

1. Which statement corrects the off-by-one error in the following code:

```
# This code prints the first 10 numbers starting with zero
i = 0
while i <= 10 :
    print(i)
    i = i + 1
```

1. Replace `i = 0` with `i = 1`
2. Replace `while i <= 10` with `while i < 10`
3. Replace `i = i + 1` with `i = i + 2`
4. Replace `while i <= 10` with `while i + 1 < 10`

Title

How do you fix an off-by-one error?

type

mc

Section

4.1 The while loop

id

testbank-py-2-ch04-01

from

testbank-py-1-ch04-01

2. How many times will the following loop run?

```
i = 0
while i < 10 :
    print(i)
    i = i + 1
```

1. 0
2. 8
3. 9
4. 10

Title

How many iterations of while loop?

type

mc

Section

4.1 The while loop

id

testbank-py-1-ch04-02

3. What is the output of the code snippet given below?

```
i = 0
while i != 9 :
    print(i, end = " ")
    i = i + 2
```

1. No output
2. 0 2 4 6 8
3. 10 12 14 16 18 ... (infinite loop)
4. 0 2 4 6 8 10 12 14 ... (infinite loop)

Title

What is output of while loop?

type

mc

Section

4.1 The while Loop

id

testbank-py-2-ch04-03

from

testbank-py-1-ch04-03

4. How many times does the code snippet given below display "Loop Execution"?

```
i = 1
while i != 10 :
    print("Loop Execution")
    i = i + 1
```

1. Infinite times
2. 8 times
3. 9 times
4. 10 times

Title

How many iterations of while loop?

type

mc

Section

4.1 The while Loop

id

testbank-py-1-ch04-04

5. What is the output of the code fragment given below?

```
i = 0
j = 0
while i < 27 :
    i = i + 2
    j = j + 1
print("j =", j)
```

1. j = 27
2. j = 12
3. j = 13
4. j = 14

Title

What is output of while loop?

type  
mc  
Section  
4.1 The while Loop  
id  
testbank-py-2-ch04-05  
from  
testbank-py-1-ch04-05

6. What is the output of the following code snippet?

```
i = 1
while i < 10 :
    print(i, end = " ")
    i = i + 2
    if i == 5 :
        i = 9
```

1. 1 3 5
2. 1 3 9
3. 1 3 5 7 9
4. 1 3 5 9

Title  
What does this while loop print?  
type  
mc  
Section  
4.1 The while Loop  
id  
testbank-py-1-ch04-06

7. The code snippet below is supposed to check whether an integer greater than 1 is a prime number. What will be the result of executing it?

```
j = 2
result = 0
number = int(input("Please enter an integer (2 or greater):"))
while j < number :
    if number % j == 0 :
        result = 1
    j = j + 1
if result == 1 :
    print("Number:", number, "is Not Prime.")
else :
    print("Number:", number, "is Prime.")
```

1. The code snippet contains a compile error.
2. The code snippet displays the desired result.
3. The code snippet displays an incorrect result.
4. The code snippet causes an infinite loop.

Title  
Will the while loop with if/else produce desired result?

type  
mc  
Section  
4.1 The while Loop  
id  
testbank-py-2-ch04-07  
from  
testbank-py-1-ch04-07

8. What is the output of the following code snippet?

```
a = 2
n = 16
r = 1
b = a
i = n
while i > 0 :
    if i % 2 == 0 : # n is even
        b = b * b
        i = i / 2
    else :
        r = r * b
        i = i - 1
print("r =", r)
```

1. r = 16
2. r = 128
3. r = 4096
4. r = 65536

Title  
What is the output of while loop with nested if?

type  
mc  
Section  
4.1 The while Loop  
id  
testbank-py-2-ch04-08  
from  
testbank-py-1-ch04-08

9. What is the output of the code fragment given below?

```
i = 0
j = 0
while i < 125 :
    i = i + 2
    j = j + 1
print(j)
```

1. 0
2. 62
3. 63
4. The code fragment displays no output because it does not compile.

Title  
What is output of while loop?  
type  
mc  
Section  
4.1 The while Loop  
id  
testbank-py-1-ch04-09

10. What is the output of the following loop?

```
s = 1
n = 1
while s < 10 * n :
    s = s + n
    n = n + 1
print(s)
```

1. 211
2. 210
3. 120
4. 123

Title  
What is the output of the following while loop?  
type  
mc  
Section  
4.1 The while Loop  
id  
testbank-py-1-ch04-10

11. What will be the result of running the following code fragment?

```
year = 0
rate = 5
principal = 10000
interest = 0
while year < 10 :
    interest = (principal * year * rate) / 100
    print("Interest ", interest)
```

1. The code fragment will display the interest calculated for nine years.
2. The code fragment will continue to display the calculated interest forever because the loop will never end.
3. The code fragment will not display the calculated interest and halt abruptly.
4. The code fragment will not display any output because it will not compile.

Title  
What is result of while loop?  
type  
mc  
Section

## 4.1 The while Loop

id

testbank-py-1-ch04-11

12. Which of the following code snippets displays the output exactly 10 times?

```
1. i = 0
   while i <= 10 :
       print("This is example 1.")
       i = i + 1
```

```
2. i = 0
   while i < 10 :
       print("This is example 2.")
       i = i + 1
```

```
3. i = 0
   while i < 10 :
       print("This is example 3.")
```

```
4. i = 1
   while i < 10 :
       print("This is example 4.")
       i = i + 1
```

Title

Which while loop executes 10 times?

type

mc

Section

4.1 The while Loop

id

testbank-py-1-ch04-12

13. What is the output of the following code snippet?

```
i = 1
while i != 9 :
    print(i , end = " ")
    i = i + 1
    if i == 9 :
        print("End")
```

1. 1 End
2. 1 End (infinite loop)
3. 1 2 3 4 5 6 7 8 End
4. 1 2 3 4 5 6 7 8 End (infinite loop)

Title

What is output of while loop?

type

mc

Section

4.1 The while Loop

id

testbank-py-1-ch04-13

14. Which of the following changes will make the following code snippet display `Let us learn Python` exactly 10 times?

```
i = 0
while i <= 10 :
    print("Let us learn Python")
    i = i + 1
```

1. Replace `while i <= 10` with `while i < 9`
2. Replace `while i <= 10` with `while i < 11`
3. Replace `while i <= 10` with `while i < 12`
4. Replace `i = 0` with `i = 1`

Title

What changes needed so while loop executes 10 times?

type

mc

Section

4.1 The while Loop

id

testbank-py-2-ch04-14

from

testbank-py-1-ch04-14

15. How many times is the text "Let's have fun with Python." printed when this code snippet is run?

```
i = 0
while i <= 10 :
    print("Let's have fun with Python.")
    i = i + 1
    if i % 2 == 0 :
        i = 10
```

1. 1
2. 2
3. 3
4. 10

Title

How many times does do loop with nested if execute?

type

mc

Section

4.1 The while Loop

id

testbank-py-1-ch04-15

16. Select the statement that correctly completes the loop in this code snippet.

```

years = 20
rate = 0.05
balance = 10000
while years > 0 :
    # Place code here
    interest = balance * rate / 100
    balance = balance + interest

```

1. years = years + 1

2. years = years - 1

3. balance = balance + 1

4. balance = balance - 1

Title

Insert appropriate code in while loop

type

mc

Section

4.1 The while Loop

id

testbank-py-1-ch04-16

17. Is the following code snippet legal?

```

b = False
while b != b :
    print("Do you think in Python?")

```

1. Yes, it is legal but does not print anything.

2. Yes, it is legal and prints "Do you think in Python?" once.

3. Yes, it is legal and prints "Do you think in Python?" twice.

4. No, it is not legal and gives a compilation error.

Title

While loops with Boolean conditions

type

mc

Section

4.1 The while Loop

id

testbank-py-1-ch04-17

18. What is the output of the following code snippet?

```

i = 1
while i < 20 :
    print(i , " ")
    i = i + 2
    if i == 15 :
        i = 19

```

1. 1 3 5 7 9 11 13 15 17 19



2. 1 3 5 7 9 11 13 19
3. 1 3 5 7 9 11 13 15 17
4. 1 3 5 7 9 11 13 17 19

Title

What is output of while loop with nested if?

type

mc

Section

4.1 The while Loop

id

testbank-py-1-ch04-18

19. What are the values of i and j after the following code snippet is run?

```
i = 10
j = 20
count = 0
while count < 5 :
    i = i + i
    i = i + 1
    j = j - 1
    j = j - j
    count = count + 1
print("i = ", i , " , j = " , j)
```

1. i = 45, j = 1
2. i = 351, j = 0
3. i = 351, j = 2
4. i = 1311, j = 35

Title

What are values of i and j after while loop?

type

mc

Section

4.1 The while Loop

id

testbank-py-1-ch04-19

20. What is the output of the following code fragment?

```
i = 1
sum = 0
while i <= 15 :
    sum = sum + i
    i = i + 1
print("The value of sum is", sum)
```

1. The value of sum is 0
2. The value of sum is 105
3. The value of sum is 120
4. The value of sum is 136

Title  
What is the output of while loop that sums?  
type  
mc  
Section  
4.1 The while Loop  
id  
testbank-py-2-ch04-20  
from  
testbank-py-1-ch04-20

21. What are the values of *i* and *j* after the following code fragment runs?

```
i = 60
j = 50
count = 0
while count < 5 :
    i = i + i
    i = i + 1
    j = j - 1
    j = j - j
    count = count + 1
    print("i =", i, ", j =", j)
```

1. *i* = 1951, *j* = 0
2. *i* = 1951, *j* = 45
3. *i* = 65, *j* = 1
4. *i* = 65, *j* = 45

Title  
What are values of variables after while loop executes?  
type  
mc  
Section  
4.1 The while Loop  
id  
testbank-py-2-ch04-21  
from  
testbank-py-1-ch04-21

22. Which type of error could be reported by Python when the program contains an "off-by-one" error?

1. Syntax error
2. Compile-time error
3. Run-time error
4. Infinite loop error

Title  
What type of error is an off-by-one error?  
type  
mc  
Section

#### 4.1 The while Loop

id

testbank-py-2-ch04-22

from

testbank-py-1-ch04-22

23. What is the output of the code snippet given below?

```
i = 0
while i != 11 :
    print(i, end=" ")
    i = i + 3
```

1. 0 3 6 9 12
2. 0 3 6 9 12 15 18
3. 0 1 3 5 7 9
4. 0 3 6 9 12 ... (infinite loop)

Title

What is output of while loop?

type

mc

Section

4.1 The while Loop

id

testbank-py-2-ch04-23

from

testbank-py-1-ch04-23

24. How many times does the following code fragment display "Hi"?

```
i = 10
while i >= 0 :
    print("Hi")
    i = i - 1
```

1. 9 times
2. 10 times
3. 11 times
4. 12 times

Title

How many times does while loop execute?

type

mc

Section

4.1 The while Loop

id

testbank-py-1-ch04-24

25. What is the output of the following code fragment?

```

i = 1
sum = 0
while i <= 11 :
    sum = sum + i
    i = i + 1
print("The value of sum is", sum)

```

1. The value of sum is 65
2. The value of sum is 66
3. The value of sum is 55
4. The value of sum is 56

Title

What is output of while loop?

type

mc

Section

4.1 The while Loop

id

testbank-py-2-ch04-25

from

testbank-py-1-ch04-25

26. What is the output of the code snippet given below?

```

n = 0
while n * n < 100 :
    print(n * n, end = " ")
    n = n + 1

```

1. 0 1 4 9 16 25 36 49 64 81
2. 0 1 2 3 4 5 6 7 ... 99 100
3. 0 1 1 2 3 5 8 13 21 34 55 89
4. 0 0 0 0 0 0 (infinite loop)

Title

What is output of this while loop?

type

mc

Section

4.1 The while Loop

id

testbank-py-1-ch04-26

27. What is the last line of output produced by the code snippet below?

```

i = 0
total = 0
while total < 0 :
    i = i + 1
    total = total - i
    print(i, total)

```

1. 0 0

2. 1 1

3. No output

4. 0 -1

Title

What does this code snippet produce?

type

mc

Section

4.1 The while Loop

id

testbank-py-2-ch04-27

from

testbank-py-1-ch04-27

28. How many times does the following loop run?

```
i = 0
j = 1
while j >= 1 :
    print(" " , i , ";" , j)
    i = j + 1
    if i % 2 == 0 :
        j = j - 1
```

1. 0 times

2. 1 time

3. 2 times

4. 4 times

Title

How many times does do loop with nested if execute?

type

mc

Section

4.1 The while Loop

id

testbank-py-2-ch04-28

from

testbank-py-1-ch04-28

29. What is the output of the code snippet given below?

```
s = "abcde"
length = len(s)
i = 1
while i < length :
    print(s[i])
    i = i + 1
```

1. No output

2. abcd

3. abcde

## 4. bcde

Title

What is the output of while loop with the slice operator?

type

mc

Section

4.1 The while Loop

id

testbank-py-1-ch04-29

30. What is the output of the code snippet given below?

```
s = "abcde"
i = 1
while i < 5 :
    if i > 1 :
        print(s[i])
```

1. No output
2. No output (infinite loop)
3. abcde
4. bcde

Title

What is output of while loop with nested if?

type

mc

Section

4.1 The while Loop

id

testbank-py-1-ch04-30

31. What is the output of the code snippet given below?

```
s = "abcde"
j = len(s) - 1
while j >= 0 :
    print(s[j])
    j = j - 1
```

1. abcd
2. bcde
3. bcbcd
4. edcba

Title

What is output of the while loop?

type

mc

Section

4.1 The while Loop

id

```
testbank-py-2-ch04-31
from
testbank-py-1-ch04-31
```

32. What is the output of the code snippet given below?

```
s = "12345"
i = 0
while i < 5 :
    print(s[i])
    i = i + 1
```

1. No output
2. 1234
3. 12345
4. 2345

Title

What is output of while loop?

type

mc

Section

4.1 The while Loop

id

testbank-py-1-ch04-32

33. What is the output of the code snippet given below?

```
s = "12345"
i = 1
while i < 5 :
    if i > 1 :
        print(s[i])
```

1. No output
2. No output (infinite loop)
3. 12345
4. 2345

Title

What is output of while loop with nested if?

type

mc

Section

4.1 The while Loop

id

testbank-py-1-ch04-33

34. How many times does the code snippet below display "Hello"?

```
i = 0
while i != 15 :
    print("Hello")
    i = i + 1
```

1. Infinite times
2. 14 times
3. 15 times
4. 16 times

Title

How many times does while loop display result?

type

mc

Section

4.1 The while Loop

id

testbank-py-1-ch04-34

35. What is the output of the code snippet given below?

```
i = 0
while i != 11 :
    print(" ", i)
    i = i + 2
```

1. No output
2. 0 2 4 6 8
3. 10 12 14 16 18 ... (infinite loop)
4. 0 2 4 6 8 ... (infinite loop)

Title

What is output of while loop?

type

mc

Section

4.1 The while Loop

id

testbank-py-2-ch04-35

from

testbank-py-1-ch04-35

36. How many times does the following loop run?

```
i = 0
j = 1
while j >= 1 :
    print(i , ";" , j)
    i = i + 1
    if i % 3 == 0 :
        j = j - 1
```

1. 1 time
2. 2 times
3. 3 times
4. 4 times

Title



How many times does this loop with a nested if run?

type  
mc  
Section  
4.1 The while Loop  
id  
testbank-py-1-ch04-36

37. What will be the output of the following code snippet?

```
token = False
while token :
    print("Hello")
```

1. "Hello" will continue to be displayed until the user stops the program.
2. No output because of compilation error.
3. No output after successful compilation.
4. "Hello" will be displayed only once.

Title  
What is output of while loop with Boolean condition?

type  
mc  
Section  
4.1 The while loop  
id  
testbank-py-2-ch04-37  
from  
testbank-py-1-ch04-37

38. What is the output of the following code snippet?

```
i = 1
while i <= 10 :
    print("Inside the while loop")
    i = i + 10
```

1. No output because of compilation error.
2. "Inside the while loop" will be displayed 10 times.
3. No output after successful compilation.
4. "Inside the while loop" will be displayed only once.

Title  
What is output of while loop?

type  
mc  
Section  
4.1 The while Loop  
id  
testbank-py-1-ch04-38

39. How many copies of the letter A are printed by the following loop?

```
i = 0
while i < 5 :
    print("A")
    i = i + 1
```

1. 0
2. 4
3. 5
4. Infinity

Title

How many copies of the letter A are printed by the following loop?

type

mc

Section

4.1 The while Loop

id

testbank-py-1-ch04-39

40. How many copies of the letter B are printed by the following loop?

```
i = 0
while i == 5 :
    print("B")
    i = i + 1
```

1. 0
2. 4
3. 5
4. Infinity

Title

How many copies of the letter B are printed by the following loop?

type

mc

Section

4.1 The while Loop

id

testbank-py-1-ch04-40

41. How many copies of the letter c are printed by the following loop?

```
i = 0
while i < 5 :
    print("C")
    i = i - 1
```

1. 0
2. 4
3. 5
4. Infinity

Title

How many copies of the letter C are printed by the following loop?

type  
mc  
Section  
4.1 The while Loop  
id  
testbank-py-1-ch04-41

42. What is the value of `i` at the end of the following code segment?

```
i = 1
while i < 32 :
    i = i * 2
```

1. 16
2. 31
3. 32
4. 64

Title  
What is the value of `i` at the end of this loop?

type  
mc  
Section  
4.1 The while Loop  
id  
testbank-py-1-ch04-42

43. The following while loop should continue to run as long as the user does **not** enter a negative number. What condition should be used to achieve this behavior?

```
x = int(input("Enter an integer: "))
while _____ :
    x = int(input("Enter an integer: "))
```

1. `x != 0`
2. `x == 0`
3. `x <= 0`
4. `x >= 0`

Title  
Fill in the correct condition for a while loop

type  
mc  
Section  
4.1 The while Loop  
id  
testbank-py-1-ch04-43

44. What are the final values of the variables `i`, `j`, and `n` at the end of this loop?

```
i = 0
j = 12
```

```

n = 0
while i != j :
    i = i + 2
    j = j - 2
    n = n + 1

```

1. 2 10 1
2. 4 8 2
3. 6 6 3
4. 0 12 0

Title

What are final values of three variables in a for loop?

type

mc

Section

4.2: Problem Solving: Hand-Tracing

id

testbank-py-1-ch04-44

45. When hand-tracing the loop in the code snippet below, which variables are important to evaluate?

```

i = 10
j = 5
k = -10
sum = 0
while i > 0 :
    sum = sum + i + j
    i = i - 1
    print("Iteration: ", i)

```

1. The variables i and j
2. The variables i and sum
3. The variables i, j, and k
4. The variables j and k

Title

Which variables are important to monitor when hand-tracing a code snippet?

type

mc

Section

4.2 Problem solving: hand-tracing

id

testbank-py-1-ch04-45

46. When hand tracing, drawing a line through the value stored in a variable means that

1. The value stored there has changed to something new
2. The variable is the wrong data type for the code being executed
3. The expression being evaluated uses that variable
4. The variable must be inside a loop

Title

What does it mean to draw a line through values when hand-tracing?

type

mc

Section

4.2 Problem solving: hand-tracing

id

testbank-py-1-ch04-46

47. When hand-tracing a portion of code, which statement about Boolean conditions is true?
1. They typically are too complex to be evaluated.
  2. They do not need to be monitored because their result usually is not stored in a variable.
  3. It is rare to encounter a Boolean condition.
  4. They are crucial to evaluate since they determine if-statement conditions and looping.

Title

Which statement about Boolean conditions is true?

type

mc

Section

4.2 Problem solving: hand-tracing

id

testbank-py-1-ch04-47

48. What is the output of this code snippet?

```
s = 1
n = 1
while s < 3 * n :
    s = s + n
    print(s , end = " ")
    n = n + 1
```

1. 2 4 7 11 16 22
2. 1 3 5 7 9
3. 2 3 5 6 7
4. 2 4 6 8

Title

What is output of do-while loop?

type

mc

Section

4.2 Problem Solving: Hand-Tracing

id

testbank-py-1-ch04-48

49. What are the values of `i` and `j` after the following code snippet executes?

```
i = 20
j = 70
count = 0
while count < 5 :
    i = i + i
```

```

i = i + 1
j = j - 1
j = j - j
count = count + 1
print(i)
print(j)

```

1. i = 25, j = 1
2. i = 25, j = 65
3. i = 671, j = 0
4. i = 671, j = 65

Title

What are values of variables after while loop executes?

type

mc

Section

4.2 Problem Solving: Hand-Tracing

id

testbank-py-1-ch04-49

50. The process of hand-tracing code is valuable because
1. It is usually faster than just running the code.
  2. It is the best way to design an algorithm.
  3. You must already have a working program in order to do it.
  4. It gives valuable insight that you do not get by running the code.

Title

Why is hand tracing valuable?

type

mc

Section

4.2 Problem Solving: Hand-Tracing

id

testbank-py-1-ch04-50

51. What is the output of the code snippet given below?

```

s = "aeiou"
i = 0
while i < 5 :
    print(s[i], s[i + 1], end = " ")
    i = i + 1
    if i >= 3 :
        i = 5

```

1. a
2. a e
3. a e i o u
4. a e e i i o

Title

What is output of the loop with nested if?

type

mc

Section

4.2 Problem Solving: Hand-Tracing

id

testbank-py-1-ch04-51

52. What is the sentinel value in the following code segment?

```
value = 15
x = int(input("Enter an integer: "))
while x != 0 :
    value = value * 2
    print(value + 3)
    x = int(input("Enter an integer: "))
```

1. 0
2. 2
3. 3
4. 15

Title

What is the sentinel value in the following code segment?

type

mc

Section

4.3 Application: Processing Sentinel Values

id

testbank-py-1-ch04-52

53. Of the following options, what should the user enter to cause the following while loop to terminate?

```
done = False
while not done :
    x = float(input("Enter a number: "))
    if x > 5.0 :
        print(x)
    elif x > 0.0 :
        done = False
    elif x < -5.0 :
        print(-x)
    else :
        done = True
```

1. -7.5
2. -2.5
3. 2.5
4. 7.5

Title

What value will cause the while loop to terminate?

type

mc

## Section

## 4.3 Application: Processing Sentinel Values

id

testbank-py-1-ch04-53

54. What happens when the following loop is executed?

```
val1 = True
val2 = False
while val1 :
    if val1 :
        print("Hello")
    val1 = val2
```

1. No output will be displayed because of a compilation error.
2. "Hello" will be displayed only once.
3. "Hello" will be displayed an infinite number of times.
4. No output will be displayed even after successful compilation of the code snippet.

Title

What is output of while loop with nested if and Boolean conditions?

type

mc

Section

## 4.3 Application: Processing Sentinel Values

id

testbank-py-2-ch04-54

from

testbank-py-1-ch04-54

55. Which of the following statements is correct about a sentinel?

1. A sentinel is a value that creates a bridge between a data set and unrelated input.
2. A sentinel is a value that is part of the data to be processed by the program.
3. A sentinel is a value that terminates a program.
4. A sentinel is a value that indicates the end of an input sequence.

Title

Which statement about sentinels is correct?

type

mc

Section

## 4.3 Application: Processing Sentinel Values

id

testbank-py-1-ch04-55

56. Which statement is correct about the execution of the loop in the following code fragment?

```
num = int(input("Please enter a number (0 when done): "))
incr = 0
while num != 0 :
    incr = incr + 1
    num = int(input("Please enter a number (0 when done): "))
print(incr)
```



1. The loop will execute only when 0 is entered.
2. The execution of the loop is independent of user input.
3. The program prints the count of positive inputs.
4. The program prints the count of inputs not equal to zero.

Title

Which statement is true about do loop with user input?

type

mc

Section

4.3 Application: Processing Sentinel Values

id

testbank-py-2-ch04-56

from

testbank-py-1-ch04-56

57. What will be the output of the following code snippet?

```
token1 = True
while token1 :
    for i in range(0,10) :
        print("Hello")
    token1 = False
```

1. No output.
2. Hello will be displayed 10 times.
3. Hello will be displayed 9 times.
4. Hello will be displayed infinite times.

Title

What is output of while loop with Boolean condition?

type

mc

Section

4.3 Application: Processing Sentinel Values

id

testbank-py-1-ch04-57

58. What is the sentinel value in the following code snippet?

```
age = 0
sumOfAges = 0
stop = 1
age = int(input("Enter an age (-1 to stop):"))
while age != -1 :
    sumOfAges = sumOfAges + age
    age = input("Enter an age (-1 to stop):")
print("Sum of ages ", sumOfAges)
```

1. 0
2. 1
3. 2
4. -1

Title  
Which is the sentinel in this snippet?

type  
mc

Section  
4.3 Application: Processing Sentinel Values

id  
testbank-py-2-ch04-58

from  
testbank-py-1-ch04-58

59. What will be the final output of the following code snippet when a user enters input values in the order 10, 20, 30, 40, 50, and -1?

```
sum = 0
count = 0
salary = 0
average = 0
while salary != -1 :
    salary = float(input("Enter salaries (-1 to stop): "))
    if salary != -1 :
        sum = sum + salary
        count = count + 1
if count > 0 :
    average = sum / count
    print("The average salary: ", average)
else :
    print("No data!")
```

1. The average salary: 0.0
2. The average salary: 30.0
3. The average salary: 24.83333
4. There will be no output as the code snippet will not compile.

Title  
What is output of snippet with input that includes a sentinel?

type  
mc

Section  
4.3 Application: Processing Sentinel Values

id  
testbank-py-2-ch04-59

from  
testbank-py-1-ch04-59

60. Insert a statement that will correctly terminate this loop when the end of input is reached.

```
done = False
while done != True :
    x = input("Enter a value")
    if x == "Q" :
```

---

1. stop

2. `done = 1`
3. `exit`
4. `done = True`

Title

Insert code to terminate a loop

type

mc

Section

4.3 Application: Processing Sentinel Values

id

testbank-py-1-ch04-60

61. Storyboards are a helpful part of the design process because the storyboard develops
  1. A pseudocode description of the algorithm being designed
  2. The mathematical formulas required for computing a correct answer
  3. The information needed to solve the problem, and how to present that information
  4. The amount of time and space needed to find a solution

Title

What is the role of the storyboard?

type

mc

Section

4.4 Problem Solving: Storyboards

id

testbank-py-1-ch04-61

62. When designing storyboards, it is a good idea to use different colors to
  1. Make it easy to distinguish between user input and program output.
  2. Match the colors your program will use when it is finally designed.
  3. Emphasize the difference between numbers and words.
  4. Draw lines to divide up panels into different regions.

Title

What is the role of colors when designing using storyboards?

type

mc

Section

4.4 Problem Solving: Storyboards

id

testbank-py-1-ch04-62

63. Suppose you must design a program to calculate the roll-out (number of inches traveled in one revolution of the pedals of a bicycle based on its gear combinations). The user must provide the gear sizes, which must be converted into roll-out for all different gear combinations. How can the flow of user interaction for this problem be designed?
  1. Hand-tracing can confirm code that implements gear selection.

2. Pseudocode can guide algorithm design through divide-and-conquer strategy.
3. A storyboard can be used.
4. The physical gears can lead to ideas for the correct algorithm to use.

Title

How can user interaction be designed for an example problem?

type

mc

Section

4.4 Problem Solving: Storyboards

id

testbank-py-1-ch04-63

64. Which statement about storyboards is true?
1. A storyboard can help prevent potential user confusion early in the design process.
  2. Storyboards are used primarily to understand how implemented programs work.
  3. The storyboard helps to train users about how to use software.
  4. Storyboards have no relationship to the structure of an actual working program.

Title

Which statement about storyboards is true?

type

mc

Section

4.4 Problem Solving: Storyboards

id

testbank-py-1-ch04-64

65. How many times does the while loop execute?

```
s = "abcdEfghI"
found = False
count = 0
while found == False :
    if s[count].isupper() :
        print(letter)
        found = True
    count = count + 1
```

1. 9 times
2. 8 times
3. 5 times
4. 1 time

Title

Finding the first match

type

mc

Section

4.5 Common Loop Algorithms

id

testbank-py-2-ch04-65

from  
testbank-py-1-ch04-65

66. Consider the following code snippet. What should be placed in the blank to cause a message to be displayed when the user enters the same letter twice in a row?

```
letter = input("Enter the next letter in the alphabet: ")
while letter != "":
    previous = letter
    letter = input("Enter the next letter")
    if _____ :
```

1. letter == letter
2. alphabet[0] == letter
3. letter == previous
4. alphabet[0] == previous

Title  
Compare adjacent values  
type  
mc  
Section  
4.5 Common Loop Algorithms  
id  
testbank-py-2-ch04-66  
from  
testbank-py-1-ch04-66

67. What is the output of this code snippet if the user enters the numbers 1 2 3 4 -1?

```
total = 0
validNumber = True
while validNumber :
    value = int(input("Please enter a positive value < 100: "))
    if value > 0 and value < 100 :
        total = total + value
    else :
        validNumber = False
print(total)
```

1. 15
2. 14
3. 12
4. 10

Title  
What is the output of this code snippet with this user input?  
type  
mc  
Section  
4.5 Common Loop Algorithms  
id

```

testbank-py-2-ch04-67
from
testbank-py-1-ch04-67

```

68. What will be printed by the statements below?

```

a = 10
while a > 5 :
    print(a , end = " ")
    a = a - 2

```

1. 10 9 8 7 6 5
2. 10 8 6 4
3. 10 8 6
4. 10 8

Title

What will be printed by the statements below?

type

mc

Section

4.5 Common Loop Algorithms

id

testbank-py-1-ch04-68

69. What will be printed by the statements below?

```

a = 10
while a > 5 :
    a = a - 2
    print(a , end = " ")

```

1. 10 8 6
2. 10 8 6 4
3. 8 6
4. 8 6 4

Title

What will be printed by the statements below?

type

mc

Section

4.5 Common Loop Algorithms

id

testbank-py-2-ch04-69

from

testbank-py-1-ch04-69

70. What will be printed by the statements below?

```

val = 1
sum = 0
while val < 5 :

```

```

    sum = sum + val
    val = val + 1
print(sum)

```

1. 4
2. 5
3. 10
4. 15

Title

What will be printed by the statements below?

type

mc

Section

4.5 Common Loop Algorithms

id

testbank-py-1-ch04-70

71. What will be printed by the statements below?

```

val = 1
sum = 0
while val < 5 :
    sum = 0
    sum = sum + val
    val = val + 1
print(sum)

```

1. 15
2. 10
3. 5
4. 4

Title

What will be printed by the statements below?

type

mc

Section

4.5 Common Loop Algorithms

id

testbank-py-1-ch04-71

72. What will be printed by the statements below?

```

for ctr in range(0, 10) :
    print(ctr, end = " ")

```

1. 0 1 2 3 4 5 6 7 8 9 10
2. 0 1 2 3 4 5 6 7 8 9
3. 0 2 4 6 8
4. 0 1 3 5 7 9

Title

What will be printed by the statements below?

type

mc

Section

4.5 Common Loop Algorithms

id

testbank-py-1-ch04-72

73. What will be printed by the statements below?

```
for ctr in range(10, 5, -1) :
    print(ctr, end = " ")
```

1. 10 9 8 7 6 5

2. 10 9 8 7 6

3. 5 6 7 8 9 10

4. 6 7 8 9 10

Title

What will be printed by the statements below?

type

mc

Section

4.5 Common Loop Algorithms

id

testbank-py-1-ch04-73

74. Which of the following loops will print the odd numbers between 0 and 20?

1. 

```
num = 1
while num < 20 :
    print(num, " ")
    num = num + 2
```

2. 

```
num = 1
while num < 20 :
    print(num, " ")
    num = num + 1
```

3. 

```
num = 0
while num < 20 :
    print(num, " ")
    num = num + 2
```

4. 

```
num = 1
while num < 20 :
    num = num + 2
    print(num, " ")
```

Title

What will be printed by the statements below?

type

mc

Section



## 4.5 Common Loop Algorithms

id

testbank-py-1-ch04-74

75. Which of the following loops will print the odd numbers between 0 and 20?

```
1. num = 1
   while num < 11 :
       value = num * 2 - 1
       print(value, " ")
       num = num + 1
```

```
2. num = 1
   while num < 20 :
       value = num * 2 - 1
       print(value, " ")
       num = num + 1
```

```
3. num = 1
   while num < 10 :
       print(num, " ")
       num = num + 2
```

```
4. num = 1
   while num < 20 :
       num = num + 2
       print(num, " ")
```

Title

What will be printed by the statements below?

type

mc

Section

4.5 Common Loop Algorithms

id

testbank-py-1-ch04-75

76. Which of the following conditions can be added to the code below so it will loop until the value of sum is greater than 100?

```
sum = input("enter an integer")
while # Put condition here :
    sum = sum + input("Enter an integer")
```

```
1. sum != 0
```

```
2. sum <= 100
```

```
3. sum > 100
```

```
4. sum == 100
```

Title

Which of the following conditions can be added to the code below so it will loop until the value of sum is greater than 100?

type

mc

Section

4.5 Common Loop Algorithms

id

testbank-py-1-ch04-76

77. What does the following code compute?

```
sum = 0
count = 0
value = input("enter an integer")
while value > 0 :
    sum = sum + value
    count = count + 1
    value = input("enter next integer")
result = sum * 1.0 / count
print(result)
```

1. The average of all the integers in the input
2. The sum of all the positive integers in the input divided by the number of integers in the input
3. The average of all the positive integers in the input
4. The second smallest value in the input

Title

What does the following loop compute?

type

mc

Section

4.5 Common Loop Algorithms

id

testbank-py-1-ch04-77

78. What is printed by the following code segment?

```
position = 0
str = input("Enter a string: ")
while position < len(str) and str[position] != 'e' :
    position = position + 1
print(position)
```

1. The position of the first 'e' in the string or the length of the string if there is no 'e'
2. The position of the last 'e' in the string or the length of the string if there is no 'e'
3. The position of the first character that is not an 'e' in the string or the length of the string if there is no character that is not an 'e'
4. The position of the last character that is not an 'e' in the string or the length of the string if there is no character that is not an 'e'

Title

What does the code segment below print?

type

mc

## Section

## 4.5 Common Loop Algorithms

id

testbank-py-2-ch04-78

from

testbank-py-1-ch04-78

79. What is the output of the code below?

```
for val in range(0, 4) :
    print("+", end = "")
    for num in range(0, val) :
        print("0", end = "")
```

1. +0+00+000+0000
2. +000+000+000+000
3. ++0+00+000
4. ++++000000

Title

What is the output of the code below?

type

mc

Section

## 4.5 Common Loop Algorithms

id

testbank-py-1-ch04-79

80. What is the output of the code below?

```
num = 1
for val in range(0, 4) :
    sum = val
    for x in range(0, val, num) :
        sum = sum + x
    print(sum , end = " ")
```

1. 1 3 6
2. 1 2 3 6
3. 0 1 3 6
4. 0 1 2 3 3

Title

What is the output of the code below?

type

mc

Section

## 4.5 Common Loop Algorithms

id

testbank-py-1-ch04-80

81. How many times does the following loop execute?

```

i = 0
found = False
while i < 100 and found != True :
    i = i + 1
    print(i, end = " ")
    j = i * i
    if i * i * i % j == j :
        found = True

```

1. 10 times
2. 20 times
3. 100 times
4. An infinite number of times

Title

How many times does the following loop execute?

type

mc

Section

4.5 Common Loop Algorithms

id

testbank-py-1-ch04-81

82. Which code snippet produces the sum of the first n positive even numbers? Note that 0 is neither positive nor negative.

1. 

```
sum = 0
for i in range(1, n) :
    if i % 2 == 0 :
        sum = sum + i
```
2. 

```
sum = 0
for i in range(1, n + 1) :
    sum = sum + i * 2
```
3. 

```
sum = 0
for i in range (0, n) :
    if i % 2 == 0 :
        sum = sum + i
```
4. 

```
sum = 0
for i in range(1, n) :
    sum = sum + i * 2
```

Title

Which code snippet produces the sum of the first n even numbers?

type

mc

Section

4.5 Common Loop Algorithms

id

testbank-py-2-ch04-82

from

testbank-py-1-ch04-82

83. What is the output of this loop?

```
i = 0
found = False
while i < 20 and found != True :
    sum = i * 2 + i * 3
    print(sum, end=" ")
    if sum > 50 :
        found = True
    i = i + 1
```

1. 0 5 10 15 20 25 30 35 40 45 50 55
2. 0
3. No output, compilation error
4. 0 5 10

Title

What is the output of loop with Boolean?

type

mc

Section

4.5 Common Loop Algorithms

id

testbank-py-2-ch04-83

from

testbank-py-1-ch04-83

84. The following program is supposed to sum all of the numbers entered by the user. What line of code must be inserted in the blank so that the program will achieve this goal?

```
total = 0.0
inputStr = input("Enter a value: ")
while inputStr != "" :
    value = float(inputStr)
    _____
    inputStr = input("Enter a value: ")
```

1. value = value + inputStr
2. value = value + total
3. total = total + inputStr
4. total = total + value

Title

Complete the while loop that sums the numbers entered by the user

type

mc

Section

4.5 Common Loop Algorithms

id

testbank-py-1-ch04-84

85. The following program is supposed to count how many even numbers are entered by the user. What line of code must be inserted in the blank so that the program will achieve this goal?

```
evens = 0
inputStr = input("Enter a value: ")

_____
    value = int(inputStr)
    if value % 2 == 0:
        evens = evens + 1
    inputStr = input("Enter a value: ")

1. while inputStr != 0 :
2. while inputStr % 2 == 0 :
3. while inputStr == 2 or 4 or 6 or 8 or 10 or ... :
4. while inputStr != "" :
```

Title

Complete the while loop that counts the number of even numbers entered by the user

type

mc

Section

4.5 Common Loop Algorithms

id

testbank-py-1-ch04-85

86. The following program is supposed to continue reading values from the user until a value between 25 and 75 is entered. What line of code must be inserted in the blank so that the program will achieve this goal?

```
value = int(input("Enter a value: "))

_____
    value = int(input("Enter a value: "))

1. while value >= 25 or value <= 75 :
2. while value >= 25 and value <= 75 :
3. while value < 25 or value > 75 :
4. while value < 25 and value > 75 :
```

Title

Complete the while loop that reads values until the user enters a value between 25 and 75

type

mc

Section

4.5 Common Loop Algorithms

id

testbank-py-1-ch04-86

87. The following program is supposed to print a message any time the user enters two consecutive values that are the same. What line of code must be inserted in the blank so that the program will achieve this goal?

```
value = int(input("Enter a value: "))
inputStr = input("Enter a value: ")
while inputStr != "" :
    previous = value
    value = int(inputStr)

_____
```

```

    print("Found consecutive values that are the same")
    inputStr = input("Enter a value: ")

    1. if value == inputStr :
    2. if value == input :
    3. if previous == inputStr :
    4. if previous == value :
```

Title

Complete the while loop for finding consecutive identical values

type

mc

Section

4.5 Common Loop Algorithms

id

testbank-py-1-ch04-87

88. What is the output of this loop?

```

counter = 1
for i in range(1, 100) :
    counter = counter + 1
print(counter)
```

1. 100
2. 49
3. 60
4. 10

Title

What is the output of for loop

type

mc

Section

4.6 The for Loop

id

testbank-py-1-ch04-88

89. What does the following code snippet print?

```

fruitName = "banana"
for letter in fruitName :
    print(letter, end = " ")
```

1. banana
2. b a n a n a
3. Nothing, there is a syntax error
4. Nothing, this is an infinite loop

Title

What does the for loop print?

type

mc

## Section

## 4.6 The for Loop

id

testbank-py-1-ch04-89

90. What is the output of the following code snippet?

```
for i in range(4) :
    for j in range(3) :
        print("*", end="")
    print()
```

1. Prints 3 rows of 4 asterisks each
2. Prints 12 rows of asterisks
3. Prints 4 rows of 3 asterisks each
4. Prints 12 rows of 3 asterisks each

Title

Which is a loop with a problematic condition?

type

mc

Section

## 4.6 The for Loop

id

testbank-py-1-ch04-90

91. How many times does the loop execute in the following code fragment?

```
for i in range(0, 50, 4) :
    print(i)
```

1. 11
2. 12
3. 13
4. 14

Title

How many times does for loop execute?

type

mc

Section

## 4.6 The for Loop

id

testbank-py-1-ch04-91

92. How many times does the following code snippet display "Loop Execution"?

```
for i in range(0, 10) :
    print("Loop Execution")
```

1. Ten times.
2. The code snippet does not run because of a compile error.
3. Infinite loop.



4. Only one time.

Title

How many times does for loop execute?

type

mc

Section

4.6 The for Loop

id

testbank-py-1-ch04-92

93. Which of the following is considered an equivalent while loop for this for loop?

```
s = 0
for i in range(1, 10) :
    s = s + i
```

1. 

```
s = 0
i = 0
while i <= 10 :
    s = s + i
    i = i + 1
```

2. 

```
s = 0
i = 1
while i < 10 :
    s = s + i
    i = i + 1
```

3. 

```
s = 0
i = 1
while i <= 10 :
    s = s + i
    i = i + 1
```

4. 

```
s = 0
i = 0
while i < 10 :
    s = s + i
    i = i + 1
```

Title

Rewrite a for loop using a while loop

type

mc

Section

4.6 The for Loop

id

testbank-py-1-ch04-93

94. Which statement about this code snippet is accurate?

```
years = 50
balance = 10000
targetBalance = 20000
```

```

rate = 3
for i in range(1 , years + 1) :
    if balance >= targetBalance :
        i = years + 1
    else :
        interest = balance * rate / 100
        balance = balance + interest

```

1. The loop will run 50 times.
2. The loop will never stop.
3. The loop will run at most 50 times, but may stop earlier when balance exceeds or equals targetBalance.
4. There is a compilation error.

Title

For loop with inside if statement

type

mc

Section

4.6 The for Loop

id

testbank-py-1-ch04-94

95. What values does counter variable i assume when this loop executes?

```

for i in range(20, 2, -6) :
    print(i, end = ", ")

```

1. 20, 14, 8, 2
2. 20, 14, 8, 2, -4
3. 20, 14, 8
4. 14, 8, 2

Title

Which values does the counter variable assume in for loop?

type

mc

Section

4.6 The for Loop

id

testbank-py-1-ch04-95

96. Which of the following for loops is illegal?

1. for i in range(0, ) :
2. for i in range(0) :
3. for i in range(0, k) :
4. for i in range( , ) :

Title

Which of the following for loops is illegal?

type

mc

## Section

## 4.6 The for Loop

id

testbank-py-2-ch04-96

from

testbank-py-1-ch04-96

97. What is the output of the following code snippet?

```
f1 = 0
f2 = 1
print(f1, " ")
print(f2, " ")
for i in range(1, 11) :
    fRes = f1 + f2
    print(fRes, end = " ")
    f1 = f2
    f2 = fRes
print()
```

1. 0 1 5 7 9 11 13 15 17 19 55

2. 0 1 1 2 3 5 8 13 21 34 55 89

3. 0 1 4 6 8 10 12 14 16 18 34

4. 0 1 6 7 9 12 14 17 19 21 55

Title

What is the output of for loop?

type

mc

Section

4.6 The for Loop

id

testbank-py-1-ch04-97

98. How many iterations does the following loop carry out?

```
for i in range (-10, 11, 2) :
```

1. infinite

2. None because of compilation error

3. 11 times

4. 20 times

Title

How many times does the loop execute?

type

mc

Section

4.6 The for loop

id

testbank-py-1-ch04-98

99. How many times does the following loop execute?

```
for d in range(1, 10) :
    d = d / 3
    print(d , " ")
```

1. 10
2. 9
3. 8
4. An infinite number of times

Title

How many times does the following loop execute?

type

mc

Section

4.6 The for Loop

id

testbank-py-1-ch04-99

100. Which of the following for loops will run the loop body 5 times?

1. for i in range(0, 4) :
2. for i in range(0, 5) :
3. for i in range(0, 6) :
4. for i in range(1, 5) :

Title

Which of the following for loops will run the loop body 5 times

type

mc

Section

4.6 The for Loop

id

testbank-py-1-ch04-100

101. Which of the following for loops will run the loop body 5 times?

1. for i in range(4, 0, -1) :
2. for i in range(5, 0, -1) :
3. for i in range(5, 1, -1) :
4. for i in range(6, 0, -1) :

Title

Which of the following for loops will run the loop body 5 times

type

mc

Section

4.6 The for Loop

id

testbank-py-1-ch04-101

102. What is the value of j at the end of the following code segment?

```
j = 0
for i in range(0, 4) :
    j = j + i
```

1. 4
2. 6
3. 8
4. 10

Title

Trace a for loop

type

mc

Section

4.6 The for Loop

id

testbank-py-1-ch04-102

103. What is the value of `j` at the end of the following code segment?

```
j = 0
for i in range(1, 10) :
    if j < 10 :
        j = j + i
```

1. 0
2. 1
3. 9
4. 10

Title

Trace a for loop

type

mc

Section

4.6 The for Loop

id

testbank-py-1-ch04-103

104. Consider the following `for` loop:

```
for i in range(0, 10) :
    print(i)
```

Which of the following `while` loops will generate the same output?

1. 

```
i = 0
while i < 10 :
    print(i)
    i = i + 1
```
2. 

```
i = 0
while i <= 10 :
```

```
print(i)
i = i + 1
```

3. `i = 1`  
`while i < 10 :`  
 `print(i)`  
 `i = i + 1`

4. `i = 1`  
`while i <= 10 :`  
 `print(i)`  
 `i = i + 1`

Title

Convert a for loop to a while loop

type

mc

Section

4.6 The for Loop

id

testbank-py-1-ch04-104

105. Consider the following `while` loop:

```
j = 10
while j >= 5 :
    print("X")
    j = j - 1
```

Which of the following `for` loops will generate the same output?

1. `for j in range(10, 5) :`  
 `print("X")`
2. `for j in range(10, 5, -1) :`  
 `print("X")`
3. `for j in range(10, -1, -2) :`  
 `print("X")`
4. `for j in range(0, 5) :`  
 `print("X")`

Title

Convert a while loop to a for loop

type

mc

Section

4.6 The for Loop

id

testbank-py-1-ch04-105

106. When does the execution switch from the inner to the outer loop?

```

j = 1
for i in range(0, 10) :
    while(j < 5) :
        print("Hello")
        if j == 2 :
            j = 6
        j = j + 1
    print("switch from inner to outer", i, " ", j)

```

1. When the value of j becomes 6
2. When the program executes completely
3. When the condition for the outer loop is met
4. When the value of i is incremented

Title

When does execution switch from inner to outer loop?

type

mc

Section

4.7 Nested Loops

id

testbank-py-1-ch04-106

107. A loop inside another loop is called:

1. A sentinel loop
2. A nested loop
3. A parallel loop
4. A while loop

Title

What is a loop inside another loop?

type

mc

Section

4.7 Nested Loops

id

testbank-py-1-ch04-107

108. What is the first and last value of i to be displayed by the following code snippet?

```

n = 20
for i in range(0, n) :
    for j in range(0, i) :
        print(i)

```

1. 0 and 20
2. 1 and 20
3. 0 and 19
4. 1 and 19

Title

What are first and last values displayed by nested for loop?

type

mc  
 Section  
 4.7 Nested Loops  
 id  
 testbank-py-1-ch04-108

109. How many times will the output line be printed in the following code snippet?

```
for num2 in range(1, 4) :
    for num1 in range(0, 3) :
        print(num2, " ", num1)
```

1. 3 times
2. 6 times
3. 9 times
4. 12 times

Title  
 How many times will inner for loop execute?  
 type  
 mc  
 Section  
 4.7 Nested Loops  
 id  
 testbank-py-1-ch04-109

110. What is the last output line of the code snippet given below?

```
for i in range(3) :
    for j in range(5) :
        if i % 2 == j % 2 :
            print(" ", end=" ")
        else :
            print(" ", end=" ")
    print()
```

1. No output
2. \* \* \* \* \* ... infinite loop
3. \* \* \* \*
4. \* \* \*

Title  
 What is output of nested loops?  
 type  
 mc  
 Section  
 4.7 Nested Loops  
 id  
 testbank-py-1-ch04-110

111. What is the last output line of the code snippet given below?



```

i = 0
j = 0
while i < 10 :
    num = 1
    j = i
    while j > 1 :
        print(j, end = " ")
        num = num * 2
        j = j - 1
    print("***")
    i = i + 1

```

1. 3 2 \*\*\*
2. 9 8 7 6 5 4 3 2 \*\*\*
3. 8 7 6 5 4 3 2 \*\*\*
4. 2 \*\*\*

Title

What is output of nested loops?

type

mc

Section

4.7 Nested Loops

id

testbank-py-1-ch04-111

112. What does the following code snippet display?

```

for n in range(1, 11) :
    for x in range(1, 11) :
        print(n*x, end = " ")
    print()

```

1. It displays a multiplication table for numbers 1-10 times 1-10
2. Nothing because it has compilation error.
3. It displays a table of all numbers squared from 1-10
4. It displays a multiplication table for numbers 1-11 times 1-11

Title

What does for loop with character creation display?

type

mc

Section

4.7 Nested loops

id

testbank-py-2-ch04-112

from

testbank-py-1-ch04-112

113. Which for loop prints data across each row in the following code snippet?

```

for i in range(1, 4) :
    for j in range(1, 4) :

```

```
print("X", end="")
print("")
```

1. The inner for loop
2. The outer for loop
3. Both for loops
4. Another missing for loop

Title

Which for loop in snippet represents rows?

type

mc

Section

4.7 Nested Loops

id

testbank-py-1-ch04-113

114. What will be the output of the following code snippet?

```
for i in range(0,7) :
    for j in range(7, i, -1) :
        print("*", end="")
    print("")
```

1. A rectangle with six rows and seven columns of asterisks. The number of rows increments by one on completion of one iteration of the inner loop.
2. A right triangle with six rows and seven columns of asterisks. The number of columns increments by one on completion of one iteration of the inner loop.
3. A rectangle with seven rows and six columns of asterisks. The number of rows increments by one on completion of one iteration of the inner loop.
4. A right triangle with seven rows and seven columns of asterisks. The number of columns decrements by one on completion of one iteration of the inner loop.

Title

What is output of nested for loops?

type

mc

Section

4.7 Nested Loops

id

testbank-py-1-ch04-114

115. In the following code snippet, how many times will "Hello" be printed?

```
for i in range(0, 10) :
    for j in range(1, 5) :
        print("Hello")
```

1. 40
2. 15
3. 39
4. 14

Title

When does execution switch from inner to outer loop in snippet?

type

mc

Section

4.7 Nested Loops

id

testbank-py-1-ch04-115

116. Which of the following code segments is an example of a nested loop?

1. `while i < 0 :`  
    `if x == 10 :`
2. `while i < 0 :`  
    `while x == 10 :`
3. `if i < 0 :`  
    `while x == 10 :`
4. `if i < 0 :`  
    `if x == 10 :`

Title

Which of the following code segments is an example of a nested loop?

type

mc

Section

4.7 Nested Loops

id

testbank-py-1-ch04-116

117. Consider the following code segment:

```
for i in range(4) :
    _____
    print(" ", end=" ")
    print()
```

It is supposed to generate the following output:

```
***
***
***
***
```

Which line of code should be placed in the blank to achieve this goal?

1. `for j in range(3) :`
2. `for j in range(4) :`
3. `for j in range(i) :`
4. `for j in range(j) :`

Title

Draw a pattern with nested for loops

type  
mc  
Section  
4.7 Nested Loops  
id  
testbank-py-1-ch04-117

118. How many copies of the letter A will the following code segment display?

```
for i in range(100) :
    for j in range(5) :
        print("A")
```

1. 400
2. 495
3. 500
4. 605

Title  
How many copies of the letter A will be displayed?  
type  
mc  
Section  
4.7 Nested Loops  
id  
testbank-py-1-ch04-118

119. What is the output of this code snippet?

```
str = "ABCabc"
i = 0
while i < len(str) :
    ch = str[i]
    if ch.islower() :
        print(i , " ")
    else :
        i = i + 1
```

1. 3 4 5
2. 3
3. 3 3 3 3 3 ... (infinite loop)
4. 0 1 2

Title  
What is the output of code snippet with while loop?  
type  
mc  
Section  
4.8 Processing strings  
id  
testbank-py-1-ch04-119

120. Consider the following code segment. It is supposed to count the number of digits (0 - 9) in a string, text.

```
count = 0
for char in text :
    _____
    count = count + 1
```

What line of code should be placed in the blank to achieve this goal?

1. if text[char] >= "0" and text[char] <= "9" :
2. if text[count] >= "0" and text[count] <= "9" :
3. if char >= "0" and char <= "9" :
4. if text >= "0" and char <= "9" :

Title

Complete the for loop that counts the number of digits in a string

type

mc

Section

4.8 Processing Strings

id

testbank-py-1-ch04-120

121. Is the code snippet written below legal?

```
s = "1234"
for i in range (0, 4) :
    print(s[i], s[i + 1])
```

1. Yes.
2. No; there should not be a colon at the end of line 2.
3. No; for i = 3, s[i + 1] will result in a string index out of range error.
4. No; for i = 0, s[i] will result in a string index out of range error

Title

Are there errors in for loop?

type

mc

Section

4.8 Processing Strings

id

testbank-py-1-ch04-121

122. Consider the following code segment:

```
found = False
position = 0
text = "Hello World!"
while not found and position < len(text) :
    if text[position] == "o" :
        found = True
    else :
        position = position + 1
```

What is the value of `position` at the end of this code segment?

1. 4
2. 5
3. 7
4. 8

Title

Trace a while loop that processes a string

type

mc

Section

4.8 Processing Strings

id

testbank-py-1-ch04-122

123. Consider the following code segment. It is designed to identify the first location within a string, `text` where two adjacent characters are the same.

```
i = 1
found = False
while not found and i < len(text) :
    _____ :
    found = True
else :
    i = i + 1
```

What line of code should be placed in the blank to achieve this goal?

1. `if text[i] == text[0] :`
2. `if text[i] == text[i - 1] :`
3. `if text[i] == text[i] :`
4. `if text[i] == text[i + 1] :`

Title

Complete the loop that finds the location of two adjacent characters that are the same

type

mc

Section

4.8 Processing Strings

id

testbank-py-1-ch04-123

124. What will be the range of the random numbers generated by the following code snippet?

```
from random import randint
randomNum = randint(1,50)
```

1. Between 1 and 49
2. Between 0 and 50
3. Between 0 and 49
4. Between 1 and 50

Title

What is range of random numbers generated by snippet?

type

mc

Section

4.9 Application: Random Numbers and Simulations

id

testbank-py-1-ch04-124

125. Which of the following is the correct code snippet for throwing a pair of dice to get a sum of the numbers on two dice between 2 and 12 with the same probability as when throwing actual dice?

1. `randint(1, 6)`

2. `randint(2, 12)`

3. `randint(1, 6) + randint(1, 6)`

4. `randint(1, 12) - 2`

Title

Which code simulates throwing two dice and summing the result?

type

mc

Section

4.9 Application: Random Numbers and Simulations

id

testbank-py-1-ch04-125

126. Suppose that a program asks a user to enter multiple integers, either positive or negative, to do some calculation. The data entry will stop when the user enters a certain value to indicate the end of the data. What value should the code use as the sentinel?

1. 0

2. -1

3. 999

4. An alphabetic character

Title

What should be the sentinel value in this situation?

type

mc

Section

4.9 Application: Processing Sentinel Values

id

testbank-py-1-ch04-126

127. Which of the following activities can be simulated using a computer?

I. Waiting time in a line at a restaurant

II. Tossing a coin

### III. Shuffling cards for a card game

1. I only
2. II only
3. I and II only
4. I, II, and III

Title

Which activities can be computer simulated?

type

mc

Section

4.9 Application: Random Numbers and Simulations

id

testbank-py-1-ch04-127

128. What range of numbers are generated by the random() function?

1. greater than or equal to zero and less than one
2. greater than zero and less than one
3. greater than zero and less than or equal to one
4. greater than or equal to zero and less than or equal to one

Title

What is output of the code snippet with random()?

type

mc

Section

4.9 Application: Random Numbers and Simulations

id

testbank-py-1-ch04-128

129. What does the following code do?

```
from random import randint

sum = 0
COUNT = 1000
for i in range(1,COUNT + 1) :
    sum = sum + randint(0, 100)
print(sum / COUNT)
```

1. It simulates the outcome of throwing a coin.
2. It calculates the average of 1000 random numbers between 0 and 100.
3. It performs a Monte Carlo fluid dynamics simulation.
4. It calculates the average of 1000 random numbers between 1 and 101.

Title

What does code snippet with random numbers do?

type

mc

Section

4.9 Application: Random Numbers and Simulations



id  
testbank-py-2-ch04-129  
from  
testbank-py-1-ch04-129

130. Which of the following loops executes exactly 10 times?

1. `for i in range(1, 11) :`  
    `i = 1`
2. `found = False`  
    `while i < 10 and found != True :`  
        `i = i + 1`  
        `if i % 10 == 0 :`  
            `found = True`
3. `i = 0`  
    `while i <= 10 :`  
        `i = i + 1`
4. `i = 0`  
    `for i in range (1, 10) :`  
        `print(i)`

Title  
Which of the following loops executes exactly 10 times?  
type  
mc  
Section  
4.3 Application: Processing Sentinel Values  
id  
testbank-py-2-ch04-130  
from  
testbank-py-1-ch04-130

131. Which of the following statements correctly prints the result of simulating the toss of a pair of coins to get 0 (heads) or 1 (tails) for each coin?

1. `print(randint(0, 1))`
2. `print(randint(1, 1))`
3. `print(randint(0, 2), randint(0, 2))`
4. `print(randint(0, 1), randint(0, 1))`

Title  
Which is correct for simulating the toss of a pair of coins?  
type  
mc  
Section  
4.9 Application: Random Numbers and Simulations  
id

```

testbank-py-2-ch04-131
from
testbank-py-1-ch04-131

```

132. Which of the following code snippets will generate a random number between 0 and 79?

1. `val = int(random() % 80)`
2. `val = int(random() * 80 - 1)`
3. `val = int(random() % 79)`
4. `val = int(random() * 80)`

Title

Which code generates random numbers 0-79?

type

mc

Section

4.9 Application: Random Numbers and Simulations

id

testbank-py-2-ch04-132

from

testbank-py-1-ch04-132

133. When will the loop in the following code snippet stop?

```

sum = 0
count = 1
str = input("Enter values, Q to quit: ")
while count < 100 and str != "Q" :
    value = float(str)
    sum = sum + value
    count = count + 1
    str = input("Enter values, Q to quit: ")

```

I. When the user enters an integer

II. When the user enters the character Q

III. After the user enters 100 numbers

1. I or II
2. II only
3. III only
4. II or III

Title

When does do loop with sentinel stop?

type

mc

Section

4.3 Application: Processing Sentinel Values

id  
testbank-py-2-ch04-133  
from  
testbank-py-1-ch04-133

134. Which of the following expressions will generate a random integer in the range -20 to 20, inclusive, where each value has an equal chance of being generated?

1. `randint(-20, 20)`
2. `randint(20) - 41`
3. `randint(-20) + 40`
4. `randint(41) - 20`

Title

Which of the following will generate a random integer in the range 20 to 20, inclusive, where each value has an equal chance of being generated?

type

mc

Section

4.9: Application: Random Numbers and Simulations

id

testbank-py-2-ch04-134

from

testbank-py-1-ch04-134

135. Assume the following variable has been declared and given a value as shown:

```
from random import randint
number = randint(0, 27) * 2 + 3
```

What are the smallest and largest values that may be assigned to number?

1. 3, 55
2. 0, 27
3. 3, 57
4. 0, 26

Title

What are the smallest and largest values that may be assigned to number?

type

mc

Section

4.9: Application: Random Numbers and Simulations

id

testbank-py-1-ch04-135

136. Assume the following variable has been declared and given a value as shown:

```
from random import random
number = random() * 2 + 3
```

What are the smallest and largest values that may be assigned to number?

1. 3.0, 5.0 (excluding 5.0)
2. 0.0, 6.0 (excluding 6.0)

3. -3.0, 3.0 (including 3.0)
4. 0.0, 3.0 (including 3.0)

Title

What are the smallest and largest values that may be assigned to number?

type

mc

Section

4.9: Application: Random Numbers and Simulations

id

testbank-py-2-ch04-136

from

testbank-py-1-ch04-136

137. Which line of code will generate a random integer from 1 up to and including 10, and store it in `x`? Assume that the `randint` function has been imported from the `random` module.

1. `x = randint(0, 10)`
2. `x = randint(0, 11)`
3. `x = randint(1, 10)`
4. `x = randint(1, 11)`

Title

Which line of code will generate a random integer from 1 up to and including 10?

type

mc

Section

4.9 Application: Random Numbers and Simulations

id

testbank-py-1-ch04-137

138. Which line of code will generate a random floating-point number between 0 and 6, and store it in `x`? Assume that the `random` function has been imported from the `random` module.

1. `x = random()`
2. `x = random() * 6`
3. `x = random(6)`
4. `x = random(0, 6)`

Title

Which line of code will generate a random floating-point number between 0 and 6?

type

mc

Section

4.9 Application: Random Numbers and Simulations

id

testbank-py-1-ch04-138

139. What type of chart shows the distribution of data across a fixed number of categories?

1. A Grade Chart
2. A Height Chart
3. A Histogram

#### 4. A Plot

Title

What type of chart shows the distribution of data across a fixed number of categories?

type

mc

Section

4.7 Nested Loops

id

testbank-py-2-ch04-139

140. Using computer algorithms to manipulate digital images is known as:

1. Computer vision
2. Data compression
3. Digital photography
4. Image processing

Title

Using computer algorithms to manipulate digital images is known as:

type

mc

Section

4.10 Graphics: Digital Image Processing

id

testbank-py-2-ch04-140

141. A digital image is a collection of \_\_\_\_\_ arranged in a grid of rows and columns.

1. canvases
2. dots
3. elementary elements
4. pixels

Title

A digital image is a collection of \_\_\_\_\_ arranged in a grid of rows and columns.

type

mc

Section

4.10 Graphics: Digital Image Processing

id

testbank-py-2-ch04-141

142. In an RGB color model, what color is represented by 255, 255, 255?

1. black
2. green
3. white
4. yellow

Title

In an RGB color model, what color is represented by 255, 255, 255?

type

mc  
 Section  
 4.10 Graphics: Digital Image Processing  
 id  
 testbank-py-2-ch04-142

143. What RGB values represent green?
1. 0, 0, 255
  2. 0, 255, 0
  3. 128, 128, 128
  4. 255, 0, 0

Title  
 What RGB values represent green?  
 type  
 mc  
 Section  
 4.10 Graphics: Digital Image Processing  
 id  
 testbank-py-2-ch04-143

144. Which statement loads an image from a file and stores it in a variable? Assume that the `ezgraphics` module has already been imported using the statement:

```
from ezgraphics import GraphicsImage, GraphicsWindow
```

1. `graphicsImage = Load("mountain.gif")`
2. `Image("mountain.gif")`
3. `image = ("mountain.gif")`
4. `image = GraphicsImage("mountain.gif")`

Title  
 Which statement loads an image from a file and stores it in a variable?  
 type  
 mc  
 Section  
 4.10 Graphics: Digital Image Processing  
 id  
 testbank-py-2-ch04-144

145. What programming language structure is used to iterate over all of the individual pixels in an image?
1. A for loop (not nested)
  2. A nested for loop
  3. A nested if statement
  4. A while loop (not nested)

Title  
 What programming language structure is typically used to process all of the pixels in an image?

type

mc

Section

4.10 Graphics: Digital Image Processing

id

testbank-py-2-ch04-145

146. Which of the following image processing operations changes the grid structure of the image without modifying the pixel values?

1. Converting an image to grayscale
2. Darkening an image
3. Replacing an image with its negative
4. Rotating an image

Title

Which of the following image processing operations changes the grid structure of the image without modifying the pixel values?

type

mc

Section

4.10 Graphics: Digital Image Processing

id

testbank-py-2-ch04-146

147. Which of the following is **not** a benefit of solving a simpler problem first?

1. It can be difficult to figure out how to get started when solving a large task.
2. Solving the simpler problem first will motivate you to solve the harder problem.
3. Usually, you learn something useful from solving the simpler task.
4. When the simpler problem is solved first it reduces the amount of time the computer needs to compute the answer for the larger problem.

Title

Why is it beneficial to start by solving a simpler problem first?

type

mc

Section

4.11 Problem Solving: Solve a Simpler Problem First

id

testbank-py-2-ch04-147

148. What term is used to describe a loop where the number of times that the loop will execute is known before the body of the loop executes for the first time?

1. Definite
2. Fiscal
3. Indefinite
4. Infinite

Title

What term is used to describe a loop where the number of times that the loop will execute is known before the body of the loop executes for the first time?

type  
mc  
Section  
4.1 The while Loop  
id  
testbank-py-2-ch04-148

149. The value that denotes the end of an input sequence is known as a:

1. Sedimentary value
2. Sentimental value
3. Sentinel value
4. Sequential value

Title  
The value that denotes the end of an input sequence is known as a(n):  
type  
mc  
Section  
4.3 Application: Processing Sentinel Values  
id  
testbank-py-2-ch04-149

150. Which of the following command lines starts the python program `sum.py` so that it will read its input from `values.txt` instead of the keyboard?

1. `python sum.py < values.txt`
2. `python sum.py > values.txt`
3. `python values.txt < sum.py`
4. `python values.txt > sum.py`

Title  
Which command line uses input redirection correctly?  
type  
mc  
Section  
4.3 Application: Processing Sentinel Values  
id  
testbank-py-2-ch04-150

151. Consider the following code segment:

```
s = "Hello World!"
_____
print(ch)
```

What should be placed in the blank so that the letters of `s` are printed out with one letter appearing on each line?

1. `for ch in range(s) :`
2. `for ch in s :`
3. `for range(ch, s) :`
4. `for s in ch :`



Title Which loop prints out the letters of a string with each character appearing on its own line?  
type mc  
Section 4.6 The for Loop  
id testbank-py-2-ch04-151

152. Which print statement displays the value of `s` without starting a new line?

1. `print(end="s")`
2. `print(s, end="")`
3. `print(s)`
4. `print("s")`

Title Which print statement displays a value without starting a new line?  
type mc  
Section 4.7 Nested Loops  
id testbank-py-2-ch04-152