CD Assignment 3

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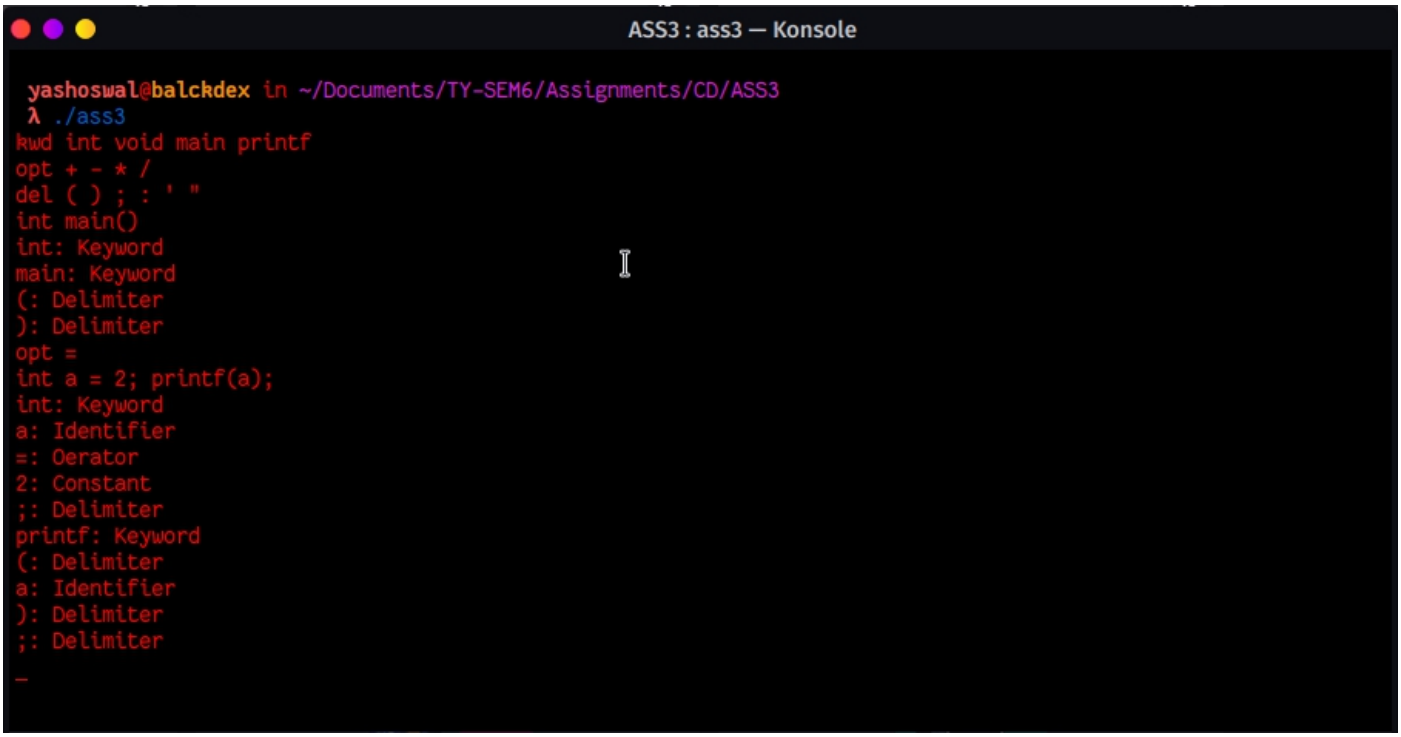
Input:

```
kwd void main int float printf
int a = 5; a = a + 2; printf(a);
```

Output:



Source Code:

```
%{
enum {
      LOOKUP =0, /* default - looking rather than defining. */
      KWD,
      IDE,
      OPT,
      DEL
};
int state;
int add_word(int type, char *word);
int lookup_word(char *word);
```

```
%}

%%

\n    { state = LOOKUP; }
^kwd  { state = KWD; }
^ide  { state = IDE; }
^opt  { state = OPT; }
^del  { state = DEL; }
[0-9] { printf("%s: Constant\n", yytext); }

[+-/*=%] {
      if(state != LOOKUP) {
            add_word(state, yytext);
      } else {
            switch(lookup_word(yytext)) {
                  case OPT:
                        printf("%s: Oerator\n", yytext);
                        break;
                  default:
                        printf("%s: Identifier\n", yytext);
                        break;
            }
      }
}

[;'")(:] {
      if(state != LOOKUP) {
            add_word(state, yytext);
      } else {
            switch(lookup_word(yytext)) {
                  case DEL:
                        printf("%s: Delimiter\n", yytext);
                        break;
                  default:
                        printf("%s: Identifier\n", yytext);
                        break;
            }
      }
}


[a-zA-Z]+ {

      if(state != LOOKUP) {
            add_word(state, yytext);
      } else {
            switch(lookup_word(yytext)) {
                  case KWD:
                        printf("%s: Keyword\n", yytext);
                        break;
                  case IDE:
```

```
                        printf("%s: Identifier\n", yytext);
                        break;
                default:
                        printf("%s: Identifier\n", yytext);
                        break;
            }
      }
}

.    /* ignore anything else */ ;

%%
int main()
{
      yylex();
}
struct word {
      char *word_name;
      int word_type;
      struct word *next;
};
struct word *word_list;
extern void *malloc() ;
int add_word(int type, char *word)
{
      struct word *wp;
      if(lookup_word(word) != LOOKUP)
      {
            printf("!!! warning: word %s already defined \n", word);
            return 0;
      }
      wp = (struct word *) malloc(sizeof(struct word));
      wp->next = word_list;
      wp->word_name = (char *) malloc(strlen(word)+1);
      strcpy(wp->word_name, word);
      wp->word_type = type;
      word_list = wp;
      return 1;
}
int lookup_word(char *word)
{
      struct word *wp = word_list;
      for(; wp; wp = wp->next) {
      if(strcmp(wp->word_name, word) == 0)
            return wp->word_type;
      }
      return LOOKUP;
}
```