

Homework 5

COSE312, Spring 2026

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Due: 5/24 23:59

Problem 1 Implement optimizer:

```
optimize: T.program -> T.program
```

Complete and submit `optimizer.ml`.

For example, by running

```
$ Make
$ dune exec -- ./main.exe test/t0.s
```

you can obtain the following result (the optimized code can be different depending on your implementation):

```
== S ==
{
  int x;
  x = 0;
  print x + 1;
}
== translating S to CFG ==
cfg has been saved in cfg.dot
== translating S to T ==
0 : x = 0
0 : .t1 = 0
0 : x = .t1
0 : .t3 = x
0 : .t4 = 1
0 : .t2 = .t3 + .t4
0 : write .t2
0 : HALT
== semantic analyzer ==
no error detected
```

```
== executing S ==
1
== executing CFG ==
1
== executing T ==
1
The number of instructions executed : 7
== optimized T ==
0 : t3 = 1
0 : write t3
0 : HALT
== executing T ==
1
The number of instructions executed : 2
```