**QUESTION**

**Different errors in Python, their explanation and at least one example each.**

**ANSWERS**

Python has several types of errors that can occur during code execution. Common Python errors are:

**1. SyntaxError**

* **Description**: This error occurs when the Python interpreter finds syntax that it doesn’t understand or expects differently. It's a parsing error.
* **Example**:

python

Copy code

# Missing colon in if statement

if 7 > 4

print("7 is greater than 4")

* **Explanation**: Here, the if statement is missing a colon : at the end, causing a SyntaxError.

**2. IndentationError**

* **Description**: Python expects consistent indentation to define code blocks. If the indentation is incorrect or inconsistent, an IndentationError occurs.
* **Example**:

python

Copy code

def my\_function():

print("Hello, my name is Becky!")

print("Incorrect indentation")

* **Explanation**: The second print statement has an inconsistent indentation level, resulting in an IndentationError.

**3. NameError**

* **Description**: This error occurs when Python encounters a variable or function name that hasn’t been defined.
* **Example**:

python

Copy code

print(my\_variable)

* **Explanation**: my\_variable hasn’t been defined, so attempting to print it causes a NameError.

**4. TypeError**

* **Description**: This error occurs when an operation or function is applied to an object of inappropriate type.
* **Example**:

python

Copy code

result = "9" + 1

* **Explanation**: This attempts to add a string ("9") to an integer (1), causing a TypeError.

**5. IndexError**

* **Description**: This error happens when trying to access an index that is out of range in a list or other indexed data structure.
* **Example**:

python

Copy code

my\_list = [1, 2, 3]

print(my\_list[5])

* **Explanation**: The list has only three elements (index 0 to 2), so accessing index 5 raises an IndexError.

**6. KeyError**

* **Description**: This error occurs when trying to access a dictionary key that doesn’t exist.
* **Example**:

python

Copy code

my\_dict = {"name": "Rebecca", "age": 26}

print(my\_dict["address"])

* **Explanation**: The dictionary doesn’t contain the key "address", so this raises a KeyError.

**7. ValueError**

* **Description**: This error occurs when a function receives an argument of the correct type but an inappropriate value.
* **Example**:

python

Copy code

number = int("xyz")

* **Explanation**: int() expects a string that represents a number, so passing "xyz" raises a ValueError.

**8. AttributeError**

* **Description**: This error occurs when an invalid attribute reference is made for an object (e.g., calling a method that doesn’t exist on an object).
* **Example**:

python

Copy code

my\_string = "hi"

my\_string.append("!")

* **Explanation**: Strings don’t have an append method, so this results in an AttributeError.

**9. ZeroDivisionError**

* **Description**: This error occurs when trying to divide a number by zero.
* **Example**:

python

Copy code

result = 10 / 0

* **Explanation**: Division by zero is undefined, so this raises a ZeroDivisionError.

**10. ModuleNotFoundError**

* **Description**: This error occurs when Python cannot find a specified module.
* **Example**:

python

Copy code

import non\_existent\_module

* **Explanation**: Python attempts to import a module named non\_existent\_module, which doesn’t exist, resulting in a ModuleNotFoundError.