

CS136 EXERCISE SOLUTIONS: MODULE 2

SIDE EFFECTS

```
// countdown(n) Print the values from n down to 1.
// requires: n >= 0
void countdown(const int n) {
    assert(n >= 0);
    if (0 == n) {
        return;
    } else {
        printf("%d\n", n);
        return countdown(n - 1);
    }
}
```

```
// countdown_all() keep reading int values until there are no more,
// and call countdown for each.
void countdown_all(void) {
    int val = read_int();

    if (READ_INT_FAIL != val) {
        countdown(val);
        countdown_all();
    }
}
```

READING INTEGER INPUT

```
// testing harness for fact2:
// read each integer x from stdin, and print fact2(x).
int main(void) {
    int x = read_int();
    while (READ_INT_FAIL != x) {
        printf("%d\n", fact2(x));
        x = read_int();
    }
}
```

```
#include <stdio.h>

void downup(int n) {
    if (n == 0) {
        printf("%d\n", n);
    } else {
        printf("%d\n", n);
        downup(n - 1);
        printf("%d\n", n);
    }
}

int main(void) {
    downup(2);
}
```

```
int partsum_acc(int total) {
    int c = read_int();
    if (c == READ_INT_FAIL) {
        return total;
    } else {
        printf("%d\n", total + c);
        return partsum_acc(total + c);
    }
}

int partsum(void) {
    return partsum_acc(0);
}
```