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DEVELOP A C PROGRAM TO ANALYSER A GIVEN C CODE SNIPPET AND RECOGNIZE DIFFERENT TOKENS, INCLUDING KEYWORD, IDENTIFIERS, OPERATOR, DELIMITER AND SPECIAL SYMBOLS

AIM:

To develop a C program that analyses a given C code snippet and recognizes different tokens, including keywords, identifiers, operators, delimiter and special symbols.

ALGORITHM:

- Start
- Take a C code snippet as input from the user or a file.
- Initialize necessary arrays and variables for keywords, identifiers, operators, and special symbols.
- Tokenize the input string using spaces, newlines, and other delimiters.
- For each token:
  - Check if it is a keyword (compare with a predefined list of C keywords).
  - Check if it is an identifier (valid variable/function name that doesn't match a keyword).
  - Check if it is an operator (e.g., +, -, *, /, ==, &&).
  - Check if it is a special symbol (e.g., {, }, (,), ;, ,).
- Print the categorized tokens.
- End

PROGRAM:

```
#include <stdio.h>
#include <string.h>
#include <ctype.h>

int main() {
   char input[100];
   char *str[] = {"int","float","long","double","printf"};
   int i=0,j=0,iskeyword=0;
   scanf("%[^END]s",input);
```

```
for(i=0;i<4;i++){
    int flag=1;
    for(j=0;str[i][j]!='\0';j++){
    if(input[j]!=str[i][j]){
            flag=0;
            break;
        }
    }
    if(flag) {
        iskeyword = 1;
        printf("%s is a keyword\n", str[i]);
        break;
    }
}


int start = j;
while(input[start]!='\0'){
    if(isalpha(input[start])){
        printf("%c",input[start]);
        start++;
        while(isalnum(input[start]) || input[start]=='_'){
            printf("%c",input[start]);
            start++;
        }
        printf(" is a identifier\n");
    }else if(isdigit(input[start])){
        printf("%c",input[start]);
        start++;
        while(isdigit(input[start])){
        printf("%c",input[start]);
        start++;
        }
        printf(" is a constant\n");
      }else if(input[start]==',' || input[start]==';'){
          printf("%c is a delimeter\n",input[start]);
```

```
            start++;
        }else if(input[start]=='+' ||input[start]=='-' || input[start]=='*' || input[start]=='/' || input[start]=='%' || input[start]=='=' ){
            printf("%c is a operator\n",input[start]);
            start++;
        }else if(input[start]=='(' ||input[start]==')' || input[start]=='{' || input[start]=='}' || input[start]=='[' || input[start]==']' ){
            printf("%c is a Symbol\n",input[start]);
            start++;
        }else{
            start++;
        }
    }
    return 0;
}
```

OUTPUT:

```
Enter a C code snippet:
int main() {
    int a = 5, b = 10;
    float c = a + b;
    if (c > 10) {
        printf("Result: %f", c);
    }
    return 0;
}


Recognized Tokens:
Keyword: int
Identifier: main()
Special Symbol: {
```

Implementation	
Output/Signature	

RESULT :

Thus the above program reads a C code snippet, tokenizes it using space, tab, and newline as delimiters, classifies each token as a keyword, identifier, operator, or special symbol based on predefined lists, and prints the recognized tokens along with their types