Q1:

class User\_Input:  
 def \_\_init\_\_(self):  
 while True:  
 try:  
 self.a = int(input("Enter the length of side1 of triangle"))  
 self.b = int(input("Enter the length of side2 of triangle"))  
 self.c = int(input("Enter the length of side3 of triangle"))  
 if self.c != "":  
 break  
 except:  
 print("Kindly enter integers")  
  
  
class Calculation(User\_Input):  
 def \_\_init\_\_(self):  
 User\_Input.\_\_init\_\_(self)  
  
 def calculate(self):  
 s = (self.a + self.b + self.c) / 2  
 area = (s \* (s - self.a) \* (s - self.b) \* (s - self.c)) \*\* 0.5  
 print(area)  
  
  
if \_\_name\_\_ == "\_\_main\_\_":  
 triangle = Calculation()  
 triangle.calculate()

Q2:

words = ["Grapes", "Pineapple", "Watermelon", "Mango", "Kiwi", "Lemon", "Orange", "Apple", "Banana", "Pear", "Fig"]  
filtered\_words = []  
  
  
def filter\_long\_words():  
 while True:  
 try:  
 num = int(input("Enter length of word you want to filter"))  
 break  
 except:  
 print("Kindly enter an integer")  
 for i in words:  
 if len(i) > num:  
 filtered\_words.append(i)  
 print(filtered\_words)  
  
  
filter\_long\_words()

Q3:

words = ["Cat", "Dog", "Cup", "Book", "Tree", "Shoe", "Chair", "Phone", "House", "Mouse", "Water", "Bread", "Paper",  
 "Watch", "Music", "Flower", "Light", "Dance", "Cheese", "Wallet"]  
len\_of\_words = []  
  
  
def check\_len\_of\_words():  
 for i in words:  
 len\_of\_words.append(len(i))  
 print(len\_of\_words)  
  
  
check\_len\_of\_words()

Q4:

vowels = ["a", "e", "i", "o", "u"]  
  
  
def check\_vowels():  
 char = input("Enter a single character").lower()  
 if char in vowels:  
 return True  
 else:  
 return False  
  
  
print(check\_vowels())