


```
eval(expr, globals, locals)
exec code in gldict, lcdict
execfile(file, globals, locals)
raw_input(prompt)
input(prompt)
```

evaluate expression
compile and execute code
execute file
input from stdin
input and evaluate

```
class MyExcept(Exception): ...
raise MyExcept , data
```

define user exception
raise user exception

3 Object Orientation and Modules

```
import module as alias
from module import name1, name2
from __future__ import *
reload module
module.__all__
module.__name__
module.__dict__
__import__ ("name", glb, loc, fl)
class name (superclass, ...):
    data = value
    def method(self, ...): ...
    def __init__(self, x):
        Super.__init__(self)
        self.member = x
    def __del__(self): ...
__str__, __len__, __cmp__,
__iter__(self): return self
__call__
__dict__
__getattr__(self, name),
__setattr__(self, name, value)
callable(object)
delattr(object, "name")
del(object)
dir(object)
getattr(object, "name", def)
hasattr(object, "name")
hash(object)
id(object)
isinstance(object,
classOrType)
issubclass(class1, class2)
iter(object, sentinel)
locals()
repr(object), str(object)
vars(object)
None
if __name__ == "__main__":
```

import module
load attr. into own namespace
activate all new features
reinitialize module
exported attributes
module name / "__main__"
module namespace
import module by name
class definition
shared class data
methods
constructor
call superclass constructor
per-instance data
destructor
some operator overloaders
use next method for iterator
call interceptor
instance-attribute dictionary
get an unknown attribute
set any attribute
1 if callable, 0 otherwise
delete name-attr. from object
unreference object/var
list of attr. assoc. with object
get name-attr. from object
check if object has attr.
return hash for object
unique integer (mem address)
check for type

```
class2 subclass of class1?
return iterator for object
dict of local vars of caller
return string-representation
return __dict__
the NULL object
make modul executable
```

Try-block
catch exception
multiple, with data
exception handling
pass up (re-raise) exception
if no exception occurred
in any case
debug assertion

5 System Interaction

```
sys.path
sys.platform
sys.stdout, stdin, stderr
sys.argv[1:]
os.system(cmd)
os.startfile(f)
os.popen(cmd, r|w, bufsize)
os.popen2(cmd, bufsize, b|t)
os.popen3(cmd, bufsize, b|t)
os.environ['VAR']; os.putenv[]
glob.glob('*.*txt')
```

module search path
operating system
standard input/output/error
command line parameters
system call
open file with assoc. program
open pipe (file object)
(stdin, stdout) fileobjects
(stdin, stdout, stderr)
read/write environment vars
wildcard search

Filesystem Operations

os module: access, chdir, chmod, chroot, getcwd, getenv, listdir, mkdir, remove, unlink, removedirs, rename, rmdir, pipe, ...
shutil module: copy, copy2, copyfile, copyfileobj, copypmode, copystat, copytree, rmtree
os.path module: abspath, altsep, basename, commonprefix, curdir, defpath, dirname, exists, expanduser, expandvar, extsep, get[acm]time, getsize, isabs, isdir, isfile, islink, ismout, join, lexists, normcase, normpath, pardir, pathsep, realpath, samefile, sameopenfile, samestat, sep, split, splitdrive, splitext, stat, walk

command line argument parsing:

```
restlist, opts = \
    getopt.getopt(sys.argv[1:], \
        "s:oh", \
        ["spam=", "other", "help"])
for o, a in opts:
    if o in ("-s", "--lol"): spam = a
    if o in ("-h", "--help"): show_help()
```

6 Input/Output

```
f=codecs.open(iff, "rb", "utf-8")
file = open(infilename, "wb")
codecs.EncodedFile(...)
r, w, a, r+
rb, wb, ab, r+b
file.read(N)
file.readline()
file.readlines()
file.write(string)
file.writelines(list)
file.close()
file.tell()
file.seek(offset, whence)
os.truncate(size)
os.tmpfile()
pickle.dump(x, file)
x = pickle.load(file)
```

open file with encoding
open file without encoding
wrap file into encoding
read, write, append, random
modes without eol conversion
N bytes (entire file if no N)
the next linestring
list of linestring
write string to file
write list of linestrings
close file
current file position
jump to file position
limit output to size
open anon temporary file
make object persistent
load object from file

7 Standard Library (almost complete)

String Services: string, re, struct, difflib, StringIO, cStringIO, textwrap, codecs, unicodedata, stringprep, fformat
File/Directory Access: os.path, fileinput, stat, statvfs, filecmp, tempfile, glob, fnmatch, linecache, shutil, dircache
Generic OS services: os, time, optparse, getopt, logging, getpass, curses, platform, errno, ctypes
Optional OS services: select, thread, threading, dummy_thread, dummy_threading, mmap, readline, rlcompleter
Data Types: datetime, calendar, collections, heapq, bisect, array, sets, sched, mutex, Queue, weakref, UserDict, UserList, UserString, types, new, copy, pprint, repr
Numeric and Math Modules: math, cmath, decimal, random, itertools, functools, operator
Internet Data Handling: email, mailcap, mailbox, mhlib, mimetools, mimetypes, MimeWriter, mimize, multifile, rfc822, base64, binhex, binascii, quopri, uu
Structured Markup Processing Tools: HTMLParser, sgmlib, htmllib, htmlentitydefs, xml.parsers.expat, xml.dom.*, xml.sax.*, xml.etree.ElementTree
File Formats: csv, ConfigParser, robotparser, netrc, xdrlib
Crypto Services: hashlib, hmac, md5, sha
Compression: zlib, gzip, bz2, zipfile, tarfile
Persistence: pickle, cPickle, copy_reg, shelve, marshal, anydbm, whichdb, dbm, gdbm, dbhash, bsddb, dumbdbm, sqlite3
Unix specific: posix, pwd, spwd, grp, crypt, dl, termios, tty, pty, fcntl, posixfile, resource, nis, syslog, commands
IPC/Networking: subprocess, socket, signal, popen2, asyncore, asynchat
Internet: webbrowser, cgi, scitb, wsgiref, urllib, httplib, ftplib, imaplib, nntplib, ...lib, smtpd, uuid, urlparse, SocketServer, ...Server, cookie, cookie, Cookie, xmlrpclib
Multimedia: audioop, imageop, aifc, sunau, wave, chunk, colorsys, rgbimg, imghdr, sndhdr, ossaudiodev
Tk: Tkinter, Tix, ScrolledText, turtle
Internationalization: gettext, locale
Program Frameworks: cmd, shlex
Development: pydoc, doctest, unittest, test
Runtime: sys, warnings, contextlib, atexit, traceback, gc, inspect, site, user, fpectl
Custom Interpreters: code, codeop
Restricted Execution: rexec, Bastion
Importing: imp, zipimport, pkgutil, modulefinder, runpy
Language: parser, symbol, token, keyword, tokenize, tabnanny, pycldr, py_compile, compileall, dis, pickletools, distutils
Windows: msilib, msvcrt, _winreq, winsound
Misc: formatter

4 Exception Handling

```
try: ...
except ExceptionName:
except (Ex1, ...), data:
    print data
    raise
else: ...
finally: ...
assert expression
```