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Continuing Education Course #363
Python Programming for Engineers - Part 2:
Branching and Looping, Functions and Error Handling

1. Given the code,

```
x = 85
if x >= 80:
    print('Pass')
else:
    print('Fail')
```

The output is

- a. 'Pass'
- b. 'Fail'
- c. None

2. Given the code,

```
x = input('Enter the temperature : ')
x = float(x)
if x >= 85:
    y = 'HOT'
elif x >= 60 and x < 85:
    y = 'WARM'
elif x >= 32 and x < 60:
    y = 'COOL'
else:
    y = 'COLD'
print(y)
```

The user enters the value 75 when prompted. The output is

- a. 'HOT'
- b. 'WARM'
- c. 'COOL'

3. Given the code,

```

x = float(input('Enter the sample size : '))
y = float(input('Enter the average : '))
if x >= 30 and y <= 45 :
    y = 'APPROVE'
elif x >= 30 and y > 45 :
    y = 'REWORK - Average too high'
elif x < 30 and y <= 45 :
    y = 'COLLECT MORE DATA - Sample size bad'
elif x < 30 and y > 45 :
    y = 'REJECT'
print(y)

```

The user enters 25 and 40 respectively, when prompted. The output is

- a. 'APPROVE'
- b. 'REWORK - Average too high'
- c. 'COLLECT MORE DATA - Sample size bad'

4. Given the code,

```

x = float(input('Enter the sample size : '))
y = float(input('Enter the average : '))
if x >= 30 :
    if y <= 45:
        y = 'APPROVE'
    else:
        y = 'REWORK - Average too high'
else :
    if y <= 45:
        y = 'COLLECT MORE DATA - Sample size bad'
    else:
        y = 'REJECT'
print(y)

```

The user enters 45 and 35 respectively, when prompted. The output is

- a. 'APPROVE'
- b. 'REJECT'
- c. 'REWORK - Average too high'

5. Given the code,

```

i = 1
while i <= 10:
    print(2*(i**2))
    i = i + 1

```

The final output value is

- a. 10
- b. 200
- c. None of the above

6. Given the code,

```
i = 1
K = [ ]
while i <= 25:
    n = 3*(i**2)
    K.append(n)
    i = i + 2

    if n >= 300:
        break

print(K)
```

The output is

- a. [363, 243, 147, 75, 27, 3]
- b. [3, 27, 75, 147, 243]
- c. [3, 27, 75, 147, 243, 363]

7. Given the code,

```
P = [3, 4, 2, -2, 1]
for j in P :
    print( 2*(j**3))
```

The output values are

- a. 54 128 16 -16 2
- b. 27 48 12 12 3
- c. None of the above.

8. Given the code,

```
M = [5, 4, 7, -2, 9, 8, -5, 3, -6, -4, 2, 6]
N = [0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0]
for i in range(2, 10, 2) :
    N[i] = (M[i])**3
print(N)
```

The output is

- a. [343, 729, -125, -216]
- b. [0, 0, 343, 0, 729, 0, -125, 0, -216]
- c. [0, 0, 343, 0, 729, 0, -125, 0, -216, 0, 0, 0]

9. Given the code,

```
def greeting_function( ):
    print('Welcome to Python Engineering LLC')

greeting_function
```

The output is

- a. 'Welcome to Python Engineering LLC'
- b. None.
- c. An error message.

10. Given the code,

```
def greeting_function():
    x1 = 'Welcome to Python Engineering LLC'
    return x1

print(x1)
```

The output is

- a. 'Welcome to Python Engineering LLC'
- b. None.
- c. An error message.

11. Given the code,

```
def greeting_function(a):
    x = 'Hi ' + a + '. Welcome to Python Engineering LLC'
    return x
y = input('What is your name ? ')
print(greeting_function(y))
```

When prompted the user entered the name 'Paul'. The final output is

- a. 'Hi Paul. Welcome to Python Engineering LLC'
- b. None
- c. An error message due to incorrect use of variables.

12. Given the code,

```
x = input('Enter your company name: ')
y = lambda a: 'Account Statement for ' + a
print(y(x))
```

When prompted the user entered the company name 'PYT LLC'. The final output is

- a. 'Account Statement for PYT LLC'
- b. An error message due to incorrect syntax for the lambda function.
- c. An error message due to incorrect use of variables.

13. Given the code,

```
p = float(input('Enter a decimal value (p) between 1 and 50: '))
q = float(input('Enter a decimal value (q) between 10 and 60: '))
print('The product of p and q is', end = ' ')
print(p * q)
```

The float constructor

- a. converts the user input an integer to a floating number.
- b. converts a floating number entry by the user, to string.
- c. converts the user input from a string to a floating number.

14. Given the code,

```
p = float(input('Enter a decimal value (p) between 1 and 50: '))
q = float(input('Enter a decimal value (q) between 10 and 60: '))
print('The product of p and q is', end = ' ')
print(p * q)
```

The end= keyword argument of the print command

- a. causes each object in the output string to be separated by a specified string
- b. causes each object in the output string to be printed line by line
- c. causes output of multiple print calls to be displayed on one line and separated by the specified string

15. Given the code,

```
p = float(input('Enter a decimal value (p) between 1 and 50: '))
q = float(input('Enter a decimal value (q) between 10 and 60: '))
print('The product of p and q is', end = ' ')
print(p * q)
```

When prompted the user entered 9.65 and 26.512 respectively. The output is

- a. 2558.408
- b. 255.8408
- c. An error message due to undeclared variables

16. A Python module

- a. is a function library
- b. is a file that contains functions and variables that can be called and used in another application
- c. All the above

17. Which of the following are examples of Python modules?

- a. calculus, SQL, ms
- b. os, random, tkinter
- c. java, GUI, stochastics,

18. Which of the following will open an existing file to append content to the file?

- a. `x = open("Project_Report.txt" , "r")`
- b. `x = open("Project_Report.txt" , "a")`
- c. `x = open("Project_Report.txt" , "w")`

19. Which of the following will open an existing file to overwrite the contents of the file?

- a. `x = open("Project_Report.txt" , "r")`
- b. `x = open("Project_Report.txt" , "a")`
- c. `x = open("Project_Report.txt" , "w")`

20. Which of the following will write content into the specified file?

- a. `x . write("New Content")`
- b. `x . writeline("New Content")`
- c. `print (x . write("New Content"))`

21. Which of the following will read the first 8 bytes of the content of the specified file?

- a. `print (x . read())`
- b. `print (x . read(7))`
- c. `print (x . read(8))`

22. Which of the following will cause a logic error?

- a. A misspelled or omitted keyword.
- b. Incorrect sequence of instructions.
- c. A value is processed in a manner that is inadmissible to the Python language.

23. Given the code,

```
x = float(input('Enter a test score : '))
if x >= 70:
    print('Pass')
else:
    print('Fail')
```

The user enters '7*' when prompted to enter a test score. The output is

- a. 'Pass'
- b. 'Fail'
- c. ValueError: could not convert string to float: '7*'

24. Given the code,

```
try:
    x = float(input('Enter a test score : '))
    if x >= 70:
        print('Pass')
    else:
        print('Fail')
except:
    print('Enter a valid test score')
```

The user enters '7*' when prompted to enter a test score. The output is

- a. ValueError: could not convert string to float: '7*'
- b. 'Enter a valid test score'
- c. None

25. Which of the following approaches to developing a computer program is preferred?

- a. Completing significant portions of the script and then vetting the results.
- b. Completing the entire script and then testing and debugging.
- c. A piecemeal approach to writing and testing the code line by line, block by block.

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