In [6]:
```
1.explain why we have to used the exception class while creating a custom exception
->exception class is used to derived new class to define custom exception
  here is syntax of custom exception
class customerror(Exception):
        pass
try:
    ...
except customerror:
    ...
   in the above syntax Excepton class is used to define custom exception
```

In [ ]:
```
2.write a python program to print python Exception hierarchy.
```

In [11]:
```python
import inspect as ipt

def tree_class(cls,ind=0):

    print('-' * ind,cls.__name__)

    for k in cls.__subclasses__():
        tree_class(k,ind+3)

print('the hierarchy for Exception is: ')

ipt.getclasstree(ipt.getmro(BaseException))

tree_class(BaseException)
```

```
the hierarchy for Exception is:
 BaseException
--- Exception
------ TypeError
--------- FloatOperation
--------- MultipartConversionError
------ StopAsyncIteration
------ StopIteration
------ ImportError
--------- ModuleNotFoundError
--------- ZipImportError
------ OSError
--------- ConnectionError
------------ BrokenPipeError
------------ ConnectionAbortedError
------------ ConnectionRefusedError
------------ ConnectionResetError
--------------- RemoteDisconnected
--------- BlockingIOError
--------- ChildProcessError
--------- FileExistsError
--------- FileNotFoundError
--------- IsADirectoryError
--------- NotADirectoryError
--------- InterruptedError
------------ InterruptedSystemCall
--------- PermissionError
--------- ProcessLookupError
--------- TimeoutError
--------- UnsupportedOperation
--------- itimer_error
--------- herror
--------- gaierror
--------- SSLError
------------ SSLCertVerificationError
------------ SSLZeroReturnError
------------ SSLWantWriteError
------------ SSLWantReadError
------------ SSLSyscallError
------------ SSLEOFError
--------- Error
------------ SameFileError
--------- SpecialFileError
--------- ExecError
--------- ReadError
--------- URLError
------------ HTTPError
------------ ContentTooShortError
--------- BadGzipFile
------ EOFError
--------- IncompleteReadError
------ RuntimeError
--------- RecursionError
--------- NotImplementedError
------------ ZMQVersionError
------------ StdinNotImplementedError
```

```
--------- _DeadlockError
--------- BrokenBarrierError
--------- BrokenExecutor
------------ BrokenThreadPool
--------- SendfileNotAvailableError
--------- ExtractionError
--------- VariableError
------ NameError
--------- UnboundLocalError
------ AttributeError
--------- FrozenInstanceError
------ SyntaxError
--------- IndentationError
------------ TabError
------ LookupError
--------- IndexError
--------- KeyError
------------ NoSuchKernel
------------ UnknownBackend
--------- CodecRegistryError
------ ValueError
--------- UnicodeError
------------ UnicodeEncodeError
------------ UnicodeDecodeError
------------ UnicodeTranslateError
--------- UnsupportedOperation
--------- JSONDecodeError
--------- SSLCertVerificationError
--------- Error
--------- UnsupportedDigestmodError
--------- IllegalMonthError
--------- IllegalWeekdayError
--------- ParserError
--------- ClassNotFound
--------- ClipboardEmpty
--------- MessageDefect
------------ NoBoundaryInMultipartDefect
------------ StartBoundaryNotFoundDefect
------------ CloseBoundaryNotFoundDefect
------------ FirstHeaderLineIsContinuationDefect
------------ MisplacedEnvelopeHeaderDefect
------------ MissingHeaderBodySeparatorDefect
------------ MultipartInvariantViolationDefect
------------ InvalidMultipartContentTransferEncodingDefect
------------ UndecodableBytesDefect
------------ InvalidBase64PaddingDefect
------------ InvalidBase64CharactersDefect
------------ InvalidBase64LengthDefect
------------ HeaderDefect
--------------- InvalidHeaderDefect
--------------- HeaderMissingRequiredValue
--------------- NonPrintableDefect
--------------- ObsoleteHeaderDefect
--------------- NonASCIILocalPartDefect
--------------- InvalidDateDefect
--------- MacroToEdit
```

```
--------- InvalidFileException
--------- UnequalIterablesError
--------- InvalidVersion
--------- _InvalidELFFileHeader
--------- InvalidWheelFilename
--------- InvalidSdistFilename
--------- InvalidSpecifier
--------- InvalidMarker
--------- UndefinedComparison
--------- UndefinedEnvironmentName
--------- InvalidRequirement
------------ RequirementParseError
--------- InvalidVersion
------ AssertionError
------ ArithmeticError
--------- FloatingPointError
--------- OverflowError
--------- ZeroDivisionError
------------ DivisionByZero
------------ DivisionUndefined
--------- DecimalException
------------ Clamped
------------ Rounded
--------------- Underflow
--------------- Overflow
------------ Inexact
--------------- Underflow
--------------- Overflow
------------ Subnormal
--------------- Underflow
------------ DivisionByZero
------------ FloatOperation
------------ InvalidOperation
--------------- ConversionSyntax
--------------- DivisionImpossible
--------------- DivisionUndefined
--------------- InvalidContext
------ SystemError
--------- CodecRegistryError
------ ReferenceError
------ MemoryError
------ BufferError
------ Warning
--------- UserWarning
------------ GetPassWarning
------------ FormatterWarning
--------- EncodingWarning
--------- DeprecationWarning
------------ ProvisionalWarning
--------- PendingDeprecationWarning
--------- SyntaxWarning
--------- RuntimeWarning
------------ ProactorSelectorThreadWarning
------------ UnknownTimezoneWarning
------------ PEP440Warning
--------- FutureWarning
```

```
------------ ProvisionalCompleterWarning
--------- ImportWarning
--------- UnicodeWarning
--------- BytesWarning
--------- ResourceWarning
--------- DeprecatedTzFormatWarning
--------- PkgResourcesDeprecationWarning
------ _OptionError
------ _Error
------ error
------ Verbose
------ Error
------ SubprocessError
--------- CalledProcessError
--------- TimeoutExpired
------ TokenError
------ StopTokenizing
------ ClassFoundException
------ EndOfBlock
------ TraitError
------ Error
------ Error
--------- CancelledError
--------- TimeoutError
--------- InvalidStateError
------ _GiveupOnSendfile
------ error
------ Incomplete
------ TimeoutError
------ InvalidStateError
------ LimitOverrunError
------ QueueEmpty
------ QueueFull
------ Empty
------ Full
------ ArgumentError
------ ZMQBaseError
--------- ZMQError
------------ ContextTerminated
------------ Again
------------ InterruptedSystemCall
--------- ZMQBindError
--------- NotDone
------ PickleError
--------- PicklingError
--------- UnpicklingError
------ _Stop
------ ArgumentError
------ ArgumentTypeError
------ ConfigError
--------- ConfigLoaderError
------------ ArgumentError
--------- ConfigFileNotFound
------ ConfigurableError
--------- MultipleInstanceError
------ ApplicationError
```

```
------ error
------ TimeoutError
------ error
------ ReturnValueIgnoredError
------ KeyReuseError
------ UnknownKeyError
------ LeakedCallbackError
------ BadYieldError
------ ReturnValueIgnoredError
------ Return
------ InvalidPortNumber
------ error
------ LZMAError
------ RegistryError
------ _GiveupOnFastCopy
------ Error
--------- NoSectionError
--------- DuplicateSectionError
--------- DuplicateOptionError
--------- NoOptionError
--------- InterpolationError
------------ InterpolationMissingOptionError
------------ InterpolationSyntaxError
------------ InterpolationDepthError
--------- ParsingError
------------ MissingSectionHeaderError
------ NoIPAddresses
------ BadZipFile
------ LargeZipFile
------ BadEntryPoint
------ NoSuchEntryPoint
------ DuplicateKernelError
------ ErrorDuringImport
------ NotOneValueFound
------ CannotEval
------ OptionError
------ BdbQuit
------ Restart
------ ExceptionPexpect
--------- EOF
--------- TIMEOUT
------ PtyProcessError
------ FindCmdError
------ HomeDirError
------ ProfileDirError
------ IPythonCoreError
--------- TryNext
--------- UsageError
--------- StdinNotImplementedError
------ InputRejected
------ GetoptError
------ ErrorToken
------ PrefilterError
------ AliasError
--------- InvalidAliasError
------ Error
```

```
--------- InterfaceError
--------- DatabaseError
------------ InternalError
------------ OperationalError
------------ ProgrammingError
------------ IntegrityError
------------ DataError
------------ NotSupportedError
------ Warning
------ SpaceInInput
------ DOMException
--------- IndexSizeErr
--------- DomstringSizeErr
--------- HierarchyRequestErr
--------- WrongDocumentErr
--------- InvalidCharacterErr
--------- NoDataAllowedErr
--------- NoModificationAllowedErr
--------- NotFoundErr
--------- NotSupportedErr
--------- InuseAttributeErr
--------- InvalidStateErr
--------- SyntaxErr
--------- InvalidModificationErr
--------- NamespaceErr
--------- InvalidAccessErr
--------- ValidationErr
------ ValidationError
------ EditReadOnlyBuffer
------ _Retry
------ InvalidLayoutError
------ HeightIsUnknownError
------ ParserSyntaxError
------ InternalParseError
------ _PositionUpdatingFinished
------ SimpleGetItemNotFound
------ UncaughtAttributeError
------ HasNoContext
------ ParamIssue
------ _JediError
--------- InternalError
--------- WrongVersion
--------- RefactoringError
------ OnErrorLeaf
------ InvalidPythonEnvironment
------ MessageError
--------- MessageParseError
------------ HeaderParseError
------------ BoundaryError
--------- MultipartConversionError
--------- CharsetError
------ Error
------ HTTPException
--------- NotConnected
--------- InvalidURL
--------- UnknownProtocol
```

```
--------- UnknownTransferEncoding
--------- UnimplementedFileMode
--------- IncompleteRead
--------- ImproperConnectionState
------------ CannotSendRequest
------------ CannotSendHeader
------------ ResponseNotReady
--------- BadStatusLine
------------ RemoteDisconnected
--------- LineTooLong
------ InteractivelyDefined
------ KillEmbedded
------ Error
--------- NoSuchProcess
------------ ZombieProcess
--------- AccessDenied
--------- TimeoutExpired
------ _Ipv6UnsupportedError
------ QueueEmpty
------ QueueFull
------ DebuggerInitializationError
------ ExpatError
------ Error
--------- ProtocolError
--------- ResponseError
--------- Fault
------ ParseBaseException
--------- ParseException
--------- ParseFatalException
------------ ParseSyntaxException
------ RecursiveGrammarException
------ ResolutionError
--------- VersionConflict
------------ ContextualVersionConflict
--------- DistributionNotFound
--------- UnknownExtra
------ _Error
------ UnableToResolveVariableException
------ InvalidTypeInArgsException
------ customerror
--- GeneratorExit
--- SystemExit
--- KeyboardInterrupt
--- CancelledError
--- AbortThread
```

In [ ]:
```
3.what errors are define in the ArithemeticError class ?explain with an example
->errors define in Arithemeticerror class  is an  errors encountered during nueric
  such as zerodevision error
```

In [13]:
```python
a=int(input('enter your no: '))
b=int(input('enter your no: '))
try:
    print(a/b)
except ArithmeticError as e:
    print(e)
```

division by zero

In [ ]:
```
4.why LookupError class is used ?explain with an example keyerror and indexerror
->LookupError raised when something can't found
  indexerror: is raised when a sequence reference is out of range
```

In [14]:
```python
l=[1,2,3,4,5,6]
try:
    print(l[7])
except IndexError as e:
    print(e)
```

list index out of range

In [ ]:
```
keyerror: is raised when you try to access a key that is not in a dictionary
```

In [24]:
```python
d={1:11,2:22,3:33,4:44}
try:
    print(d.get(6))
except KeyError as e:
    print(e)
```

None

In [ ]:
```
5.explain importerror .what is modulenotfounderror?
->importerror(modulenotfounderror): this indicate that you tried to import a module
  and other reasons are imported class is in circular dependency ,imported class na
```

In [ ]:
```
6.list down some best practices for exception handling in python .
->1.use exceptions for exceptional cases
  2.always clean up resourses in a finally block
  3.avoid raising generic exceptions
  4.raise custom exception
  5.document all exceptions thrown by a function
```