# Exercise: Error Handling

## Numbers Dictionary

You are provided with the following code:

numbers\_dictionary = {}  
  
line = input()  
  
**while** line != **"Search"**:  
 number\_as\_string = line  
 number = int(input())  
 numbers\_dictionary[number\_as\_string] = number  
  
line = input()  
  
**while** line != **"Remove"**:  
 searched = line  
 print(numbers\_dictionary[searched])  
  
line = input()  
  
**while** line != **"End"**:  
 searched = line  
 **del** numbers\_dictionary[searched]

print(numbers\_dictionary)

* On the first several lines, until you receive the command **"**Search**"**, you will receive on **separate lines** the **number as text** and the **number as integer**
* When you receive **"**Search**"** on the next several lines until you receive the command **"**Remove**"**, you will be given the **searched number as text** and you need to **print it on the console**
* When you receive **"**Remove**"** on the next several lines until you receive **"**End**"** you will be given the **searched number as text** and you need to **remove** it from the dictionary
* At the end you need to **print** what is left from the **dictionary**

There is some **missing code** in the solution and there are some **errors that may occur**. Complete the code so the following errors are handled:

* Passing **non-integer** type to the variable number
* Searching for a **non-existent** number
* Removing a **non-existent** number

Print appropriate **messages** when an error has occurred. The messages should be:

* **"The variable number must be an integer"**
* **"Number does not exist in dictionary"** - for non-existing keys

***Note: Use ONE try and many except statements for the different errors that may occur***

### Examples

|  |  |
| --- | --- |
| **Input** | **Output** |
| one  1  two  2  Search  one  Remove  two  End | 1  {'one': 1} |
| one  two  Search  Remove  End | The variable number must be an integer  {} |
| one  1  Search  one  Remove  two  End | 1  Number does not exist in dictionary  {'one': 1} |
| numbers\_dictionary = {}  line = input()  while line != "Search":  number\_as\_string = line  try:  number = int(input())  numbers\_dictionary[number\_as\_string] = number  line = input()  if line == "Search":  number = input()  try:  if number in numbers\_dictionary:  print(numbers\_dictionary[number])  except KeyError:  print("Number does not exist in dictionary")  break  except ValueError:  print("The variable number must be an integer")  break  while line != "Remove":  if line == "End":  break  searched = line  num = input()  if num == "Remove":  line = input()  try:  del numbers\_dictionary[line]  except KeyError:  print("Number does not exist in dictionary")  break   line = input() while line != "End":  line = input()  print(numbers\_dictionary) | |

## Email Validator

You will be given some **emails** until you receive the command **"**End**"**. Create the following custom exceptions to validate the emails:

* NameTooShortError - raise it when the name in the email is **less than or equal to 4** ("**peter**" will be the name in the email "**peter@gmail.com**")
* MustContainAtSymbolError - raise it when there is **no** **"@"** in the email
* InvalidDomainError - raise it when the **domain** of the email is **invalid** (valid domains are: **.com, .bg, .net, .org**)

When an error is encountered, **raise** it with an appropriate **message**:

* NameTooShortError **- "Name must be more than 4 characters"**
* MustContainAtSymbolError - **"Email must contain @"**
* InvalidDomainError **- "Domain must be one of the following: .com, .bg, .org, .net"**

***Hint:*** use the following syntax to add message to the Exception: MyException("Exception Message")

If the current email is **valid,** print **"**Email is valid**"** and read the next one

### Examples

|  |  |
| --- | --- |
| **Input** | **Output** |
| abc@abv.bg | Traceback (most recent call last):  File ".\email\_validator.py", line 20, in <module>  raise NameTooShort("Name must be more than 4 characters")  \_\_main\_\_.NameTooShort: Name must be more than 4 characters |
| peter@gmail.com  petergmail.com | Email is valid  Traceback (most recent call last):  File ".\email\_validator.py", line 18, in <module>  raise MustContainAtSymbolError("Email must contain @")  \_\_main\_\_.MustContainAtSymbolError: Email must contain @ |
| peter@gmail.hotmail | Traceback (most recent call last):  File ".\email\_validator.py", line 22, in <module>  raise InvalidDomainError("Domain must be one of the folowing: .com, .bg, .org, .net")  \_\_main\_\_.InvalidDomainError: Domain must be one of the folowing: .com, .bg, .org, .net |

class EmailValidationError(Exception):  
 pass  
  
  
class NameNotFound(EmailValidationError):  
 pass  
  
  
class MustContainAtSymbol(EmailValidationError):  
 pass  
  
  
class TooManySymbols(EmailValidationError):  
 pass  
  
  
class NameTooShortError(EmailValidationError):  
 pass  
  
  
class InvalidDomainError(EmailValidationError):  
 pass  
  
  
ALLOWED\_DOMAINS = ['.com', '.bg', '.net', '.org', '.gov']  
  
  
def validate\_email(email):  
 if "@" not in email:  
 raise MustContainAtSymbol('Email must contain @')  
  
 username, domain, \*rest = email.split('@')  
  
 if len(rest) > 0:  
 raise TooManySymbols('the whole email must contain one only one "@" symbol')  
  
 if len(username) <= 4:  
 raise NameTooShortError('Name must be more than 4 characters')  
 if '.' + domain.split(".")[-1] not in ALLOWED\_DOMAINS:  
 raise InvalidDomainError(f"Domain must be one of the following {'.com', '.bg', '.net', '.org', '.gov'}")  
  
 print("Email is valid")  
  
  
def main():  
 while True:  
 email = input()  
 if email == 'End':  
 break  
 validate\_email(email)  
  
  
main()