Lambda function QnA

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Question 1

Write a lambda function to add 10 to a given number.

Answer 1

Example (Python Code)

```
# Lambda function to add 10 to a given number
add_10 = lambda x: x + 10
print(add_10(5))
```

Question 2

Write a lambda function to multiply a number by itself.

Answer 2

Example (Python Code)

```
# Lambda function to multiply a number by itself
square = lambda x: x * x
print(square(4))
```

Question 3

Use a lambda function with filter() to extract only the even numbers from a list of integers.

Answer 3

Example (Python Code)

```
# Lambda with filter() to extract even numbers
nums = [1, 2, 3, 4, 5, 6]
even_nums = list(filter(lambda x: x % 2 == 0, nums))
print(even_nums)
```

Question 4

Use a lambda function with map() to convert a list of strings to uppercase.

Answer 4

Example (Python Code)

```
# Lambda with map() to convert strings to uppercase
words = ['hello', 'world']
uppercase_words = list(map(lambda x: x.upper(), words))
print(uppercase_words)
```

Question 5

Use a lambda function with sorted() to sort a list of tuples by the second element in each tuple.

Answer 5

Example (Python Code)

```
# Lambda with sorted() to sort by the second element of
each tuple

tuples = [(1, 3), (2, 1), (3, 2)]
sorted_tuples = sorted(tuples, key=lambda x: x[1])
print(sorted_tuples)
```

Question 6

Write a lambda function to return "Positive" if a number is greater than 0, "Negative" if less than 0, and "Zero" otherwise.

Answer 6

Example (Python Code)

```
# Lambda function to classify numbers
classify_number = lambda x: "Positive" if x > 0 else
"Negative" if x < 0 else "Zero"

# Test cases
print(classify_number(5))
print(classify_number(-3))
print(classify_number(0))
```

Question 7

Create a lambda function to return the maximum of two numbers.

Answer 7

Example (Python Code)

```
# Lambda function to find the maximum of two numbers
max_of_two = lambda a, b: a if a > b else b

# Test cases
print(max_of_two(10, 20))
print(max_of_two(25, 15))
print(max_of_two(8, 8))
```

Question 8

Use a lambda function to calculate the squares of numbers in a list and store the results in a new list.

Answer 8

Example (Python Code)

```
# Lambda function with map() to calculate squares
numbers = [1, 2, 3, 4, 5]
squares = list(map(lambda x: x**2, numbers))

print(squares)
```

Question 9

Use a lambda function to sort a dictionary by its values.

Answer 9

Example (Python Code)

```
# Lambda function to sort a dictionary by values
my_dict = {'a': 3, 'b': 1, 'c': 2}
sorted_dict = dict(sorted(my_dict.items(),
                          key=lambda x: x[1]))

print(sorted_dict)
```

Question 10

Write a lambda function that takes two numbers and returns their average.

Answer 10

Example (Python Code)

```
# Lambda function to calculate the average of two numbers
average = lambda a, b: (a + b) / 2

# Test cases
print(average(10, 20))
print(average(5, 7))
print(average(0, 100))
```

Question 11

Create a lambda function that takes three arguments a, b, and c, and returns the result of a*b+c

Answer 11

Example (Python Code)

```
# Lambda function to compute a*b + c
calculate = lambda a, b, c: a * b + c

# Test cases
print(calculate(2, 3, 4))
print(calculate(5, 6, 7))
print(calculate(0, 10, 5))
```

Question 12

Use a lambda function with reduce() to find the product of all elements in a list.

Answer 12

Example (Python Code)

```
from functools import reduce

# Lambda with reduce() to find the product of all elements
numbers = [1, 2, 3, 4, 5]
product = reduce(lambda x, y: x * y, numbers)

print(product)
```

Question 13

Use a lambda function with reduce() to concatenate all strings in a list.

Answer 13

Example (Python Code)

```
from functools import reduce

# Lambda function with reduce() to concatenate strings
strings = ["Hello", " ", "World", "!"]
result = reduce(lambda x, y: x + y, strings)

print(result)
```

Question 14

Write a lambda function to check if a string is a palindrome (reads the same forwards and backwards).

Answer 14

Example (Python Code)

```
# Lambda function to check if a string is a palindrome
is_palindrome = lambda s: s == s[::-1]

# Test cases
print(is_palindrome("radar"))
print(is_palindrome("hello"))
print(is_palindrome("level"))
```

Question 15

Create a lambda function to count the number of words in a given string.

Answer 15

Example (Python Code)

```
# Lambda function to count words in a string
count_words = lambda s: len(s.split())

# Test cases
print(count_words("Hello world!"))
print(count_words("This is a test sentence."))
print(count_words("Python"))
```

Question 16

Write a function that takes a number and returns a lambda function that multiplies any given number by the initial number. Test it with a multiplier of 5.

Answer 16

Example (Python Code)

```
# Function that returns a lambda function to multiply by the i
def multiplier(n):
    return lambda x: x * n

# Create a multiplier that multiplies by 5
multiply_by_5 = multiplier(5)

# Test cases
print(multiply_by_5(10))
print(multiply_by_5(3))
print(multiply_by_5(7))
```

Question 17

Write a function that returns a lambda function which calculates the power of a number (given a base and exponent).

Answer 17

Example (Python Code)

```
# Function that returns a lambda function to calculate power
def power(base):
    return lambda exponent: base ** exponent

# Create a power function with base 2
power_of_2 = power(2)

# Test cases
print(power_of_2(3))
print(power_of_2(4))
print(power_of_2(5))
```

Question 18

Given a list of dictionaries representing people with keys name and age, use a lambda function to sort this list by age.

Answer 18

Example (Python Code)

```
# List of dictionaries representing people
people = [
    {"name": "Anand", "age": 25},
    {"name": "Balu", "age": 30},
    {"name": "Charlie", "age": 20},
    {"name": "Divya", "age": 35}
]

# Sorting the list by age using lambda
sorted_people = sorted(people, key=lambda x: x["age"])

# Output the sorted list
for person in sorted_people:
    print(person)
```

Question 19

Use a lambda function to calculate the sum of the lengths of all strings in a list.

Answer 19

Example (Python Code)

```
# List of strings
strings = ["apple", "banana", "cherry", "date"]

# Using lambda to calculate the sum of lengths of all strings
total_length = sum(map(lambda s: len(s), strings))

# Output the result
print(total_length)
```

Question 20

Write a lambda function that, given a list of numbers, returns the list of squares for only the positive numbers in the list.

Answer 20

Example (Python Code)

```
# List of numbers
numbers = [-3, 2, -1, 4, 5, -6]

# Using lambda to filter positive numbers and calculate square
positive_squares = list(map(lambda x: x**2,
                            filter(lambda x: x > 0, numbers)))

# Output the result
print(positive_squares)
```

Question 21

Create a lambda function to find the longest word in a list of words.

Answer 21

Example (Python Code)

```
# List of words
words = ["apple", "banana", "cherry", "date", "watermelon"]

# Using lambda to find the longest word
longest_word = max(words, key=lambda x: len(x))

# Output the result
print(longest_word)
```