should be declared in the program as shown below.

```
subjects=["Americans ","Indians"]
verbs=["play","watch"]
objects=["Baseball","Cricket"]
```

Output should come as below:
Americans play Baseball.

Americans play Cricket.
Americans watch Baseball.
Americans watch Cricket.
Indians play Baseball.
Indians play Cricket.
Indians watch Baseball.
Indians watch Cricket.

Problem 3: Write a function so that the columns of the output matrix are powers of the input vector.The order of the powers is determined by the increasing boolean argument. Specifically, when increasing is False, the i-th output column is the input vector raised element-wise to the power of N - i - 1.
HINT: Such a matrix with a geometric progression in each row is named for Alexandre-Theophile Vandermonde.

Problem 4: Write a Python Program to implement your own myreduce() function which works exactly like Python's built-in function reduce()

Problem 5: Write a Python program to implement your own myfilter() function which works exactly like Python's built-in function filter()

Problem 6: Implement List comprehensions to produce the following lists.Write List comprehensions to produce the following Lists
['A', 'C', 'A', 'D', 'G', 'I', ’L’, ‘ D’]
['x', 'xx', 'xxx', 'xxxx', 'y', 'yy', 'yyy', 'yyyy', 'z', 'zz', 'zzz', 'zzzz']
['x', 'y', 'z', 'xx', 'yy', 'zz', 'xx', 'yy', 'zz', 'xxxx', 'yyyy', 'zzzz']
[[2], [3], [4], [3], [4], [5], [4], [5], [6]]
[[2, 3, 4, 5], [3, 4, 5, 6], [4, 5, 6, 7], [5, 6, 7, 8]]
[(1, 1), (2, 1), (3, 1), (1, 2), (2, 2), (3, 2), (1, 3), (2, 3), (3, 3)]

Problem 7: Implement a function longestWord() that takes a list of words and returns the longest one.

Problem 8: Write a Python Program(with class concepts) to find the area of the triangle using the below formula.
area = (s*(s-a)*(s-b)*(s-c)) ** 0.5
Function to take the length of the sides of triangle from user should be defined in the parent class and function to calculate the area should be defined in subclass.

Problem 9: Write a function filter_long_words() that takes a list of words and an integer n and returns the list of words that are longer than n.

Problem 10: Write a Python program using function concept that maps list of words into a list of integers representing the lengths of the corresponding words .
Hint: If a list [ab,cde,erty] is passed on to the python function output should come as [2,3,4]
Here 2,3 and 4 are the lengths of the words in the list.

Problem 11: Write a Python function which takes a character (i.e. a string of length 1) and returns True if it is a vowel, False otherwise.