# *Compiler Construction*

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## Practical-8

## Objective

- To implement a type checker

## Introduction

- A Compiler must check that the source program follows both syntactic and semantic conventions of the source language.
- This type of checking is called static checking which detects and reports programming errors.
- Some examples of static checks:
    1. Type checks: A compiler should report an error if an operator is applied to an incompatible operand. Example : if any function and variable are added together.
    2. Flow-of-control checks : Statement that cause flow of control to leave a construct must to have some place to which to transfer the flow of control.

**Type Systems:**

The design of a type checker for a language is based on information about the syntactic constructs in the language, the notion of types, and the rules for assigning types to language

constructs.

For example : “ if both operands of the arithmetic operators of +,- and * are of type integer, then the result is of type integer ”

## Output file:

```
vedant@vedant-Inspiron-7572:~/Desktop/Compiler_construction/prac8$ ./a.out
Enter the number of variables:2
Enter the variable 0:a
Enter the variable-type 0 (float-f,int-i):f
Enter the variable 1:b
Enter the variable-type 1 (float-f,int-i):i
Enter the Expression(end with $):a+b
$

the datatype is correctly defined..!
vedant@vedant-Inspiron-7572:~/Desktop/Compiler_construction/prac8$ ./a.out
Enter the number of variables:3
Enter the variable 0:a
Enter the variable-type 0 (float-f,int-i):i
Enter the variable 1:b
Enter the variable-type 1 (float-f,int-i):f
Enter the variable 2:c
Enter the variable-type 2 (float-f,int-i):f
Enter the Expression(end with $):3+4/b
$
vedant@vedant-Inspiron-7572:~/Desktop/Compiler_construction/prac8$ ./a.out
Enter the number of variables:3
Enter the variable 0:a
Enter the variable-type 0 (float-f,int-i):i
Enter the variable 1:b
Enter the variable-type 1 (float-f,int-i):f
Enter the variable 2:c
Enter the variable-type 2 (float-f,int-i):f
Enter the Expression(end with $):a/4$
Identifier a must be a float type..!
vedant@vedant-Inspiron-7572:~/Desktop/Compiler_construction/prac8$
```

## Conclusion

In this practical i have learnt about type checking using C programming and other method is of Semantic Analysis.