

```
19-40978-2.cpp x
Users > macbook > Desktop > CD Task > 19-40978-2.cpp > ...
1 #include <iostream>
2 #include <fstream>
3 #include <string>
4
5 using namespace std;
6
7 string preprocessors[] = {"include", "define", "undef", "if", "elif", "endif", "ifdef", "ifndef",
8 "else", "error", "line", "pragma"};
9 string variablesFound[50], preprocessorsFound[50];
10 int noOfVariables = 0, noOfPreprocessors = 0;
11 bool isMain = false;
12
13 bool isKeyword(string var)
14 {
15     char keywords[38][10] = {"auto", "break", "case", "char", "const", "continue", "default",
16 "do", "double", "else", "enum", "extern", "float", "for", "goto",
17 "if", "int", "long", "register", "return", "short", "signed",
18 "sizeof", "static", "struct", "switch", "typedef", "union",
19 "unsigned", "void", "volatile", "while", "max", "min", "using",
20 "namespace", "std", "cout"};
21     for (int i = 0; i < 38; ++i)
22     {
23         if (strcmp(keywords[i], var.c_str()) == 0)
24             return true;
25     }
26     return false;
27 }
28
29 bool isIdentifier(string s)
30 {
31     bool flag = false;
32     if (s[0] >= 'A' && s[0] <= 'Z' || (s[0] >= 'a' && s[0] <= 'z') || s[0] == '_')
33     {
34         for (char val : s)
35         {
36             if ((val >= 'A' && val <= 'Z') || (val >= 'a' && val <= 'z') || val == '_' || (val >= '0' && val <= '9'))
37             {
38                 flag = true;
39             }
40             else
41             {
42                 flag = false;
43                 break;
44             }
45         }
46     }
47     else
48     {
49         flag = false;
50     }
51     if (flag)
52         return true;
53     else
54         return false;
55 }
```

```
19-40978-2.cpp x
Users > macbook > Desktop > CD Task > 19-40978-2.cpp > ...
27 bool isIdentifier(string s)
28 {
29     bool flag = false;
30     if (s[0] >= 'A' && s[0] <= 'Z' || (s[0] >= 'a' && s[0] <= 'z') || s[0] == '_')
31     {
32         for (char val : s)
33         {
34             if ((val >= 'A' && val <= 'Z') || (val >= 'a' && val <= 'z') || val == '_' || (val >= '0' && val <= '9'))
35             {
36                 flag = true;
37             }
38             else
39             {
40                 flag = false;
41                 break;
42             }
43         }
44     }
45     else
46     {
47         flag = false;
48     }
49     if (flag)
50         return true;
51     else
52         return false;
53 }
54 }
```

```
19-40978-2.cpp x
Users > macbook > Desktop > CD Task > 19-40978-2.cpp > ...

55
56 bool isNotAdded(string str, string arr[], int len)
57 {
58     for (int i = 0; i < len; i++)
59     {
60         if (arr[i] == str)
61             return false;
62     }
63     return true;
64 }
65
66 void isVariable(string line)
67 {
68     string word = "", varName = "";
69     for (int i = 0; i < line.length(); i++)
70     {
71         while (line[i] != ' ' && line[i] != ',' && line[i] != '=' && line[i] != ';' && line[i] != '\0')
72         {
73             word += line[i];
74             i++;
75         }
76         if (strstr(word.c_str(), "main"))
77             isMain = true;
78
79         if (isMain && isIdentifier(word) && !isKeyword(word))
80         {
81             if (isNotAdded(word, variablesFound, noOfVariables))
82                 variablesFound[noOfVariables++] = word;
83         }
84     }
85 }

Ln 140, Col 1  Spaces: 4  UTF-8  LF  C++  Mac  Prettier
```

```
19-40978-2.cpp x
Users > macbook > Desktop > CD Task > 19-40978-2.cpp > ...

65
66 void isVariable(string line)
67 {
68     string word = "", varName = "";
69     for (int i = 0; i < line.length(); i++)
70     {
71         while (line[i] != ' ' && line[i] != ',' && line[i] != '=' && line[i] != ';' && line[i] != '\0')
72         {
73             word += line[i];
74             i++;
75         }
76         if (strstr(word.c_str(), "main"))
77             isMain = true;
78
79         if (isMain && isIdentifier(word) && !isKeyword(word))
80         {
81             if (isNotAdded(word, variablesFound, noOfVariables))
82                 variablesFound[noOfVariables++] = word;
83         }
84     }
85     word = "";
86 }
87
88
89 void findPreprocessor(string line)
90 {
91     string word = "", preprocessorName = "";
92     for (int i = 0; i < line.length(); i++)
93     {
94         while (line[i] != ' ' && line[i] != ',' && line[i] != '=' && line[i] != ';' && line[i] != '\0')
95         {
96             word += line[i];
97             i++;
98         }
99         if (strstr(word.c_str(), "#include") || strstr(word.c_str(), "#define") || strstr(word.c_str(), "#ifdef") || strstr(word.c_str(), "#ifndef") || strstr(word.c_str(), "#else") || strstr(word.c_str(), "#endif") || strstr(word.c_str(), "#pragma"))
100             preprocessorName = word;
101     }
102 }

Ln 140, Col 1  Spaces: 4  UTF-8  LF  C++  Mac  Prettier
```

```
19-40978-2.cpp x
Users > macbook > Desktop > CD Task > 19-40978-2.cpp > ...

89 void findPreprocessor(string line)
90 {
91     string word = "", preprocessorName = "";
92     for (int i = 0; i < line.length(); i++)
93     {
94         while (line[i] != ' ' && line[i] != ',' && line[i] != '=' && line[i] != ';' && line[i] != '\0')
95         {
96             word += line[i];
97             i++;
98         }
99
100         if (word[0] == '#')
101         {
102             for (string preprocessor : preprocessors)
103             {
104                 if (strstr(word.c_str(), preprocessor.c_str()))
105                     preprocessorName = preprocessor;
106             }
107             if (isNotAdded(preprocessorName, preprocessors, noOfPreprocessors))
108                 preprocessorsFound[noOfPreprocessors++] = preprocessorName;
109         }
110
111         preprocessorName = word = "";
112     }
113 }
114
115 int main()
116 {
117     string line;
118     ifstream input("program.cpp");
119     while (getline(input, line, '\n'))
120     {
121         isVariable(line);
122         findPreprocessor(line);
123     }
124     input.close();
125
126     for (int i = 0; i < noOfVariables; i++)
127     {
128         cout << "Variable-" << i + 1 << ": " << variablesFound[i] << endl;
129     }
130     cout << "Total number of the variables: " << noOfVariables << endl;
131
132     for (int i = 0; i < noOfPreprocessors; i++)
133     {
134         cout << "Operator-" << i + 1 << ": " << preprocessorsFound[i] << endl;
135     }
136     cout << "Total number of preprocessor: " << noOfPreprocessors << endl;
137 }

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
~ > cd "/Users/macbook/Desktop/CD Task/" && g++ --std=c++17 19-40978-2.cpp -o 19-40978-2 && "/Users/macbook/Desktop/CD Task/"19-40978-2
Variable-1: a
Variable-2: b
Variable-3: c
Variable-4: d
Variable-5: e
Total number of the variables: 5
Operator-1: include
Operator-2: define
Total number of preprocessor: 2
~/Desktop/CD Task >
```