Lecture 4: Subroutines

- Discussion topics

- New ideas welcome!

Discuss

Slide 4: Parameter types

- What kind of data would <u>not</u> be suitable for call-by-value parameter? Why?
    - Give a concrete example?

- What kind of data would <u>not</u> be suitable for call-by-reference parameter? Why?
    - Give a concrete example?

Slide 9: Subroutine example

- Why do some high level programming languages limit subroutine (method) parameters to simple variables?

- Assume, that one parameter would be a large (100x100) array. How should it be passed?
  As a call-by-name, call-by-value or call-by-reference parameter? Why?

- Can there be many return values?
  Could a return value be large data structure?
  (e.g., array?)

Slide 11: Subroutine implem

- In subroutine prolog you first allocate space for local variables, and then save old values for used registers in stack. Could you do this in reverse order?
(I.e., first save reg values to stack, and then allocate space for local variables)

  – Why is this not such a good idea?

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