Solution 06: Python List Operations

1) Make a list (strings)

One correct answer:

```
pets = ["cat", "dog", "bunny"]
```

2) Index practice

- `colors[0]` is `"red"`
- `colors[2]` is `"blue"`
- `colors[3]` is `"yellow"`

3) What does this print?

```
fruits = ["apple", "banana", "cherry", "mango"]

print(fruits[1])
print(fruits[0])
```

Output:

```
banana
apple
```

4) Change an item

```
nums = [10, 20, 30]

nums[1] = 99
print(nums)
```

Final `nums` :

```
[10, 99, 30]
```

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5) Append once

```
numbers = [1, 2]
numbers.append(3)
print(numbers)
```

Output:

```
[1, 2, 3]
```

---

6) Append twice

```
words = ["hi"]
words.append("there")
words.append("!")
print(words)
```

Final `words` :

```
['hi', 'there', '!']
```

---

7) Append and change

```
scores = [80, 90]

scores.append(100)   # [80, 90, 100]
scores[0] = 85       # [85, 90, 100]
scores.append(95)    # [85, 90, 100, 95]

print(scores)
```

Final `scores` :

```
[85, 90, 100, 95]
```

8) Pop and save

```
letters = ["A", "B", "C"]

x = letters.pop()

print(x)
print(letters)
```

Output:

```
C
['A', 'B']
```

9) Pop twice

```
items = ["pen", "pencil", "eraser", "ruler"]

items.pop()   # removes "ruler"
items.pop()   # removes "eraser"

print(items)
```

Final `items` :

```
['pen', 'pencil']
```

10) Mix of operations

```python
nums = [5, 6, 7]

nums.append(8)  # [5, 6, 7, 8]
nums.pop()      # [5, 6, 7]
nums[1] = 99    # [5, 99, 7]

print(nums)
print(nums[1])
```

Output:

```
[5, 99, 7]
99
```

11) Fill in the blanks (print all)

```python
animals = ["lion", "tiger", "bear"]

for animal in animals:
    print(animal)
```

12) What does this print?

```python
players = ["Alice", "Bob", "Charlie"]

for p in players:
    print(p)
```

Output:

```
Alice
Bob
Charlie
```

13) Add up numbers in a list

```
nums = [2, 4, 6]

total = 0
for n in nums:
    total = total + n

print(total)
```

Output:

```
12
```

14) Copy items using `append`

```
a = [1, 2, 3]
b = []

for x in a:
    b.append(x)

print(b)
```

Output:

```
[1, 2, 3]
```

15) To-do list operations (write code)

One correct answer:

```
todo = ["homework", "piano"]
todo.append("game")        # ["homework", "piano", "game"]
todo[1] = "reading"        # ["homework", "reading", "game"]
todo.pop()                 # removes "game"
print(todo)
```

Output:

```
['homework', 'reading']
```

16) Challenge: Pop + traversal

```python
names = ["Ava", "Ben", "Cara"]

names[1] = "Bob"           # ["Ava", "Bob", "Cara"]
names.append("Dana")       # ["Ava", "Bob", "Cara", "Dana"]
removed = names.pop()      # removes "Dana"

print(removed)

for name in names:
    print(name)
```

Output:

```
Dana
Ava
Bob
Cara
```