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1  /* C Program by Dave Russillo. Made for CS1310.
2  * Reads and writes personal data of family members using separate files.
3  *
4  *
5  *
6  *
7  *
8  *
9  *
10 *
11 *
12 */
13 #include <stdio.h>
14 #include <stdlib.h>
15 #include <string.h>
16
17 char current_date[10] = "11-17-2024"; /* current date for age calculation */
18 struct family {
19     char name[50]; /* person's name */
20     char street[50]; /* street address */
21     char csz[50]; /* city, state, zip */
22     char relation[50]; /* relation to you */
23     char birthday[11]; /* mm-dd-yyyy */
24 };
25 struct family people[7];
26
27
28
29 void fprint_age(FILE *out, char *birthday) {
30     int bday_month = atoi(birthday); /* birthday month as an integer */
31     int bday_day = atoi(birthday+3); /* birthday day as an integer */
32     int bday_year = atoi(birthday+6); /* birthday year as an integer */

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33 int current_month = atoi(current_date); /* current month as an integer */
34 int current_day = atoi(current_date+3); /* current day as an integer */
35 int current_year = atoi(current_date+6); /* current year as an integer */
36
37 /*
38  * if month is less than birth month -> current year - birth year - 1
39  * else if month is more than birth month -> current year - birth year
40  * else if day is less than birth day -> current year - birth year - 1
41  * else current year - birth year
42  */
43
44 if(current_month < bday_month) {
45     fprintf(out, "%d", current_year - bday_year - 1); /* birthday not yet reached this year */
46 } else if(current_month > bday_month) {
47     fprintf(out, "%d", current_year - bday_year); /* birthday already reached this year */
48 } else if(current_day < bday_day) {
49     fprintf(out, "%d", current_year - bday_year - 1); /* birthday not yet reached this year */
50 } else {
51     fprintf(out, "%d", current_year - bday_year); /* birthday today or earlier this month */
52 }
53 }
54
55
56
57 void fprint_fulldate(FILE *out, char *date) {
58     int month = atoi(date); /* month as an integer */
59     int day = atoi(date+3); /* day as an integer */
60     int year = atoi(date+6); /* year as an integer */
61
62     switch(month) { /* print month as a word based on the number */
63         case 1:
64             fprintf(out, "January ");

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65     break;
66 case 2:
67     fprintf(out, "February ");
68     break;
69 case 3:
70     fprintf(out, "March ");
71     break;
72 case 4:
73     fprintf(out, "April ");
74     break;
75 case 5:
76     fprintf(out, "May ");
77     break;
78 case 6:
79     fprintf(out, "June ");
80     break;
81 case 7:
82     fprintf(out, "July ");
83     break;
84 case 8:
85     fprintf(out, "August ");
86     break;
87 case 9:
88     fprintf(out, "September ");
89     break;
90 case 10:
91     fprintf(out, "October ");
92     break;
93 case 11:
94     fprintf(out, "November ");
95     break;
96 case 12:
```

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97     fprintf(out, "December ");
98     break;
99     default:
100     fprintf(out, "ERROR: INVALID MONTH VALUE ");
101     break;
102 }
103 fprintf(out, "%d, %d", day, year); /* print rest of date */
104 }
105
106
107
108 void read_data(FILE *inputfile) { /* reads lines from inputfile and puts them in people array */
109     char line[50]; /* next line in file */
110     int person; /* index of current person (every five lines) */
111     for(person = 0; person < 7; person++) { /* for each person in the file */
112         fgets(line, 50, inputfile); /* save current line to line */
113         line[strlen(line)-1] = '\0'; /* remove newline character at the end of line */
114         strcpy(people[person].name, line); /* save line to current person attribute in people array */
115         fgets(line, 50, inputfile); /* same thing for every attribute until end of function */
116         line[strlen(line)-1] = '\0';
117         strcpy(people[person].street, line);
118         fgets(line, 50, inputfile);
119         line[strlen(line)-1] = '\0';
120         strcpy(people[person].csz, line);
121         fgets(line, 50, inputfile);
122         line[strlen(line)-1] = '\0';
123         strcpy(people[person].relation, line);
124         fgets(line, 50, inputfile);
125         line[strlen(line)-1] = '\0';
126         strcpy(people[person].birthday, line);
127     }
128 }

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129
130
131
132 void write_data(FILE *outputfile) { /* writes data from people array to given output file */
133     int person;
134     for(person = 0; person < 7; person++) { /* for each person */
135         /* print all information to stdout and output file (required format) */
136         fprintf(stdout, "%-35s Relation: %s \n", people[person].name, people[person].relation);
137         fprintf(outputfile, "%-35s Relation: %s \n", people[person].name, people[person].relation);
138         fprintf(stdout, "%-35s Birthday: ", people[person].street);
139         fprintf(outputfile, "%-35s Birthday: ", people[person].street);
140         fprintf_fullldate(stdout, people[person].birthday);
141         fprintf_fullldate(outputfile, people[person].birthday);
142         fprintf(stdout, " \n");
143         fprintf(outputfile, " \n");
144         fprintf(stdout, "%-35s Age: ", people[person].csz);
145         fprintf(outputfile, "%-35s Age: ", people[person].csz);
146         fprintf_age(stdout, people[person].birthday);
147         fprintf_age(outputfile, people[person].birthday);
148         fprintf(stdout, "\n\n");
149         fprintf(outputfile, "\n\n");
150     }
151 }
152
153
154
155 int main(void) {
156     /* open input and output files and save them to infil and outfile variables */
157     FILE *infile = fopen("familyin.txt", "r");
158     FILE *outfile = fopen("familyout.txt", "w");
159
160     read_data(infile);
161
162     write_data(outfile);
163
164     /* close input and output files */
165     fclose(infile);
166     fclose(outfile);
167
168     return 0;
169 }

```

Davide Russillo
1 Camino Santa Maria
San Antonio, Texas, 78228 USA
Self
06-07-2006
Serena Manfreda
Goethestrasse 15
Berlin, Berlin, 10625 Germany
Mother
08-21-1978
Roberto Russillo
Goethestrasse 15
Berlin, Berlin, 10625 Germany
Father
05-28-1976
Dafne Russillo
Goethestrasse 15
Berlin, Berlin, 10625 Germany
Sister
07-14-2016
Donato Manfreda
Via I Maggio 25
Picerno, Potenza, 85055 Italy
Grandfather
12-17-1939
Lidia Caggiano
Via I Maggio 25
Picerno, Potenza, 85055 Italy
Grandmother
12-12-1951
Rossella Manfreda
Corso Umberto I 37
Picerno, Potenza, 85055 Italy
Aunt
04-02-1972

Davide Russillo 1 Camino Santa Maria San Antonio, Texas, 78228 USA	Relation: Self Birthday: June 7, 2006 Age: 18
Serena Manfreda Goethestrasse 15 Berlin, Berlin, 10625 Germany	Relation: Mother Birthday: August 21, 1978 Age: 46
Roberto Russillo Goethestrasse 15 Berlin, Berlin, 10625 Germany	Relation: Father Birthday: May 28, 1976 Age: 48
Dafne Russillo Goethestrasse 15 Berlin, Berlin, 10625 Germany	Relation: Sister Birthday: July 14, 2016 Age: 8
Donato Manfreda Via I Maggio 25 Picerno, Potenza, 85055 Italy	Relation: Grandfather Birthday: December 17, 1939 Age: 84
Lidia Caggiano Via I Maggio 25 Picerno, Potenza, 85055 Italy	Relation: Grandmother Birthday: December 12, 1951 Age: 72
Rossella Manfreda Corso Umberto I 37 Picerno, Potenza, 85055 Italy	Relation: Aunt Birthday: April 2, 1972 Age: 52

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david@DESKTOP-NBIFNSU MINGW64 ~/Documents/CS/StMU-CS/Fall-2024/Pr
$ gcc -o Program7-edit.exe Program7-edit.c; ./Program7-edit.exe
Davide Russillo                      Relation: Self
1 Camino Santa Maria                 Birthday: June 7, 2006
San Antonio, Texas, 78228 USA        Age: 18

Serena Manfreda                      Relation: Mother
Goethestrasse 15                     Birthday: August 21, 1978
Berlin, Berlin, 10625 Germany        Age: 46

Roberto Russillo                     Relation: Father
Goethestrasse 15                     Birthday: May 28, 1976
Berlin, Berlin, 10625 Germany        Age: 48

Dafne Russillo                       Relation: Sister
Goethestrasse 15                     Birthday: July 14, 2016
Berlin, Berlin, 10625 Germany        Age: 8

Donato Manfreda                      Relation: Grandfather
Via I Maggio 25                     Birthday: December 17, 1939
Picerno, Potenza, 85055 Italy        Age: 84

Lidia Caggiano                       Relation: Grandmother
Via I Maggio 25                     Birthday: December 12, 1951
Picerno, Potenza, 85055 Italy        Age: 72

Rossella Manfreda                    Relation: Aunt
Corso Umberto I 37                   Birthday: April 2, 1972
Picerno, Potenza, 85055 Italy        Age: 52
```