

Indian Institute of Technology Tirupati
CS3310 Compiler Design Laboratory
Lab #10 Due Date: (Nov 02, 2019 11:30pm)

Objective: To augment the mini compiler you have designed with the translation of flow control structures capability.

In previous lab, you have designed and implemented a mini compiler consisting lexer, parser, and semantic analyzer, to deal with variable declarations in a block structured language and also augmented the same with the capability. In this lab, you further enhance your compiler translation of the flow control structures to three address code, as specified below,

- translation of **if**, **if-else** and **while** to equivalent **three address code**,
- generating error if a variable is not declared, and
- performing typechecking.

Input : Blocks of C variable declarations, statements containing flow control statements and arithmetic expressions.

Output: three address code and errors if any

Execusion: `$/minicc prog.c`

1. Testcase:

Input:

```
{
  int x, y;

  if (x < 100)
      x = x + 100;
  else
      y = y + 5;

  while (x < 100 || x > 200 && x != y) {
      x = x + 1;
      y = x + y;
  }
}
```

Output:

```
    if x < 100 goto L1
    goto L2
L1: t0 = x + 100
    x = t0
        goto L3
L2: t1 = y + 5
    y = t1

L3: if x < 100 goto L5
    goto L6
L6: if x > 200 goto L7
    goto L4
L7: if x != y goto L5
```

```
      goto L4
L5: t2 = x + 1
    x = t2
    t3 = x + y
      y = t3
      goto L3
```

```
L4:
```