

National University of Singapore  
School of Computing  
CS1101S: Programming Methodology  
Semester I, 2021/2022  
**S12-in-class**

## Problems:

1. Compare the Source Academy and the MCE with respect to their behaviour when evaluating the following program:

```
const x = y;
const y = 42;
const z = "***" + x + "***";
z;
```

MCE:

"\*\*\*~~\*~~unassigned~~\*~~"

Source:

const decl  
uninitialized  
variable

Explain the behaviour of the MCE. Modify the [evaluator MCE 5 of Brief B11](#) such that it behaves like the Source Academy with respect to the situation exemplified in the program.

ret NaN

An unassigned() {} : → assign all unassigned named.

```
function lookup_symbol_value(symbol, env) {
  function env_loop(env) {
    function scan(symbols, vals) {
      return is_null(symbols)
        ? env_loop(enclosing_environment(env))
        : symbol === head(symbols)
        ? head(vals) === "unassigned"
          ? error("Cannot access '" + symbol + "' before initialization")
          : head(vals)
        : scan(tail(symbols), tail(vals));
    }
    if (env === the_empty_environment) {
      error(symbol, "unbound name");
    } else {
      const frame = first_frame(env);
      return scan(frame_symbols(frame), frame_values(frame));
    }
  }
  return env_loop(env);
}
```