Profiling with GNU Octave

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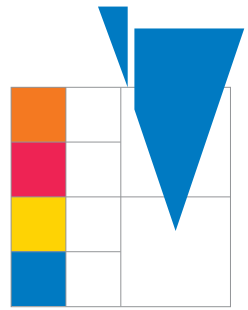

September 21st, 2015

Why Profiling?

It is often surprising where bottlenecks in the code are.

Profiling means to measure the runtime of each part of a program.

This allows to optimise where it really helps.

Using the Profiler

Two stages for using the profiler in Octave:

Data Collection

```
profile on;
runSomeLongScript;
profile off;
lookAtTheData;
profile resume;
doSomeMoreComputations;
profile off;
```

Analysing the Profile

```
info = profile ("info");
profshow (info);
profexplore (info);
```

Cornerstones of the Implementation

Data accumulation:

- `libinterp/corefcn/profiler.[h|cc]`
- Collects data for each individual "function".
- Keeps a call stack and provides enter/exit API.

Data collection:

- Applies to function and operator classes.
- They define `class::profiler_name () const`.
- Use `BEGIN_PROFILER_BLOCK` and `END_PROFILER_BLOCK`.

Front end:

- Functions `profile`, `profshow` and `profexplore`.
- Defined as m-files in `scripts/general`.
- They use built-in functions `__profiler_*` from `profiler.cc`.