Python Variables & Functions Tasks

Task 1: Variable Types and Data Storage

Understanding Variable Types in Python
Variables store different types of data. Here are the most common types:

1. **String (str) - Text data, enclosed in quotes**
2. **Integer (int) - Whole numbers**
3. **Float - Decimal numbers**
4. **Boolean (bool) - True or False values**

Exercise 1

```
# name is a string (text)
name = "Miva"

# age is a int because 5 is a number
age = 5

# gender is a string
gender = "female"

# state is a string
state = "Abuja"

# language is a string
language = "English"

# smile is a boolean (True or False)
smile = True
```

Task 2: Variable Naming Conventions

Understanding Python Variable Naming Rules

✅ Rules for Acceptable Variable Names (PEP8 style):

1. **Must start with a letter (a-z, A-Z) or underscore (_)**
2. **Can contain letters, numbers, and underscores only**
3. **Cannot contain spaces or special characters (!, @, #, -, etc.)**
4. **Are case-sensitive (name and Name are different)**
5. **Cannot use Python reserved keywords (like class, for, if, etc.)**
6. **Should use snake_case for multi-word names**

✓ Acceptable Variable Names (Good Examples)

```
term2            # Starts with letter, contains number
sales_price_2021   # Uses underscore for readability
test_grade        # Clear, descriptive name
covid_19_cases     # Numbers allowed after letters
miva_learners                # Descriptive and follows conventions
```

✗ Unacceptable Variable Names (Bad Examples)

```
2 term           # ✗ Starts with a number
2021Sales_price    # ✗ Contains a space
test(grade)       # ✗ Contains parentheses
covid-19-cases     # ✗ Contains hyphens
miva&learners      # ✗ Python reserved keyword
```

Task 3: Temperature Conversion Function

Problem Description: Convert Celsius to Fahrenheit.

Formula:
Fahrenheit = Celsius × 1.8 + 32

Solution --code

```
def celsius_to_fahrenheit(celsius):
```

```
    """
    Convert temperature from Celsius to Fahrenheit
    """
    fahrenheit = celsius * 1.8 + 32
    return fahrenheit

# Test cases
print(f"100°C = {celsius_to_fahrenheit(100)}°F")
print(f"75°C = {celsius_to_fahrenheit(75)}°F")
print(f"120°C = {celsius_to_fahrenheit(120)}°F")
```

Expected Output

```
100°C = 212.0°F
75°C = 167.0°F
120°C = 248.0°F
```

Task 4: Interest Calculation Function

Problem Description: Calculate simple interest.

Formula:
Simple Interest = Principal × Rate × Time

Solution-- code

```
def interest(principal, rate, years):
    """
    Calculate simple interest
    """
    return principal * rate * years

# Example usage
principal_amount = 100000
interest_rate = 0.05  # 5% as decimal
time_period = 3

result = interest(principal_amount, interest_rate, time_period)
print(f"Interest: ₦{result}")
```

Expected Output

Interest: ₦15000.0

Answer: Interest = ₦15,000