Node.js Event Loop Flow
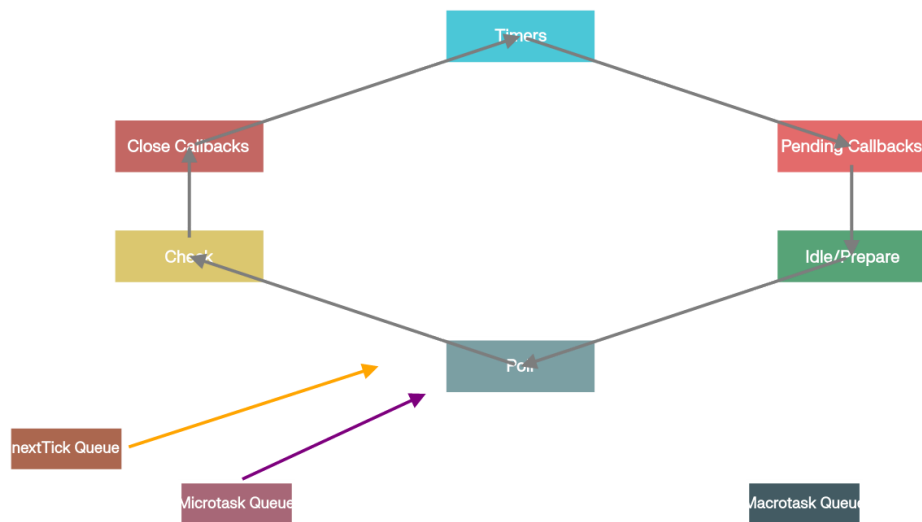
Event Loop Phases

- **Timers**: Executes callbacks scheduled by setTimeout() and setInterval().

- **Pending Callbacks**: Handles I/O callbacks deferred to the next loop iteration.

- **Idle, Prepare**: Internal phases not commonly manipulated by user code.

- **Poll**:
  Retrieves new I/O events; processes callbacks as necessary. If no timer is scheduled, it can block here; otherwise, it proceeds to the next phase.
- **Check**: Executes setImmediate() callbacks.
- **Close Callbacks**: Executes close event callbacks (e.g., socket.on('close')).

Task Queues

- **nextTick() queue**:
  Contains callbacks scheduled via process.nextTick() which are executed immediately after the current phase, before any other microtasks or macrotasks.

- **Micro Task queue**: Includes Promise callbacks and queueMicrotask; processed after nextTick(), before any I/O events or timers.

- **Macro Task queue**: Encompasses setTimeout, setInterval, setImmediate, and I/O events.