Q1. Is an assignment operator like += only for show? Is it possible that it would lead to faster results at the runtime? Answer:

A=A+1 evaluates to finding A, adding 1 to it. Then storing the value again in variable A. This expression makes Python to look for memory holder of 'a' twice. But A+=1 simply means value of A is to incremented by 1. As memory address has to be identified once, += leads to faster operation.

Q2. What is the smallest number of statements you'd have to write in most programming languages to replace the Python expression a, b = a + b, a?

Answer: Minimum number of lines required to write above code in languages other Python will be 4, two for assigning initial values for variables a and b, and two for reassignment i.e. a=a+b and b=a.

Q3. In Python, what is the most effective way to set a list of 100 integers to 0?

Answer:

```
list =[0]*100
print(list)
```

```
[0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,
```

Q4. What is the most effective way to initialise a list of 99 integers that repeats the sequence 1, 2, 3? S If necessary, show step-by-step instructions on how to accomplish this.

Answer:

```
list = 1,2,3
for i in list:
  print((list)*99)
```

```
(1, 2, 3, 1, 2, 3, 1, 2, 3, 1, 2, 3, 1, 2, 3, 1, 2, 3, 1, 2, 3, 1, 2, 3, 1, 2, 3, 1, 2,
(1, 2, 3, 1, 2, 3, 1, 2, 3, 1, 2, 3, 1, 2, 3, 1, 2, 3, 1, 2, 3, 1, 2, 3, 1, 2, 3, 1, 2,
(1, 2, 3, 1, 2, 3, 1, 2, 3, 1, 2, 3, 1, 2, 3, 1, 2, 3, 1, 2, 3, 1, 2, 3, 1, 2, 3, 1, 2,
```

Q5. If you're using IDLE to run a Python application, explain how to print a multidimensional list as efficiently?

Answer: I

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

```
for i in range(len(list)):
  for j in range (len(list[i])):
    print(list[i][j],end =" ")
```

```
 1 2 3 4 4 5 6 7 8 9
```

Q6. Is it possible to use list comprehension with a string? If so, how can you go about doing it?

Answer: yes

```
l=[1,2,3,4,5,'mukulsingh']
```

```
l
```

```
[1, 2, 3, 4, 5, 'mukulsingh']
```

Q7. From the command line, how do you get support with a user-written Python programme? Is this possible from inside IDLE?

Answer: Get support with a user-written Python Programme: Start a command prompt (Windows) or terminal window (Linux/Mac). If the current working directory is the same as the location in which you saved the file, you can simply specify the filename as a command-line argument to the Python interpreter.

Q8. Functions are said to be “first-class objects” in Python but not in most other languages, such as C++ or Java. What can you do in Python with a function (callable object) that you can't do in C or C++?

Answer: The tasks which can be performed with the functions in python are:

A function is an instance of the Object type. You can store the function in a variable. You can pass the function as a parameter to another function. You can return the function from a function. You can store them in data structures such as hash tables, lists,

Q9. How do you distinguish between a wrapper, a wrapped feature, and a decorator?

Answer:

Decorator: Allows objects to be composed/add capabilities by wrapping them with a class with the same interface

Adapter: Allows you to wrap an object without a known interface implementation so it adheres to an interface. The point is to "translate" one interface into another.

Wrapper: Never heard of this as a design pattern, but I suppose it's just a common name for the above

The example you specify I would categorize as a decorator: The CacheRepository decorates an IRepository to add caching capabilities.

Q10. If a function is a generator function, what does it return?

Answer: A generator is a special type of function which does not return a single value, instead, it returns an iterator object with a sequence of values. In a generator function, a yield statement is used rather than a return statement.

Q11. What is the one improvement that must be made to a function in order for it to become a generator function in the Python language?

Answer: Generator is a written as normal function but uses yield keyword to return values instead of return keyword.

Q12. Identify at least one benefit of generators.

Answer: return statement sends a specified value back to its caller whereas yield statment can produce a sequence of values. We should use generator when we want to iterate over a sequence, but don’t want to store the entire sequence in memory.

Colab paid products - Cancel contracts here