CP2H2 Pseudocode, Script, and Output

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Algorithm 1 Baby Name Calculator

```
procedure BABY NAME CALCULATOR
    Create necessary variables, arrays, and objects
    Ask for input file name
    Skip first line of input (headers)
    for The length of the list do
        for The width of the list do
            if First Column then
                Add year to years array
            else if Second Column then
                Add female name to names 2D array
            else
                Add male name to names 2D array
    while User wants to input more do
        Ask for baby name
        if Baby name in names 2D array then
            Flag is true
        if Flag then
            Print that name was popular in last 100 years
        else
            Print that name was not popular in last 100 years
        Ask if user wants to run again
```

Listing 1: CP2H2 Script

```
/*
 * ============================================================================
 *
 *        Filename:  CP2H2_MBROD.cpp
 *        Assignment: C++ Lab #2 Homework 2
```

```
 *        Title: Baby Name Counter
 *
 *    Description:  Takes in a file with popular baby names, and
 *                  a name from the user, and compares it to the
 *                  file, printing a statement
 *
 *         Version:  1.0
 *         Created:  11/16/2022
 *        Revision:  none
 *        Compiler:  GCC
 *
 *          Author:  M. Brodskiy
 *
 * ================================================================
 */

// -- Libraries & Directives --
#include <iostream> // Needed for normal cin & cout
#include <string>  // Needed to work with strings
#include <fstream> // Needed to read or write files on disk
using namespace std;

// PROGRAM CharacterSorter
int main() {
  // -- Declare Variables --
  ifstream infile;
  // An input stream object for the text file data

  const int listLength = 105; // Variable for list length
  const int listWidth = 2; // Variable for list width
  int years[listLength]; // Variable containing years

  bool flag = false; // Variable to track if popular name

  string fileName(""); // Variable to track file name
  string babyName(""); // Variable to track baby name
  string nextMove(""); // Variable to control while loop
  string popNames[listLength][listWidth]; // 2D array for names

  // -- Main Program --
  //  Introduce Program to user
  cout << endl;
  cout << "  --- Baby Name Counter ---  " << endl;
  cout << " Loads a text file and then compares " << endl;
  cout << " it to an inputted baby name " << endl << endl;
```

```
51
52    // Ask for file name
53    cout << "Enter a File Name: ";
54    cin >> fileName;
55    cout << endl;
56
57    // Open text file as an input stream
58    infile.open(fileName);
59
60    // Check the file stream
61    if (!infile) {
62      // Provide user warning
63      cout << "Warning: Unable to open file" << endl;
64      // end program with error
65      cout << "Exiting with Error" << endl;
66      return 1;
67    }
68
69    infile.ignore(256, '\n'); // Skip first line with headers
70
71    for (int i = 0; i < listLength; i++) {
72
73        for (int j = listWidth; j >= 0; j--) { // Nested for loop
  to read in names from file to a 2D array
74
75            if (j == 2) infile >> years[i]; // Add years to list
76            else if (j == 1) infile >> popNames[i][0];
77            // Read female name for year
78            else { infile >> popNames[i][1];  }
79            // Read male name for year
80
81        }
82
83    }
84
85    do {
86
87      // Ask for a baby name
88      cout << "Enter a Baby Name: ";
89      cin >> babyName;
90
91      // Use nested for loop to read array contents
92      for (int i = 0; i < listLength; i++) {
93
94        for (int j = listWidth; j >= 0; j--) {
```

```
95
96          if (j == 1 || j == 0) {
97
98              if (babyName == popNames[i][j]) {
99
100     // If inputted name matches a name in array, flag is true
101                 flag = true;
102                 break;
103
104             }
105
106         }
107
108       }
109
110     }
111
112     cout << endl;
113
114     // If the name is in array, say it was popular
115     if (flag) cout << "The name " << babyName << " was popular"
116         << " at least once in the last 100 years" << endl;
117     // If the name is not in array, say it was not popular
118     else { cout << "The name " << babyName << " was not popular"
119         << " at least once in the last 100 years" << endl; }
120
121     cout << endl;
122
123     cout << "Run program again (yes/no)? ";
124     cin >> nextMove;
125     cout << endl;
126
127     flag = false;
128
129   } while (nextMove != "no");
130
131 } // ENDPROGRAM
```

Listing 2: CP2H2 Output

```
1   --- Baby Name Counter ---
2  Loads a text file and then compares
3  it to an inputted baby name
4
5 Enter a File Name: BabyNames.txt
```

```
6
7  Enter a Baby Name: Michael
8
9  The name Michael was popular at least once in the last 100 years
10
11 Run program again (yes/no)? yes
12
13 Enter a Baby Name: Filip
14
15 The name Filip was not popular at least once in the last 100 years
16
17 Run program again (yes/no)? yes
18
19 Enter a Baby Name: Mary
20
21 The name Mary was popular at least once in the last 100 years
22
23 Run program again (yes/no)? yes
24
25 Enter a Baby Name: Martha
26
27 The name Martha was not popular at least once in the last 100 years
28
29 Run program again (yes/no)? no
```