Python Alpha 600b

Exceptions Handling in Python Theory Perspective.

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اللَّهُمَّ إِنِّي أَصْبَحْتُ أُشْهِدُكَ وَأُشْهِدُ حَمَلَةَ عَرْشِكَ، وَمَلَائِكَتَكَ وَجَمِيعَ خَلْقِكَ، أَنَّكَ أَنْتَ اللهُ لَا إِلَهَ إِلَّا أَنْتَ وَحْدَكَ لَا شَرِيكَ لَكَ، وَأَنَّ مُحَمَّداً عَبْدُكَ وَرَسُولُكَ

O Allaah, verily I have reached the morning and call on You, the bearers of Your throne, Your angels, and all of Your creation to witness that You are Allaah, none has the right to be worshipped except You, alone, without any partner and that Muhammad is Your Servant and Messenger.'

Hadith/Benefit
Anas ibn Malik (R.A) the Prophet (S.A.W) said, "if anyone says (this Du'a) in the morning or in the evening Allah (SWT) will emancipate his fourth from hell, if anyone says twice Allah will emancipate his half, if anyone says it thrice, Allah will emancipate three-fourth and if he says four times, Allah will emancipate him from hell".
[Sunan Abu Dawud, Book 41, Hadith 5051]

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Handling exceptions

Handling exceptions in Python is quite easy.

```
In [1]:  1  1/0

---------------------------------------------------------------------------
ZeroDivisionError                         Traceback (most recent call last)
<ipython-input-1-9e1622b385b6> in <module>()
----> 1 1/0

ZeroDivisionError: division by zero
```

Catching errors with try and except

try:

   1/0

except ZeroDivisionError:

   print("You cannot divide by zero!")

In Math's we cannot divide anything with Zero. In Python, this operation will cause an error, as you can see in the first half of the example. To catch the error, we wrap the operation with a try/except statement.

Bare excepts

try:

    1/0

except:

    print("You cannot divide by zero!")

It is not recommended! In Python, this is known as a bare except, which means it will catch any and all exceptions. The reason this is not recommended is that you don't know which exception you are catching. When you have something like except ZeroDivisionError, you are obviously trying to catch a division by zero error. In the code above, you cannot tell what you are trying to catch.

Dictionary example

```python
my_dict = {"a":1, "b":2, "c":3}
try:
    value = my_dict["d"]
except KeyError:
    print("That key does not exist!")
```

In this example, we create a 3-element dictionary. Then we try to access a key that is not in the dictionary. dictionary. Because the key is not in the dictionary, it raises a KeyError, which we catch.

List error message

my_list = [1, 2, 3, 4, 5]

try:

    my_list[6]

except IndexError:

       print("That index is not in the list!")

The example shows a list that has 5 items. We try to grab the 7th item from the index. Remember, Python lists are zero-based, so when you say [6], you're asking for the 7th item. Anyway, because there are only 5 items, it raises an IndexError, which we also catch.

Catching multiple exceptions

```python
my_dict = {"a":1, "b":2, "c":3}
try:
    value = my_dict["d"]
except IndexError:
    print("This index does not exist!")
except KeyError:
    print("This key is not in the dictionary!")
except:
    print("Some other error occurred!")
```

First we try to access a key that doesn't exist in the dictionary.

The try/except checks to see if you are catching a KeyError, which you are in the second except statement.

Then we are using a bare except which is not recommended but we will see it from time to time.

Can we use () or Parenthesis

```
try:
    value = my_dict["d"]
except (IndexError, KeyError):
    print("An IndexError or KeyError occurred!")
```

Notice that in this example, we are putting the errors that we want to catch inside of parentheses. The problem with this method is that it's hard to tell which error has actually occurred, so the previous example is recommended.

جَزَاكَ اللهُ

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