

CSE401: Artificial Intelligence

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1 Overview of Python

This contains the solution of List and Tuple questions as the lab assignment.

1.1 List

List are mutable ordered and indexed collections of objects. The items of a list are arbitrary Python objects. Lists are formed by placing a comma-separated list of expressions in square brackets.

Q1. Write a Python program to sum all the items in a list.

```
[1]: numbers = list(map(int, input("Input the numbers: ").split()))

# way 1:
totalSum = 0
for i in numbers:
    totalSum += i

print(f"Total sum is: {totalSum}")

# way 2:
print()
print("Alternatively, we use the 'sum' function in Python:")
print(f"sum(numbers): {sum(numbers)}")
```

Input the numbers: 6 8 2 10 4

Total sum is: 30

Alternatively, we use the 'sum' function in Python:

sum(numbers): 30

Q2. Write a Python program to get the largest number from a list.

```
[2]: numbers = list(map(int, input("Input the numbers: ").split()))

# way 1:
numbers.sort()
print(f"The largest number is: {numbers[-1]}")

# way 2:
print()
print("Alternatively, we can use the 'max' function in Python:")
print(f"max(numbers): {max(numbers)}")
```

Input the numbers: 6 8 2 10 4

The largest number is: 10

Alternatively, we can use the 'max' function in Python:

max(numbers): 10

Q3. Write a Python program to get the smallest number from a list.

```
[3]: numbers = list(map(int, input("Input the numbers: ").split()))

# way 1:
numbers.sort()
print(f"The smallest number is: {numbers[0]}")

# way 2:
print()
print("Alternatively, we can use the 'min' function in Python:")
print(f"min(numbers): {min(numbers)}")
```

Input the numbers: 6 8 2 10 4

The smallest number is: 2

Alternatively, we can use the 'min' function in Python:

min(numbers): 2

Q4. Write a Python program to multiply all the items in a list.

```
[4]: numbers = list(map(int, input("Input the numbers: ").split()))

# way 1:
product = 1
for i in numbers:
    product *= i
print(f"The product of all items: {product}")

# way 2:
import math
print()
print("Alternatively, we can use the 'prod' function from the 'math' library:")
print(f"math.prod(numbers): {math.prod(numbers)}")
```

Input the numbers: 6 8 2 10 4
The product of all items: 3840

Alternatively, we can use the 'prod' function from the 'math' library:
math.prod(numbers): 3840
