

```
# 1. Input and Output with input() and print()
# Taking input from the user and displaying output
name = input("Enter your name: ") # Input from user
print("Hi", name, "How are you today?") # Output using print()
```

```
Enter your name: JG
Hi JG How are you today?
```

```
# 2. Temperature Converter (Celsius to Fahrenheit)
# Celsius to Fahrenheit converter
print("This is a Celsius to Fahrenheit converter program.")
celsius = float(input("Enter the temperature in Celsius: ")) # Input as float
fahrenheit = (celsius * 1.8) + 32 # Conversion formula
print("Celsius:", celsius)
print("Fahrenheit:", fahrenheit)
```

```
This is a Celsius to Fahrenheit converter program.
Enter the temperature in Celsius: 77
Celsius: 77.0
Fahrenheit: 170.6
```

+ 코드

+ 텍스트

Explanation:

- Converts Celsius to Fahrenheit using the formula $F = (C * 1.8) + 32$.

```
# 3. List Basics and Indexing
# Creating a list and using indexing
colors = ['red', 'blue', 'green']
print(colors[0]) # Accessing the first element (red)
print(colors[2]) # Accessing the third element (green)
print(len(colors)) # Finding the length of the list (3)
```

```
red
green
3
```

Explanation:

- Lists store multiple values in one variable, and elements can be accessed by their index.

```
# 4. Slicing Lists
# List slicing
cities = ['Seoul', 'Busan', 'Incheon', 'Daegu', 'Daejeon', 'Gwangju', 'Ulsan', 'Suwon']
print(cities[0:6]) # Slice from index 0 to 5
print(cities[5:]) # Slice from index 5 to the end
print(cities[::-1]) # Reversing the list using slicing
```

```
['Seoul', 'Busan', 'Incheon', 'Daegu', 'Daejeon', 'Gwangju']
['Gwangju', 'Ulsan', 'Suwon']
['Suwon', 'Ulsan', 'Gwangju', 'Daejeon', 'Daegu', 'Incheon', 'Busan', 'Seoul']
```

Explanation:

- Slicing extracts parts of a list, and `[::-1]` reverses the list.

```
# 5. List Operations: Addition, Multiplication, and Membership
# List addition and multiplication
color1 = ['red', 'blue', 'green']
color2 = ['orange', 'black', 'white']
print(color1 + color2) # Adding two lists
print(color1 * 2) # Multiplying a list (repeats elements)
print('blue' in color2) # Checking if 'blue' is in color2 (False)
```

```
['red', 'blue', 'green', 'orange', 'black', 'white']
['red', 'blue', 'green', 'red', 'blue', 'green']
False
```

Explanation:

- You can add lists to combine them, multiply to repeat elements, and use the `in` operator to check membership.

```
# 6. List Modification: Append, Extend, Insert, and Remove
# Modifying lists
color = ['red', 'blue', 'green']
color.append('white') # Appending a new element
print(color)

color.extend(['black', 'purple']) # Extending the list with another list
print(color)

color.insert(11, 'cyan') # Inserting 'orange' at index 0
print(color)

color.remove('red') # Removing 'red' from the list
print(color)
```

```
→ ['red', 'blue', 'green', 'white']
   ['red', 'blue', 'green', 'white', 'black', 'purple']
   ['red', 'blue', 'green', 'white', 'black', 'purple', 'cyan']
   ['blue', 'green', 'white', 'black', 'purple', 'cyan']
```

Explanation:

- `append()` adds elements, `extend()` merges lists, `insert()` adds elements at specific positions, and `remove()` deletes values.

```
# 7. Two-Dimensional Lists
# Two-dimensional lists (list of lists)
kor_score = [49, 79, 20, 100, 80]
math_score = [43, 59, 85, 30, 90]
eng_score = [49, 79, 48, 60, 100]
midterm_score = [kor_score, math_score, eng_score]

# Accessing elements in a 2D list
print(midterm_score)
print(midterm_score[0][2]) # Accessing the 3rd element of the first list (20)

print(len(midterm_score))
print(len(midterm_score[0]))

print(id(midterm_score))
print(id(midterm_score[0]))
print(id(midterm_score[1]))
print(id(midterm_score[2]))
```

```
→ [[49, 79, 20, 100, 80], [43, 59, 85, 30, 90], [49, 79, 48, 60, 100]]
20
3
5
135915129930624
135915129931264
135915129930176
135915129723840
```

Explanation:

- 2D lists are lists within lists. You can access elements using two indices, one for rows and one for columns.