# Practical 1: List of the compiler Designer tools and write its comparative analysis

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## I. Introduction

Aim of this practical to perform comparison of compiler design tool.

- A compiler is a computer program which helps you transform source code written in a high-level language into low-level machine language.
- Correctness, speed of compilation, preserve the correct the meaning of the code are some important features of compiler design
- Compilers are divided into three parts 1) Single Pass Compilers 2)Two Pass Compilers, and 3) Multipass Compilers
- Important compiler construction tools are 1) Scanner generators, 2)Syntax-3) directed translation engines, 4) Parser generators, 5) Automatic code generators
- The main task of the compiler is to verify the entire program, so there are no syntax or semantic errors

Below are few examples of compiler designer tools:

- LEX
- Yacc
- Parser Generators
- Scanner Generators
- Syntax Directed Translation engines

Table 1: Comparative study of LEX and Yacc

| **LEX** | **Yacc** |
|---|---|
| LEX is lexical analyzer that breaks up an input stream into usable elements called TOKENS. | YACC is a parsing tool that verifies the syntax of input and analyzes the structure. |

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|---|---|
| It deals with tokens | It deals with association and precedence. |
| It consists of set 0 regular expressions. | It consists of commands like LALR. |
| Lex is a tool for generating scanners. Scanners are programs that recognize lexical patterns in text. | Yacc stands for Yet Another Compiler Compiler.It is a tool that translates any grammar that describes a language into a parser for that language. |
| These lexical patterns (or regular expressions) are defined in a particular syntax. A matched regular expression may have an amciated action | It is written in Backus Naur form (BNF).The GNU equivalent of Yacc is called Bison. |
| This action may also include returning a token. | To clarify this concept a bit further, let's take the English language for an example. The set of tokens might be: noun, verb, adjective, and so on. |