

# REPORT

## COMPILER CONSTRUCTION LABORATORY

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### 1. Error IDENTIFICATION TOO LONG

- Example:

```
Program ExampleForError; (* ExampleForError 1 *)  
Var n123456789012345678 : Integer;  
Begin  
End. (* ExampleForError 1 *)
```

- Result:

```
→ incompleted (master) x ./a.out ../test/test.kpl  
1-1:KW PROGRAM  
1-9:TK IDENT(ExampleForError)  
1-24:SB SEMICOLON  
2-1:KW VAR  
2-5:Identification too long!  
→ incompleted (master) x
```

### 2. Underscore ( “\_” ) is considered as a character

- Underscore (“\_”) in Ascii code table has value 95.  
So I changed value of charCodes[95] = CHAR\_LETTER in file **charcode.c**
- Example:

```
Program Examp_le1; (* Example 1 *)  
Begin  
End. (* Example 1 *)
```

- Result:

```
→ incompleted (master) ✗ ./a.out ../test/example1.kpl
1-1:KW_PROGRAM
1-9:TK_IDENT(Examp_le1)
1-18:SB_SEMICOLON
2-1:KW_BEGIN
3-1:KW_END
3-4:SB_PERIOD
→ incompleted (master) ✗
```

### 3. All keywords are in lowercase

- In file **token.c**, I changed all keywords to lowercase and used just **\*string** instead of **toupper(\*string)** in function **keywordEq** (use to check if a string is a keyword)

```
struct {
    char string[MAX_IDENT_LEN + 1];
    TokenType tokenType;
} keywords[KEYWORDS_COUNT] = {
    {"program", KW_PROGRAM},
    {"const", KW_CONST},
    {"type", KW_TYPE},
    {"var", KW_VAR},
    {"integer", KW_INTEGER},
    {"char", KW_CHAR},
    {"array", KW_ARRAY},
    {"of", KW_OF},
    {"function", KW_FUNCTION},
    {"procedure", KW_PROCEDURE},
    {"begin", KW_BEGIN},
    {"end", KW_END},
    {"call", KW_CALL},
    {"if", KW_IF},
    {"then", KW_THEN},
    {"else", KW_ELSE},
    {"while", KW_WHILE},
    {"do", KW_DO},
    {"for", KW_FOR},
    {"to", KW_TO}
};

int keywordEq(char *kw, char *string) {
    while ((*kw != '\0') && (*string != '\0')) {
        if (*kw != *string) break;
        kw++; string++;
    }
    return ((*kw == '\0') && (*string == '\0'));
}
```

- Example:

```
program Example1; (* Example 1 *)  
begin  
End. (* Example 1 *)
```

- Result:

```
→ incompleted (master) x ./a.out ../test/example1.kpl  
1-1:KW PROGRAM  
1-9:TK_IDENT(Example1)  
1-17:SB_SEMICOLON  
2-1:KW BEGIN  
3-1:TK_IDENT(End)  
3-4:SB_PERIOD  
→ incompleted (master) x
```

**End** with **E** here is consider as an identifier because all keywords are in lowercase