



**Ganpat  
University**

॥ विद्यया समाजोत्कर्षः ॥

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**Sub: CD(Compiler Design)**

**Branch: CBA**

**Batch:71**

## -----PRACTICAL 09-----

**YACC Program for C Variable Declaration**

✓ **P1.l:**

```
%{
#include "p1.tab.h"
#include <string.h> /* Include this for strdup */
}%

%%
"int"      { return INT; }
"float"    { return FLOAT; }
"char"     { return CHAR; }
[ \t\n]+   ; /* Ignore whitespace */
[a-zA-Z_][a-zA-Z0-9_]* {
    yylval.str = strdup(yytext);
    return ID;
}
";"        { return SEMICOLON; }
",,"       { return COMMA; }
%%

int yywrap(void) {
    return 1;
}
```

✓ **P1.y:**

```
%{
#include <stdio.h>
#include <stdlib.h> /* For malloc, free */
```

```

#include <string.h> /* For strdup */
int yylex(void);
void yyerror(const char *str) {
    fprintf(stderr, "error: %s\n", str);
}
%}

%union {
    char *str; /* Member to hold strings */
}

%token <str> ID /* ID uses the str member */
%token INT FLOAT CHAR SEMICOLON COMMA

%%
declaration:
    type_specifier variable_list SEMICOLON {
        printf("Valid declaration.\n");
    }
;

type_specifier:
    INT {
        printf("Type: int\n");
    }
    | FLOAT {
        printf("Type: float\n");
    }
    | CHAR {
        printf("Type: char\n");
    }
;

variable_list:
    variable_list COMMA ID {
        printf("Variable: %s\n", $3);
        free($3);
    }
    | ID {
        printf("Variable: %s\n", $1);
        free($1);
    }
;
%%

int main(void) {
    return yyparse();
}

```

## ✓ Output:

```
C:\Program Files\WindowsAp x + v
> pwsh 9 6ms
>> flex .\p1.l
> pwsh 9 30ms
>> bison -d .\p1.y
> pwsh 9 201ms
>> gcc .\lex.yy.c .\p1.tab.c
> pwsh 9 337ms
>> .\a.exe
int a=100;
Type: int
Variable: a
=100Valid declaration.

a=10;
error: syntax error
> pwsh 9 32s 274ms
>> ls

Directory: C:\Users\Tushar\Documents\SEM 7\CD\CODES\9

Mode                LastWriteTime         Length Name
----                -
-a---            08-12-2024 07:10 PM          91678 a.exe
-a---            08-12-2024 07:10 PM        38685 c lex.yy.c
-a---            08-12-2024 07:03 PM           456 p1.l
-a---            08-12-2024 07:10 PM        43209 c p1.tab.c
-a---            08-12-2024 07:10 PM        2344 p1.tab.h
-a---            08-12-2024 07:06 PM           897 p1.y

> pwsh 9 68ms
>>
```