# Producer-consumer and BlockingCollection Demo

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## Module 5 Overview

- *Demo* `ConcurrentQueue<T>` *in producer-consumer situation*
- `ConcurrentQueue<T>` not adequate *because of issue of polling for tasks*
- *`BlockingCollection<T>`* provides additional *services* (and *solves* the polling issue)

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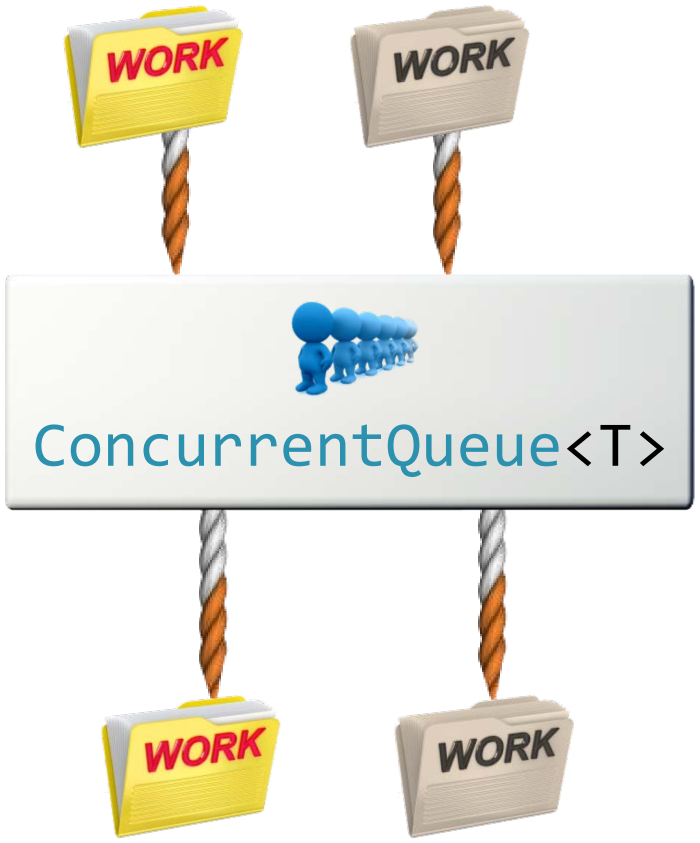
## Producer-Consumer Demo

Some threads add tasks



Other threads remove tasks

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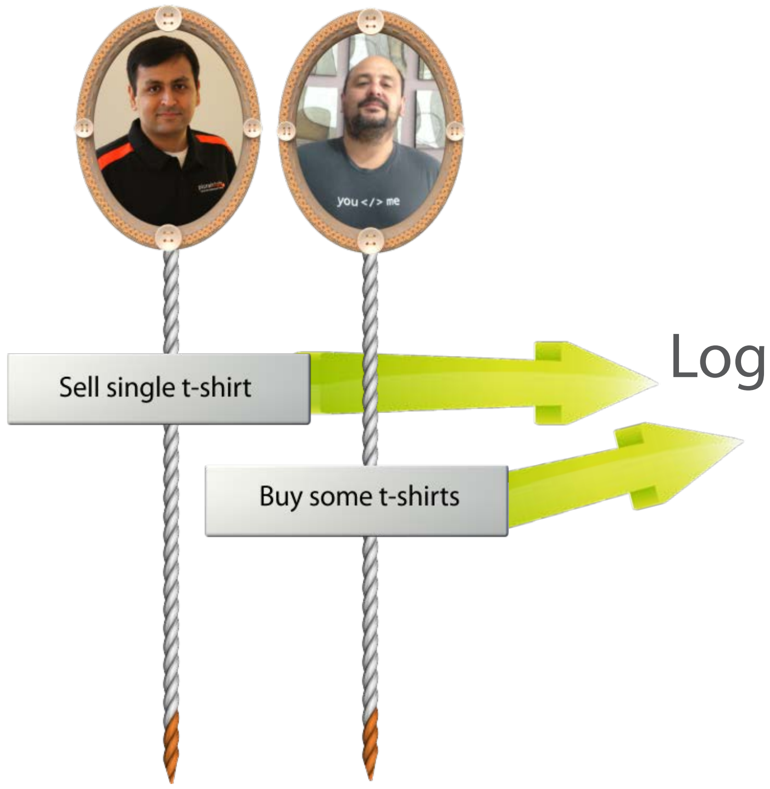
# New in SalesBonuses App…



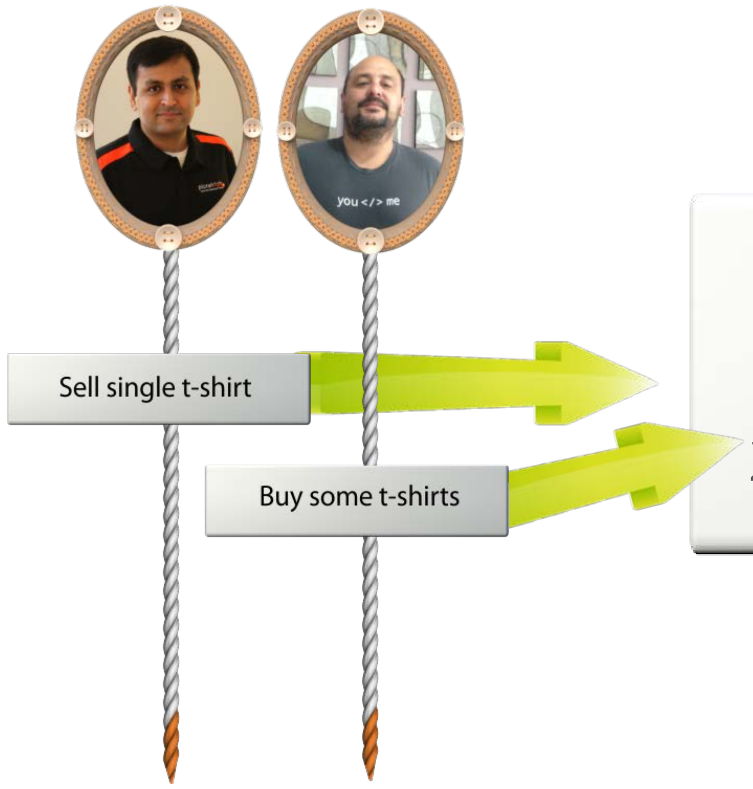
Log trade for calculating staff bonus

Calculating bonus is…

…not urgent

…time-consuming

# When a Trade Is Made…



Immediately…

1. Update stock levels
2. Log the trade

Use a `ConcurrentQueue<T>` for this!

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## Short Intermission

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# What Can BlockingCollection<T> Wrap?

`IProducerConsumerCollection<T>`

✓

- `ConcurrentQueue<T>`
- `ConcurrentStack<T>`
- `ConcurrentBag<T>`

✗

- `ConcurrentDictionary<TKey, TValue>`

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# BlockingCollection<T> Extra Features

`Take()`
is cancellable

`TryTake()`
allows a timeout

Maximum
collection size

`Add()`
is cancellable

`TryAdd()`
allows a timeout

## Module 5 Summary

- *Demo'd* `ConcurrentQueue<T>` to *store* tasks awaiting processing
- `ConcurrentQueue<T>` lacks ability *to wait* until an item is on the queue
  - `ConcurrentStack<T>` and `ConcurrentBag<T>` have same problem
- *`BlockingCollection<T>`* fixes this