

## Hoare's Monitor Model

An object-based synchronization mechanism.

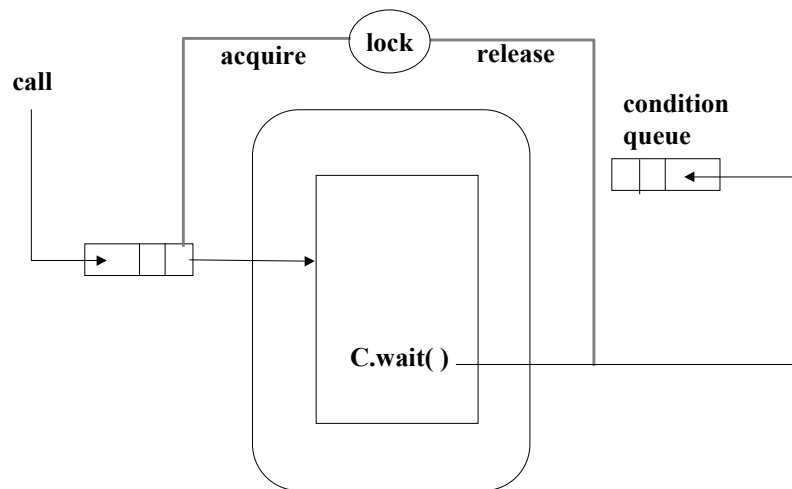
## Condition Synchronization

Mutual exclusion is insufficient to guarantee that operations only happen when the system is in a proper “state” for the operation to be done without loss of safety

A condition on the state of the system must be associated with the operation in such a way that the operation is only attempted when the condition is true



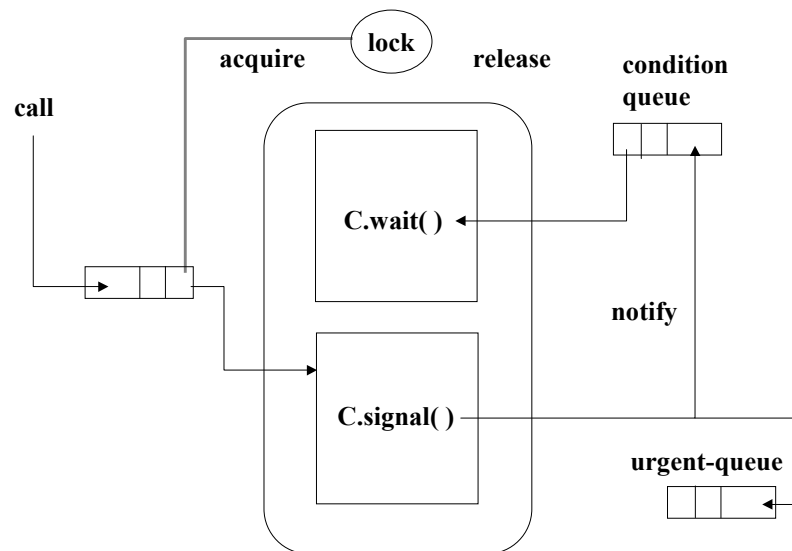
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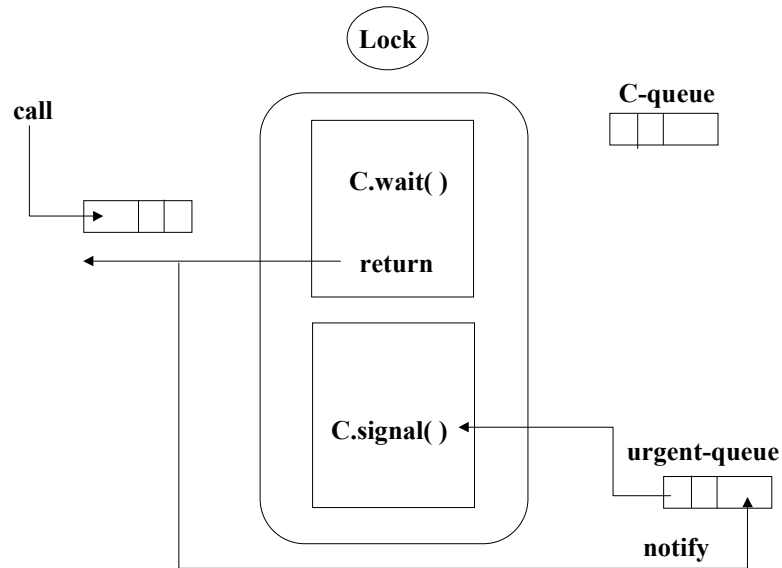
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```
monitor BoundedCounter
begin
  condition belowMax, aboveMin;
  integer value;
  constant MAX=100, MIN=0;
  void value() begin return value; end
  void inc()
  begin
    if (value == MAX) belowMax.wait();
    value = value + 1;
    if (value == MIN+1) aboveMin.signal();
    return;
  end
  void dec()
  begin
    if (value == MIN) aboveMin.wait();
    value = value - 1;
    if (value == MAX-1) belowMax.signal();
    return;
  end
  begin
    value = MIN;
  end
end
```

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