TDT4205 Compiler Construction
Assignment/Problem Statement 4

1 Theory 30%

1.1 10%

Briefly explain the concept of three access code, its relation to the concept of stack machines and why it is discussed in compiler construction.

1.2 20%

Using a suitable notation try to decompose the following program into its equivalent three access code representation. You can use t0,t1,t2 ....tn-l,tn to represent temporary registers in a stack machine.

```
void main(){
  int a;
  a = 2
  int b;
  b = 2*a + 3;
  int c;
  if(b==7){
    c=4;
  }else{
    c=6;
  }
}
```

2 Programming 70%

In this part of the programming assignment you are to create the symbol table. There are some guideline functions given to you for this. For the construction of the symbol table you will be using a hash table. Refer to tlhash.c for a better idea.

2.1 Symbol table(s)

2.2 15%

Implement the function find_globals in ir.c, to populate the global symbol table with:

- Global Variables
- Functions

2.3 40%

Implement the function bind_names in ir.c, to populate local symbol tables with

- Parameters
- Local Variables

and link the entry pointers in its syntax tree nodes to their appropriate symbols.

2.4 10%

Extend bind_names to create a global table of strings.

2.5 5%

Implement the function destroy symtab, to remove dynamically allocated symbol table data at the end of compilation.