

## آموزش رایگان زبان برنامه‌نویسی پایتون (python) - 18

این قسمت: آشنايي با نحوه به دام انداختن خطاها در پایتون



این قسمت از آموزش رایگان زبان برنامه‌نویسی پایتون (python) به شما می‌آموزد که چگونه خطاهای رایج در پایتون را شناسایی و مدیریت کنید. این شامل نحوه استفاده از try-except و سایر تکنیک‌های مدیریت خطا می‌گردد.

برای مشاهده این آموزش رایگان، به [اینجا](#) مراجعه کنید.

## آموزش رایگان زبان برنامه‌نویسی پایتون (python) - 19

این قسمت از آموزش رایگان زبان برنامه‌نویسی پایتون (python) به شما می‌آموزد که چگونه با استفاده از کتابخانه‌های پایتون، داده‌ها را پردازش و تحلیل کنید. این شامل نحوه استفاده از pandas و matplotlib می‌گردد.

## Python Exceptions and Error Handling

Python provides a rich set of built-in exceptions to handle errors. For more information, see <https://docs.python.org/3.3/library/exceptions.html>. Python exceptions are objects that represent errors. They are created when an error occurs in the program. The exception object contains information about the error, such as the type of error and the location where it occurred. Python exceptions are handled using try-except blocks. This allows you to catch errors and handle them gracefully. For example, you can catch a `FileNotFoundError` and print a message to the user. Python exceptions are a powerful tool for handling errors in your code.

## ArithmeticError

`ArithmeticError` is a base class for all arithmetic errors. It includes `ZeroDivisionError` (division by zero) and `OverflowError` (numeric overflow). For example, dividing by zero will raise a `ZeroDivisionError`.

## MemoryError

`MemoryError` is raised when the program runs out of memory. This can happen if you allocate too much memory or if you have a memory leak. For example, creating a large list or a large object can cause a `MemoryError`. Python also has `KeyboardInterrupt`, which is raised when the user presses Ctrl+C. This is useful for handling user input and allowing the user to stop the program. Python exceptions are a powerful tool for handling errors in your code.

## FileNotFoundError

`FileNotFoundError` is raised when you try to access a file that does not exist. This is a common error when working with files. For example, opening a file that has been deleted will raise a `FileNotFoundError`. Python exceptions are a powerful tool for handling errors in your code.

## ResourceWarning

`ResourceWarning` is a warning that is raised when Python detects a resource leak. This is a warning, not an error, but it is important to pay attention to it. For example, if you have a large number of open files, Python will raise a `ResourceWarning`. Python exceptions are a powerful tool for handling errors in your code.

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이 예제를 실행하면 ValueError 예외가 발생합니다. ValueError 예외는 Python의 기본 예외 중 하나로, 잘못된 값이 사용되었을 때 발생합니다.

예제를 실행하면 다음과 같은 결과가 출력됩니다.

```

ValueError: invalid literal for int() with base 10: 'hello'
  
```

이 예제를 실행하면 ValueError 예외가 발생합니다. ValueError 예외는 Python의 기본 예외 중 하나로, 잘못된 값이 사용되었을 때 발생합니다.

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```

ValueError: invalid literal for int() with base 10: 'hello'
  
```

3. Run Module 실행

4. Hello 출력

```

Python 3.7.2 Shell
File Edit Shell Debug Options Window Help
Python 3.7.2 (tags/v3.7.2:9a3ffc0492, Dec 23 2018, 23:09:28) [MSC v.191
(AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information
>>>
===== RESTART: C:/Node/errors.py =====
Type a number between 1 and 10:hello
You must type a number between 1 and 10!
>>>
  
```

5. Python 5.5 실행

```
Python 3.7.2 Shell
File Edit Shell Debug Options Window Help
Python 3.7.2 (tags/v3.7.2:9a3ffc0492, Dec 23 2018, 23:09:28) [MSC v.1916
(AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:/Node/errors.py =====
Type a number between 1 and 10:hello
You must type a number between 1 and 10!
>>>
===== RESTART: C:/Node/errors.py =====
Type a number between 1 and 10:22
The value you typed is incorrect!
>>>
===== RESTART: C:/Node/errors.py =====
Type a number between 1 and 10:5.5
You must type a number between 1 and 10!
>>> |
```

Python 3.7.2 Shell . Python 3.7.2 (tags/v3.7.2:9a3ffc0492, Dec 23 2018, 23:09:28) [MSC v.1916 (AMD64)] on win32 Type "help", "copyright", "credits" or "license()" for more information. >>> ===== RESTART: C:/Node/errors.py ===== Type a number between 1 and 10:hello You must type a number between 1 and 10! >>> ===== RESTART: C:/Node/errors.py ===== Type a number between 1 and 10:22 The value you typed is incorrect! >>> ===== RESTART: C:/Node/errors.py ===== Type a number between 1 and 10:5.5 You must type a number between 1 and 10! >>> |

```
Python 3.7.2 Shell
File Edit Shell Debug Options Window Help
Python 3.7.2 (tags/v3.7.2:9a3ffc0492, Dec 23 2018, 23:09:28) [MSC v.1916
(AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:/Node/errors.py =====
Type a number between 1 and 10:hello
You must type a number between 1 and 10!
>>>
===== RESTART: C:/Node/errors.py =====
Type a number between 1 and 10:22
The value you typed is incorrect!
>>> |
```

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You must type a number between 1 and 10!
>>>
===== RESTART: C:/Node/errors.py =====
Type a number between 1 and 10:22
The value you typed is incorrect!
>>>
===== RESTART: C:/Node/errors.py =====
Type a number between 1 and 10:5.5
You must type a number between 1 and 10!
>>>
===== RESTART: C:/Node/errors.py =====
Type a number between 1 and 10:7
You typed: 7
>>>
```

이제 Python 3.7.2 Shell에서 Ctrl+C를 눌러서 프로그램을 중단해 보겠습니다. Ctrl+C를 누르면 Python 3.7.2 Shell에서 다음과 같은 메시지가 출력됩니다. 이 메시지는 Python 3.7.2 Shell에서 프로그램을 중단할 때 출력되는 메시지입니다. 이 메시지는 Python 3.7.2 Shell에서 프로그램을 중단할 때 출력되는 메시지입니다.

```
Python 3.7.2 Shell
File Edit Shell Debug Options Window Help
You must type a number between 1 and 10!
>>>
===== RESTART: C:/Node/errors.py =====
Type a number between 1 and 10:7
You typed: 7
>>>
===== RESTART: C:/Node/errors.py =====
Type a number between 1 and 10:hello
You must type a number between 1 and 10!
>>>
===== RESTART: C:/Node/errors.py =====
Type a number between 1 and 10:
You must type a number between 1 and 10!
>>>
===== RESTART: C:/Node/errors.py =====
Type a number between 1 and 10:
Traceback (most recent call last):
  File "C:/Node/errors.py", line 2, in <module>
    Value = int(input("Type a number between 1 and 10:"))
KeyboardInterrupt
>>> |
```

이제 Python 3.7.2 Shell에서 Ctrl+C를 눌러서 프로그램을 중단해 보겠습니다. Ctrl+C를 누르면 Python 3.7.2 Shell에서 다음과 같은 메시지가 출력됩니다. 이 메시지는 Python 3.7.2 Shell에서 프로그램을 중단할 때 출력되는 메시지입니다. 이 메시지는 Python 3.7.2 Shell에서 프로그램을 중단할 때 출력되는 메시지입니다.

이제 try-except 문법을 사용하여 예외 처리를 해보겠습니다. try 블록에서 ValueError가 발생하면 except 블록에서 이를 처리할 수 있습니다. try 블록에서 ValueError가 발생하지 않으면 except 블록은 실행되지 않습니다.

.코드를 작성한 후 New File 버튼을 클릭하여 File 메뉴에서 새 파일을 생성합니다. IDLE.1

.코드를 작성한 후 Run 버튼을 클릭하여 프로그램을 실행합니다. 2

try:

```
Value = int(input("Type a number between 1 and 10:"))
```

except:

```
    print("You must type a number between 1 and 10!")
```

else:

```
    if (Value > 0) and (Value <= 10):
```

```
        print("You typed: ", Value)
```

else:

```
    print("The value you typed is incorrect!")
```

이제 try-except 문법을 사용하여 예외 처리를 해보겠습니다. try 블록에서 ValueError가 발생하면 except 블록에서 이를 처리할 수 있습니다. try 블록에서 ValueError가 발생하지 않으면 except 블록은 실행되지 않습니다. 3

.코드를 작성한 후 Run Module 버튼을 클릭하여 프로그램을 실행합니다. 4

프로그램이 실행되면 콘솔 창에 Hello가 출력됩니다. 5



```

Python 3.7.2 Shell
File Edit Shell Debug Options Window Help
>>>
===== RESTART: C:/Node/errors.py =====
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The value you typed is incorrect!
>>>
===== RESTART: C:/Node/errors.py =====
Type a number between 1 and 10:5.5
You must type a number between 1 and 10!
>>>
===== RESTART: C:/Node/errors.py =====
Type a number between 1 and 10:7
You typed: 7
>>>
===== RESTART: C:/Node/errors.py =====
Type a number between 1 and 10:hello
You must type a number between 1 and 10!
>>> |

```

. Python 3.7.2 Shell 5.5 Python 3.7.2 Shell .6 . Python 3.7.2 Shell

```

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You must type a number between 1 and 10!
>>> |

```

Python 3.7.2 Shell 7 Python 3.7.2 Shell .7 . Python 3.7.2 Shell





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<https://www.shabakeh-mag.com/workshop/programming/14705/%D8%A2%D9%85%D9%88%D8%B2%D8%B4-%D8%B1%D8%A7%DB%8C%DA%AF%D8%A7%D9%86-%D9%BE%D8%A7%DB%8C%D8%AA%D9%88%D9%86-python-%D8%A2%D8%B4%D9%86%D8%A7%DB%8C%DB%8C-%D8%A8%D8%A7-%D9%86%D8%AD%D9%88%D9%87-%D8%A8%D9%87-%D8%AF%D8%A7%D9%85-%D8%A7%D9%86%D8%AF%D8%A7%D8%AE%D8%AA%D9%86-%D8%AE%D8%B7%D8%A7%D9%87%D8%A7-%D8%AF%D8%B1-%D9%BE%D8%A7%DB%8C%D8%AA%D9%88%D9%86>