

Solution 1: Statements

Part 2: Variables and Naming Rules

Task 2

Identify the errors in the following variable assignments and correct them:

```
1 # Incorrect code:
2 lname = "Alice"      # Variable name starts with a number.
3 def = "Reserved"     # Using a reserved keyword.
4 user-name = "John"   # Hyphens are not allowed in variable names.
5
6 # Corrected code:
7 name1 = "Alice"      # Variable name starts with a letter.
8 reserved_word = "Reserved" # Avoid reserved keywords.
9 user_name = "John"   # Use underscores instead of hyphens.
```

Part 3: String Basics

Task 3

Write a Python program to demonstrate the use of quotation marks, string length, and concatenation.

```
1 # Quotation marks:
2 single_quote = 'This is a string.'
3 double_quote = "This is also a string."
4
5 # String length:
6 message = "Hello, Python!"
7 print(len(message)) # Output: 13
8
9 # String concatenation:
10 first_name = "Alice"
11 last_name = "Johnson"
12 full_name = first_name + " " + last_name
13 print(full_name) # Output: Alice Johnson
```

Part 4: Number Basics

Task 4

Write a Python program to demonstrate data types, basic arithmetic operations, and order of precedence.

```
1 # Data types:
2 integer_number = 10
3 float_number = 5.5
4 print(type(integer_number)) # Output: <class 'int'>
5 print(type(float_number))   # Output: <class 'float'>
6
7 # Basic arithmetic operations:
8 addition = 5 + 3
9 subtraction = 10 - 4
10 multiplication = 7 * 6
11 division = 15 / 3
12
13 print(addition, subtraction, multiplication, division) # 8 6 42 5.0
14
15 # Order of precedence:
16 # Exponentiation -> Multiplication -> Addition -> Subtraction
17 result = 5 + 2 * 3 ** 2 - 1
18 print(result) # Output: 22
```

Part 5: Error Handling

Task 5

Explain what an error is, identify which line of code contains an error, and provide a solution.

Task 5.1: Syntax Error

```
1 # Incorrect code:
2 print("Hello World!" # Missing closing parenthesis
3
4 # Explanation:
5 # A SyntaxError occurs because the closing parenthesis is missing on line 2.
6
7 # Corrected code:
8 print("Hello World!")
```

Task 5.2: NameError

```
1 # Incorrect code:
2 print(variable) # 'variable' is not defined
3 variable = 5
4
5 # Explanation:
6 # A NameError occurs because 'variable' has not been defined before use on line
7 # 2.
8
9 # Corrected code:
10 variable = 5
11 print(variable)
```

Task 5.3: ZeroDivisionError

```
1 # Incorrect code:
2 result = 10 / 0 # Division by zero is not allowed
3
4 # Explanation:
5 # A ZeroDivisionError occurs because a number divided by zero on line 2.
6
7 # Corrected code:
8 result = 10 / 2 # Use a non-zero divisor
9 print(result)
```

Task 5.4: TypeError

```
1 # Incorrect code:
2 # input() always return a string
3 # int() is used to convert to 'int'
4 x = int(input("Please enter a number from 1-10: "))
5 print("Your input is ", x) # x = 3
6
7 y = input("Please enter your second number from 1-10: ")
8 print("Your second number is ", y) # y = 5
9 print()
10
11 print("The sum of two numbers is x" + y)
12 # The sum of two numbers is x 5
13 print("The product of two numbers is ", x * y)
14 """
15 Traceback (most recent call last):
16   File "c:\Users\kritt\Desktop\mana\temp_1.py", line 10, in <module>
17     print("The product of two numbers is ", x * y)
18                                     ~~~~~
19 TypeError: can't multiply sequence by non-int of type 'str'
20 """
```

```
1 # Corrected code:
2 # input() always return a string
3 # int() is used to convert to 'int'
4 x = int(input("Please enter a number from 1-10: "))
5 print("Your input is ", x) # x = 3
6
7 y = int(input("Please enter your second number from 1-10: ")) # Add int()
8 print("Your second number is ", y) # y = 5
9 print()
10
11 # remove 'x' from the string, and add with 'y'
12 print("The sum of two numbers is ", x + y)
13 # The sum of two numbers is 8
14 print("The product of two numbers is ", x * y)
15 # The product of two numbers is 15
```