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# 1. Write a program to print keys and values of the dictionary.
my_dict = {"name": "Alice", "age": 25, "city": "New York"}

for key, value in my_dict.items():
    print(f"Key: {key}, Value: {value}")
```

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Key: name, Value: Alice
Key: age, Value: 25
Key: city, Value: New York
```

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# 2. Write a program to encode a secret message by replacing each character
# with another character where old char ASCII value is incremented by 2.
message = "Hello"
encoded = ""

for char in message:
    # ord() gets ASCII, chr() converts back to character
    encoded += chr(ord(char) + 2)

print(f"Encoded message: {encoded}")
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Encoded message: Jgnnq
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# 3. Write a program to take range of numbers and print elements
# by skipping two numbers after printing a number.
# Eg: 10 to 21 -> 10, 13, 16, 19
start, end = 10, 21
# We use a step of 3 to skip two numbers in between
for i in range(start, end, 3):
    print(i, end=" ")
```

```
10 13 16 19
```

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# 4. Write a program to sort the list of strings in reverse order.
fruits = ["apple", "cherry", "banana", "date"]
fruits.sort(reverse=True)
print(f"Sorted list: {fruits}")
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Sorted list: ['date', 'cherry', 'banana', 'apple']
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# 5. Write a function that return a random item from list.
import random

def get_random_item(my_list):
    return random.choice(my_list)

items = ["Red", "Blue", "Green", "Yellow"]
print(f"Random choice: {get_random_item(items)}")
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Random choice: Blue
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# 6. Write a function that returns reverse of the number.
def reverse_number(n):
    # Convert to string, reverse it, convert back to int
    return int(str(n)[::-1])
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num = 1234
print(f"Reverse of {num} is {reverse_number(num)}")
```

Reverse of 1234 is 4321

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# 7. Write a program to check whether a number is composite or not.
# (A composite number has more than 2 factors)
num = 10
factors = 0

for i in range(1, num + 1):
    if num % i == 0:
        factors += 1

if factors > 2:
    print(f"{num} is a composite number")
else:
    print(f"{num} is not a composite number")
```

10 is a composite number

```
# 8. Write a program to sum the squares of first n natural numbers.
n = 5
total_sum = 0
for i in range(1, n + 1):
    total_sum += i**2

print(f"Sum of squares up to {n} is: {total_sum}")
```

Sum of squares up to 5 is: 55

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# 9. Write a program to check whether a number is Armstrong or not.
# Example: 153 -> (1^3) + (5^3) + (3^3) = 1 + 125 + 27 = 153
num = 153
sum_cubes = 0
temp = num

while temp > 0:
    digit = temp % 10
    sum_cubes += digit ** 3
    temp //= 10

if num == sum_cubes:
    print(f"{num} is an Armstrong number")
else:
    print(f"{num} is not an Armstrong number")
```

153 is an Armstrong number

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# 10. Write a program to shuffle the elements in list.
import random

my_list = [10, 20, 30, 40, 50]
random.shuffle(my_list)
print(f"Shuffled list: {my_list}")
```

Shuffled list: [50, 40, 30, 10, 20]

