8/24/2011

Algorithm evaluation by ITK

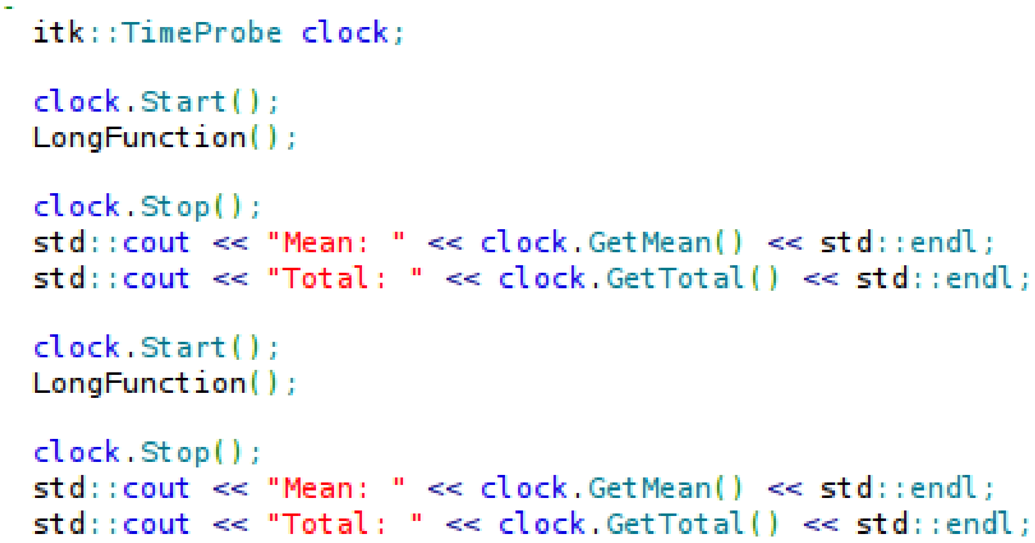
BugSquashing Seminar

DEUTSCHES
KREBSFORSCHUNGSZENTRUM
IN DER HELMHOLTZ-GEMEINSCHAFT

itk::ResourceProbe

- `template<class ValueType, class MeanType> ResourceProbe`

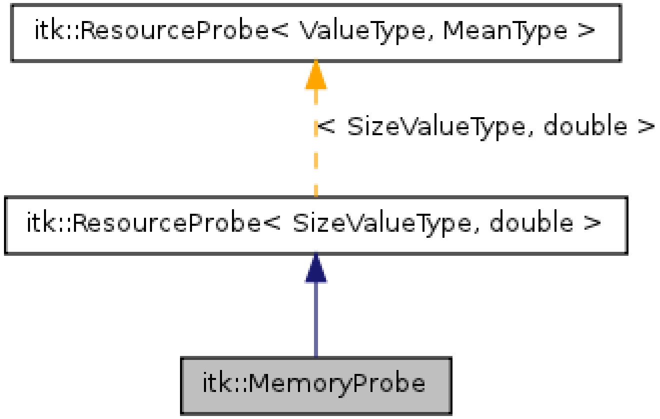
- Measures between two pieces of code
  - paarwise call of `Start()` and `Stop()` methods

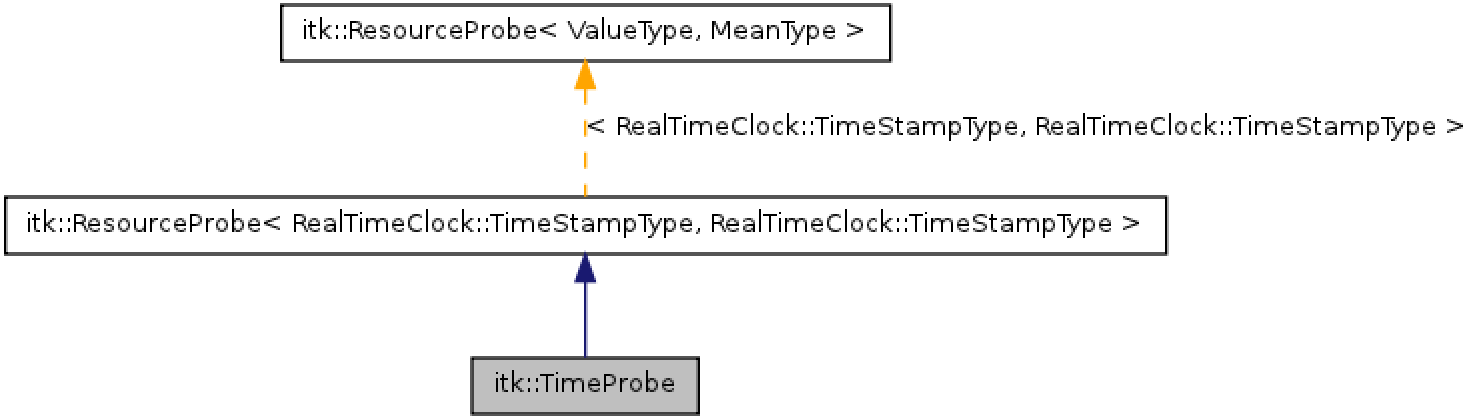


```
itk::TimeProbe clock;

clock.Start();
LongFunction();

clock.Stop();
std::cout << "Mean: " << clock.GetMean() << std::endl;
std::cout << "Total: " << clock.GetTotal() << std::endl;

clock.Start();
LongFunction();

clock.Stop();
std::cout << "Mean: " << clock.GetMean() << std::endl;
std::cout << "Total: " << clock.GetTotal() << std::endl;
```

itk::ResourceProbe (cont‘d)

- available specializations
  - **itk::TimeProbe**
  - **itk::MemoryProbe**


itk::ResourceProbe< ValueType, MeanType >
< SizeValueType, double >
itk::ResourceProbe< SizeValueType, double >
itk::MemoryProbe


itk::ResourceProbe< ValueType, MeanType >
< RealTimeClock::TimeStampType, RealTimeClock::TimeStampType >
itk::ResourceProbe< RealTimeClock::TimeStampType, RealTimeClock::TimeStampType >
itk::TimeProbe

itk::ResouceProbe – Output and Usage

- Information output
  - `ValueType GetTotal()           const`
  - `CountType GetNumberOfStarts() const`
  - `CountType GetNumberOfStops()  const`
  - `MeanType  GetMean()            const`

    [computed if Stop() called at least once, 0 otherwise]

- Implementing own probe class
  - reimplement `::GetInstantValue(void) const`

    [*TimeProbe*] `m_Clock->GetTimeStamp();`

    [*MemProbe*] `m_MemObserver.GetMemoryUsage();`

Summary

- ITK offers easy-to-use classes for performance measuring
  - TimeProbe
  - MemoryProbe

- itk::ResourceProbe simply extendible

Thank you for your attention!