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2ECE-E

## Programming Extra Assignment

### Problem 1: Vowel and Consonant

The screenshot shows the Spyder Python IDE with a file named `HW1.py` open. The code is a Python script that checks if a character is a vowel or a consonant. The code is as follows:

```
1 # -*- coding: utf-8 -*-
2 """
3 Spyder Editor
4 This is a temporary script file.
5 """
6
7 letter = input('Enter a letter:')
8 if letter == 'a':
9     print('The entered character is a vowel.')
10 elif letter == 'e':
11     print('The entered character is a vowel.')
12 elif letter == 'i':
13     print('The entered character is a vowel.')
14 elif letter == 'o':
15     print('The entered character is a vowel.')
16 elif letter == 'u':
17     print('The entered character is a vowel.')
18 elif letter == 'A':
19     print('The entered character is a vowel.')
20 elif letter == 'E':
21     print('The entered character is a vowel.')
22 elif letter == 'I':
23     print('The entered character is a vowel.')
24 elif letter == 'O':
25     print('The entered character is a vowel.')
26 elif letter == 'U':
27     print('The entered character is a vowel.')
28 else: print('The entered character is a consonant.')
29
30
31
```

The Variable explorer on the right shows the following variables:

Name	Type	Size	Value
e	float	1	2.718281828459045
letter	str	1	q
pi	float	1	3.141592653589793
tau	float	1	6.283185307179586
year	int	1	2019

The IPython console shows the following output:

```
In [58]: squaresum()
The sum of the squares is 55

In [59]: runfile('C:/Users/HP/Desktop/Advanced Programming/PYTHON/HW2.py', wdir='C:/Users/HP/Desktop/Advanced Programming/PYTHON')

In [60]: squaresum()
The sum of the squares is 55

In [61]: runfile('C:/Users/HP/Desktop/Advanced Programming/PYTHON/HW1.py', wdir='C:/Users/HP/Desktop/Advanced Programming/PYTHON')

Enter a letter:I
The entered character is a vowel.

In [62]: runfile('C:/Users/HP/Desktop/Advanced Programming/PYTHON/HW1.py', wdir='C:/Users/HP/Desktop/Advanced Programming/PYTHON')

Enter a letter:q
The entered character is a consonant.

In [63]:
```

### Problem 2: Squaresum

The screenshot shows the Spyder Python IDE with a file named `HW2.py` open. The code is a Python script that calculates the sum of squares of numbers from 1 to n. The code is as follows:

```
1 # -*- coding: utf-8 -*-
2 """
3 Created on Sun Nov 10 20:04:17 2019
4
5 @author: HP
6 """
7 from math import *
8 def squaresum(n):
9     s = 0
10     while n!=0:
11         square = n**2
12         s = s + square
13         n -= 1
14     print('The sum of the squares is', s)
15
```

The Variable explorer on the right shows the following variables:

Name	Type	Size	Value
e	float	1	2.718281828459045
letter	str	1	q
pi	float	1	3.141592653589793
tau	float	1	6.283185307179586
year	int	1	2019

The IPython console shows the following output:

```
In [58]: squaresum()
The sum of the squares is 55

In [59]: runfile('C:/Users/HP/Desktop/Advanced Programming/PYTHON/HW2.py', wdir='C:/Users/HP/Desktop/Advanced Programming/PYTHON')

In [60]: squaresum()
The sum of the squares is 55

In [61]: runfile('C:/Users/HP/Desktop/Advanced Programming/PYTHON/HW1.py', wdir='C:/Users/HP/Desktop/Advanced Programming/PYTHON')

Enter a letter:I
The entered character is a vowel.

In [62]: runfile('C:/Users/HP/Desktop/Advanced Programming/PYTHON/HW1.py', wdir='C:/Users/HP/Desktop/Advanced Programming/PYTHON')

Enter a letter:q
The entered character is a consonant.

In [63]:
```

### Problem 3: Leap Year

Spyder (Python 3.7)

File Edit Search Source Run Debug Cgnsols Projects Tools View Help

Editor - C:\Users\HP\Desktop\Advanced Programming\PYTHON\HW3.py

```
1 # -*- coding: utf-8 -*-
2 """
3 Created on Sun Nov 10 20:39:06 2019
4
5 @author: HP
6 """
7 from math import *
8 year = int(input('Enter a year: '))
9 if year%4 == 0:
10     print('The year entered is a Leap year.')
11 else: print('The year entered is not a Leap year.')
```

Variable explorer

Name	Type	Size	Value
e	float	1	2.718281828459045
letter	str	1	q
pi	float	1	3.141592653589793
tau	float	1	6.283185307179586
year	int	1	2019

Variable explorer File explorer

IPython console

Console 1/A

```
Enter a letter:I
The entered character is a vowel.

In [62]: runfile('C:/Users/HP/Desktop/Advanced Programming/PYTHON/HW3.py', wdir='C:/Users/HP/Desktop/Advanced Programming/PYTHON')

Enter a letter:q
The entered character is a consonant.

In [63]: runfile('C:/Users/HP/Desktop/Advanced Programming/PYTHON/HW3.py', wdir='C:/Users/HP/Desktop/Advanced Programming/PYTHON')

Enter a year:1996
The year entered is a leap year.

In [64]: runfile('C:/Users/HP/Desktop/Advanced Programming/PYTHON/HW3.py', wdir='C:/Users/HP/Desktop/Advanced Programming/PYTHON')

Enter a year:2019
The year entered is not a leap year.

In [65]:
```

IPython console History log

Permissions: RW End-of-lines: CRLF Encoding: UTF-8 Line: 7 Column: 19 Memory: 80 %