Python Questions and Answers – List Comprehension – 2

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This set of Python Multiple Choice Questions & Answers (MCQs) focuses on “List Comprehension – 2”.

1. Read the information given below carefully and write a list comprehension such that the output is: [‘e’, ‘o’]

x in w if x in v.

```
w="hello"
v=('a', 'e', 'i', 'o', 'u')
```

→ tuple 'v' is used to generate a list containing only vowels in the string 'w'.

a) [x for w in v if x in v]
b) [x for x in w if x in v]
c) [x for x in v if w in v]
d) [x for v in w for x in w]

View Answer

2. What will be the output of the following Python code?

```
[ord(ch) for ch in 'abc']
```

a) [97, 98, 99]
b) ['97', '98', '99']
c) [65, 66, 67]
d) Error

View Answer

3. What will be the output of the following Python code?


```
t=32.00
[round((x-32)*5/9) for x in t]
```

a) [0]
b) 0
c) [0.00]

4. Write a list comprehension for producing a list of numbers between 1 and 1000 that are divisible by 3.

a) [x in range(1, 1000) if x%3==0]

b) [x for x in range(1000) if x%3==0]

c) [x%3 for x in range(1, 1000)]

d) [x%3=0 for x in range(1, 1000)]

View Answer

5. Write a list comprehension equivalent for the Python code shown below.

```
for i in range(1, 101):
        if int(i*0.5)==i*0.5:
                print(i)
```

a) [i for i in range(1, 100) if int(i*0.5)==(i*0.5)]

b) [i for i in range(1, 101) if int(i*0.5)==(i*0.5)]

c) [i for i in range(1, 101) if int(i*0.5)=(i*0.5)]

d) [i for i in range(1, 100) if int(i*0.5)=(i*0.5)]

View Answer

6. What is the list comprehension equivalent for: list(map(lambda x:x**-1, [1, 2, 3]))?

a) [1 | x for x in [1, 2, 3]]

b) [-1**x for x in [1, 2, 3]]

c) [x**-1 for x in [1, 2, 3]]

d) [x^-1 for x in range(4)]

7. Write a list comprehension to produce the list: [1, 2, 4, 8, 16.....212].

A

a) [(2**x) for x in range(0, 13)]
b) [(x**2) for x in range(1, 13)]
c) [(2**x) for x in range(1, 13)]
d) [(x**2) for x in range(0, 13)]

$2^0, 2^1, 2^2, 2^3 \cdots 2^{12}$.

View Answer

8. What is the list comprehension equivalent for?

{x : x is a whole number less than 20, x is even} (including zero)

a) [x for x in range(1, 20) if (x%2==0)]
b) [x for x in range(0, 20) if (x//2==0)]
c) [x for x in range(1, 20) if (x//2==0)]

D

d) [x for x in range(0, 20) if (x%2==0)]

View Answer

9. What will be the output of the following Python list comprehension?

4, 16.

```
[j for i in range(2,8) for j in range(i*2, 50, i)]
```

↳ the square root of 50 is almost 7. all the multiples of 2-7 are not prime in this range.

a) A list of prime numbers up to 50
b) A list of numbers divisible by 2, up to 50

C

c) A list of non prime numbers, up to 50
d) Error

View Answer

10. What will be the output of the following Python code?

```
l=["good", "oh!", "excellent!", "#450"]
[n for n in l if n.isalpha() or n.isdigit()]
```

→ returns a new list containing only strings which do not have any punctuation in them.

a) ['good', 'oh', 'excellent', '450']

B

b) ['good']
c) ['good', '#450']
d) ['oh!', 'excellent!', '#450']

View Answer

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Python Questions and Answers – Matrix List Comprehension

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This set of Python Multiple Choice Questions & Answers (MCQs) focuses on “Matrix List Comprehension”.

1. Which of the following matrices will throw an error in Python?

a)

```
A = [[1, 2, 3],
[4, 5, 6],
[7, 8, 9]]
```

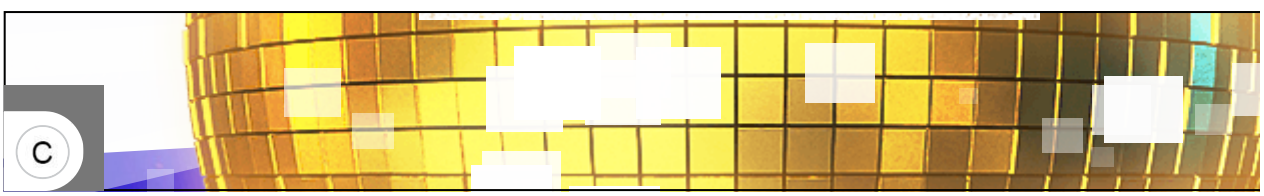
b)

```
B = [[3, 3, 3],
[4, 4, 4]
[5, 5, 5]]
```

→ results an error.
absense of comma at end.
It behaves like 3 seperated lists
The error thrown states that
the list integers must be int or slices,
not tuples.

c)

```
C = [(1, 2, 4),
(5, 6, 7),
(8, 9, 10)]
```

d)

```
D = [2, 3, 4,
3, 3, 3,
4, 5, 6]
```

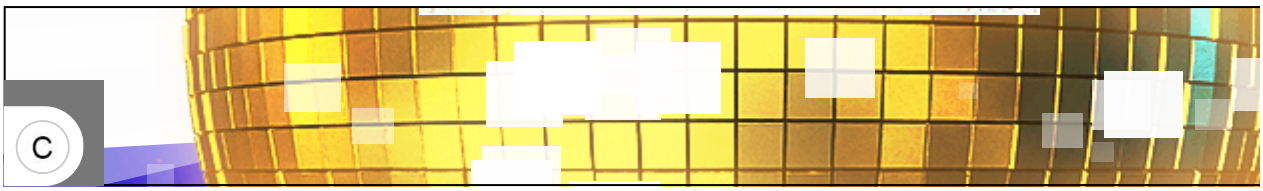
View Answer

2. What will be the output of the following Python code?


```
A = [[1, 2, 3],
     [4, 5, 6],
     [7, 8, 9]]
A[1]
```

a) [4, 5, 6]
b) [3, 6, 9]
c) [1, 4, 7]
d) [1, 2, 3]

View Answer



3. Which of the following Python statements will result in the output: 6?

```
A = [[1, 2, 3],
     [4, 5, 6],
     [7, 8, 9]]
```

a) A[2][3]
b) A[2][1]
c) A[1][2]
d) A[3][2]

View Answer

4. What will be the output of the following Python code?

a) [7, 8, 9]
b) [4, 5, 6]
c) [2, 5, 8]
d) [1, 4, 7]

View Answer

A=[[1,2,3],
[4,5,6],
[7,8,9]]
[A[row][1] for row in (0,1,2)]

5. What will be the output of the following Python code?

```
A = [[1, 2, 3],
     [4, 5, 6],
     [7, 8, 9]]
[A[i][i] for i in range(len(A))]
```

Pulling out a diagonal (对角线)

a) [1, 5, 9]
b) [3, 5, 7]
c) [4, 5, 6]
d) [2, 5, 8]

View Answer

6. What will be the output of the following Python code?

```
l=[[1, 2, 3], [4, 5, 6]]
for i in range(len(l)):
        for j in range(len(l[i])):
                l[i][j]+=10
l
```

⇒ We use range twice (for loop) if the shapes differ.

a) No output
b) Error
c) [[1, 2, 3], [4, 5, 6]]
d) [[11, 12, 13], [14, 15, 16]]

View Answer

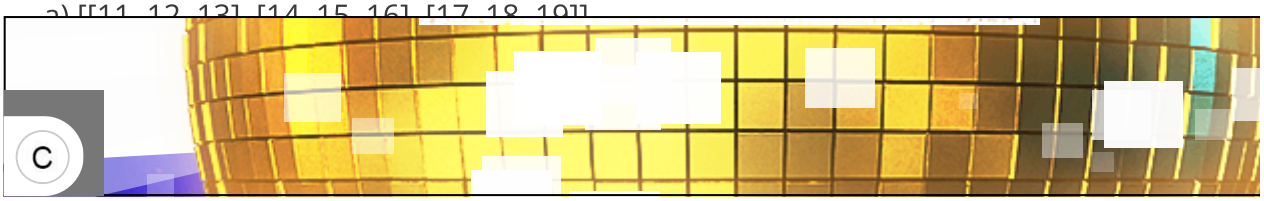
7. What will be the output of the following Python code?

```
A = [[1, 2, 3],
     [4, 5, 6],
     [7, 8, 9]]

[[col + 10 for col in row] for row in A]
```

[[11,12,13],[14,15,16],[17,18,19]]
⇒ adds 10 to each element of the matrix A.

a) [[11, 12, 13], [14, 15, 16], [17, 18, 19]]



d) [11, 12, 13, 14, 15, 16, 17, 18, 19]

View Answer

8. What will be the output of the following Python code?

```
A = [[1, 2, 3],
     [4, 5, 6],
     [7, 8, 9]]
[A[i][len(A)-1-i] for i in range(len(A))]
```

len(A)=3
i=0.
A[0][2] = 3.
i=1
A[1][1] = 5
3
↳ Assume the matrix has the same num of rows & cols.

a) [1, 5, 9]
b) [4, 5, 6]
C c) [3, 5, 7]
d) [2, 5, 8]

View Answer

9. What will be the output of the following Python code?

```
A = [[1, 2, 3],
     [4, 5, 6],
     [7, 8, 9]]
B = [[3, 3, 3],
     [4, 4, 4],
     [5, 5, 5]]
[B[row][col]*A[row][col] for row in range(3) for col in range(3)]
```

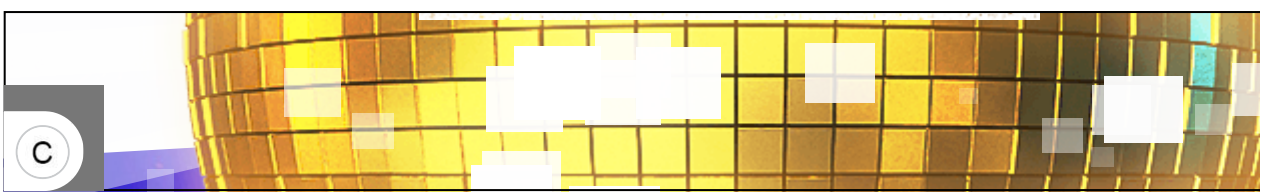
row=0. col=0.
B[0][0] · A[0][0] = 3×1=3
row=0. col=1
B[0][1] · A[0][1] = 3×2=6.

A a) [3, 6, 9, 16, 20, 24, 35, 40, 45]
b) Error
c) [0, 30, 60, 120, 160, 200, 300, 350, 400]
d) 0

View Answer

10. What will be the output of the following Python code?

```
r = [11, 12, 13, 14, 15, 16, 17, 18, 19]
A = [[0, 10, 20],
               [30, 40, 50],
               [60, 70, 80]]
for row in A:
        for col in row:
                r.append(col+10)
r
```



d) [0, 10, 20, 30, 40, 50, 60, 70, 80]

View Answer

11. What will be the output of the following Python code?

```
A = [[1, 2, 3],
     [4, 5, 6],
     [7, 8, 9]]
B = [[3, 3, 3],
     [4, 4, 4],
     [5, 5, 5]]
[[col1 * col2 for (col1, col2) in zip(row1, row2)] for (row1, row2) in zip(A, B)]
```

a) [0, 30, 60, 120, 160, 200, 300, 350, 400]
b) [[3, 6, 9], [16, 20, 24], [35, 40, 45]]
c) No output
d) Error

View Answer

12. What will be the output of the following Python code?

```
A = [[1, 2, 3],
     [4, 5, 6],
     [7, 8, 9]]
B = [[3, 3, 3],
     [4, 4, 4],
     [5, 5, 5]]
zip(A, B)
```

a) Address of the zip object
b) Address of the matrices A and B
c) No output
d) [3, 6, 9, 16, 20, 24, 35, 40, 45]

View Answer

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