:mod:`sched` --- Event scheduler

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]sched.rst, line 1); *backlink*

Unknown interpreted text role "mod".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]sched.rst, line 4)

Unknown directive type "module".

```
.. module:: sched
   :synopsis: General purpose event scheduler.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]sched.rst, line 7)

Unknown directive type "sectionauthor".

```
.. sectionauthor:: Moshe Zadka <moshez@zadka.site.co.il>
```

Source code: :source:`Lib/sched.py`

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]sched.rst, line 9); *backlink*

Unknown interpreted text role "source".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]sched.rst, line 11)

Unknown directive type "index".

```
.. index:: single: event scheduling
```

The :mod:`sched` module defines a class which implements a general purpose event scheduler:

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]sched.rst, line 15); *backlink*

Unknown interpreted text role "mod".

The :class:`scheduler` class defines a generic interface to scheduling events. It needs two functions to actually deal with the "outside world" --- *timefunc* should be callable without arguments, and return a number (the "time", in any units whatsoever). The *delayfunc* function should be callable with one argument, compatible with the output of *timefunc*, and should delay that many time units. *delayfunc* will also be called with the argument `0` after each event is run to allow other threads an opportunity to run in multi-threaded applications.

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]sched.rst, line 20); *backlink*

Unknown interpreted text role "class".

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Unknown directive type "versionchanged".

```
.. versionchanged:: 3.3
   *timefunc* and *delayfunc* parameters are optional.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]sched.rst, line 32)

Unknown directive type "versionchanged".

```
.. versionchanged:: 3.3
   :class:`scheduler` class can be safely used in multi-threaded
   environments.
```

Example:

```
>>> import sched, time
>>> s = sched.scheduler(time.time, time.sleep)
>>> def print_time(a='default'):
...     print("From print_time", time.time(), a)
...
>>> def print_some_times():
...     print(time.time())
...     s.enter(10, 1, print_time)
...     s.enter(5, 2, print_time, argument=('positional',))
...     s.enter(5, 1, print_time, kwargs={'a': 'keyword'})
...     s.run()
...     print(time.time())
...
>>> print_some_times()
930343690.257
From print_time 930343695.274 positional
From print_time 930343695.275 keyword
From print_time 930343700.273 default
930343700.276
```

Scheduler Objects

:class:`scheduler` instances have the following methods and attributes:

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]sched.rst, line 63); *backlink*

Unknown interpreted text role "class".

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]sched.rst, line 66)

Unknown directive type "method".

```
.. method:: scheduler.enterabs(time, priority, action, argument=(), kwargs={})

   Schedule a new event. The *time* argument should be a numeric type compatible
   with the return value of the *timefunc* function passed  to the constructor.
   Events scheduled for the same *time* will be executed in the order of their
   *priority*. A lower number represents a higher priority.

   Executing the event means executing ``action(*argument, **kwargs)``.
   *argument* is a sequence holding the positional arguments for *action*.
   *kwargs* is a dictionary holding the keyword arguments for *action*.

   Return value is an event which may be used for later cancellation of the event
   (see :meth:`cancel`).

   .. versionchanged:: 3.3
      *argument* parameter is optional.

   .. versionchanged:: 3.3
      *kwargs* parameter was added.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]sched.rst, line 87)

Unknown directive type "method".

```
.. method:: scheduler.enter(delay, priority, action, argument=(), kwargs={})

   Schedule an event for *delay* more time units. Other than the relative time, the
   other arguments, the effect and the return value are the same as those for
```

```
   :meth:`enterabs`.

   .. versionchanged:: 3.3
      *argument* parameter is optional.

   .. versionchanged:: 3.3
      *kwargs* parameter was added.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]sched.rst, line 99)

Unknown directive type "method".

```
.. method:: scheduler.cancel(event)

   Remove the event from the queue. If *event* is not an event currently in the
   queue, this method will raise a :exc:`ValueError`.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]sched.rst, line 105)

Unknown directive type "method".

```
.. method:: scheduler.empty()

   Return ``True`` if the event queue is empty.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]sched.rst, line 110)

Unknown directive type "method".

```
.. method:: scheduler.run(blocking=True)

   Run all scheduled events. This method will wait  (using the :func:`delayfunc`
   function passed to the constructor) for the next event, then execute it and so
   on until there are no more scheduled events.

   If *blocking* is false executes the scheduled events due to expire soonest
   (if any) and then return the deadline of the next scheduled call in the
   scheduler (if any).

   Either *action* or *delayfunc* can raise an exception.  In either case, the
   scheduler will maintain a consistent state and propagate the exception.  If an
   exception is raised by *action*, the event will not be attempted in future calls
   to :meth:`run`.

   If a sequence of events takes longer to run than the time available before the
   next event, the scheduler will simply fall behind.  No events will be dropped;
   the calling code is responsible for canceling  events which are no longer
   pertinent.

   .. versionchanged:: 3.3
      *blocking* parameter was added.
```

System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\cpython-main\Doc\library\[cpython-main][Doc][library]sched.rst, line 133)

Unknown directive type "attribute".

```
.. attribute:: scheduler.queue

   Read-only attribute returning a list of upcoming events in the order they
   will be run.  Each event is shown as a :term:`named tuple` with the
   following fields:  time, priority, action, argument, kwargs.
```