PROGRAM:-

#include <stdio.h>

#include <ctype.h>

#include <string.h>

void tokenize(const char \*input) {

char ch;

while ((ch = \*input++) != '\0') {

if (isspace(ch)) {

continue; // Ignore whitespace

}

if (isalpha(ch)) { // Identifier or keyword

printf("Identifier: %c", ch);

while (isalnum(\*input) || \*input == '\_') {

printf("%c", \*input++);

}

printf("\n");

} else if (isdigit(ch)) { // Constant

printf("Constant: %c", ch);

while (isdigit(\*input)) {

printf("%c", \*input++);

}

printf("\n");

} else if (strchr("+-\*/=<>!", ch)) { // Operators

printf("Operator: %c\n", ch);

} else if (ch == '/') { // Check for comments

if (\*input == '/') { // Single-line comment

while (\*input && \*input != '\n') input++;

} else if (\*input == '\*') { // Multi-line comment

input++;

while (\*input && !(\*input == '\*' && \*(input + 1) == '/')) {

input++;

}

if (\*input) input += 2; // Skip closing \*/

}

}

}

}

int main() {

const char \*source\_code = "int main() {\n"

" int x = 10; // variable\n"

" /\* This is a \n"

" multi-line comment \*/\n"

" x += 2;\n"

"}";

tokenize(source\_code);

return 0;

}

OUTPUT:-

