Programming Assignment 3:
Spring Festival – Final Phase
Due 11:59 pm Friday, April 1st

1. Overview

This is the final phase of your project called "Spring Festival". This project is an exercise in time management and planning (i.e. writing algorithms) as much as it is an exercise in C programming. One of the most important lessons with programming is learning how to do things incrementally – breaking up a big program into smaller components and working on each component one at a time. If you do not get an early start on each phase, it is VERY LIKELY that you will find that you do not have enough time to complete the project.

The C concepts that this phase will give you experience using functions that take in arguments and return values, as well as loops & conditionals, printf & scanf, declaring variables, and using logical expressions. Also, in this phase, you will practice using the switch statement, as well as creating a multi-module program, using the programs from the first two phases, along with the files from this phase. You will gain some more experience using a makefile with this assignment as well.

2. Final Phase: Details

This final phase of your Spring Festival consists of two parts.

PART 1: The first part is another festival game that the user can choose to play, called Fortune Teller. The user will be prompted to enter his/her birth month and favorite color. Based on those two pieces of information, the fortune teller will reveal some information about the person's personality.

Your program should have a separate function for the birth month meaning, and another separate function for the color meaning. Each of those functions should take in a single integer argument, which would be the user's inputs. Each of those functions should use a switch statement where the proper message corresponding to the user's input should be printed back to the user. Neither of the functions will need to return anything.

It is suggested that you do this part first, naming your file `fortuneTeller.c` and running it as a stand-alone program.

Use the following for the birth month meanings:

People born in:
January ♥ are bold and alert
February ♥ are lucky and loyal
March ♥ are Naughty and Genius
April ♥ are caring and strong
May ♥ are Loving and practical
June ♥ are Romantic and curious
July ♥ are Adventurous and honest
August ♥ are Active and hardworking
September ♥ are Sensitive and pretty
October ♥ are Stylish and friendly
November ♥ are Nice and creative
December ♥ are Confident and freedom loving
www.fbart.org

You can find the color meanings here:
http://www.empower-yourself-with-color-psychology.com/personality-color.html

Once you get this program working, then move on to part two.

PART 2: The second part consists of combining all 3 phases into one multi-module program. It is suggested that you create another directory on your account, copy over all the files from all 3 programs into this new directory, and then work with those files.

You will create a `mainDriver.c` module as well as a header file called `festival.h`. In addition to those files, you will also have your `contest.c`, `guessAge.c`, and `fortuneTeller.c` files. And, a `makefile` is provided to you. By executing the following command, you can copy the makefile to your account:

        cp /home/chochri/101/S16/Assignments/asg3/makefile .

Make sure to type the copy command exactly as it appears (the dot at the end is needed). And make sure that your files are named correctly or else the makefile will not work.

The `mainDriver.c` module will be the starting point of your program and will contain your `main()` function. Don't forget that all programs have one and only one `main()` function, so you will have to rename your other `main()` functions in your other `.c` files to something else, and then call those functions from within the `main()` function in your `mainDriver.c`. It will be in this file where the user will be prompted to enter a choice for one of the festival games: the bbq contest, the guess your age game, or the personality test. Using the choice from the user, the function corresponding to the game chosen should be called. You should catch invalid input and force the user to enter one of the 3 choices. (Invalid input at any point in the program should be dealt with similarly). After that function is called and that game is completed, control should return back to the `main()` function where the user will be given the choice to play another game.

A sample run is on the next several pages. Your program should function in a similar manner as the sample run.

Your `festival.h` header file should contain the necessary `#include` statements and function prototypes. There are no global variables to be shared among the modules, so **there should be NO VARIABLE declarations** in the header file. Also, all the function prototypes should be in the header file as well.

3. Notes on Collaboration

You are required to <u>work individually</u> on this assignment. **Please do not consult *anyone* other than me or the lab assistants on *any* aspect of this assignment**.

4. Submission of Project

As you did in lab 10, you will tar up (compress) your files so that you have only one file to submit. Type `make clean` at the command prompt to get rid of your executable, all your .o files, and all the files that end with a `.~` (if there are any). Type `ls` to make sure that you have only the required files needed (`mainDriver.c`, `festival.h`, `makefile`, `contest.c`, `guessAge.c`, and `fortuneTeller.c`). Then type the following to compress all your files into one file: `tar czvf festival.tar.gz *`

Check to make sure `festival.tar.gz` is there, and then type the following to double check that all the required files are contained in that compressed file: `tar tzvf festival.tar.gz`

Once you are certain that you have tarred up your files correctly, then you can submit that one tarred up file via the handin page: http://handin.cs.clemson.edu

5. Grading

The code for your final project will be evaluated not only on its correctness but also on its adherence to the coding style standards. The handout "*Programming Assignment Requirements*" is provided on Blackboard under "Handouts and Other Info" as well as where the assignment appears in the Module. Don't forget to use meaningful variable names, and don't forget about indentation and comments.

90% of your project will be graded on its ability to generate proper output given reasonable inputs. In the end, there will be 4 parts to the project plus the header file. Each part will be worth 21%, the header file worth 6%; so if one of those parts doesn't compile or doesn't work at all, you will lose 21 points out of 100; if one of the parts partially works,

then you'll lose some portion of the 21 points depending on how much of it doesn't work. If you are missing the header file, you will lose 6 points out of 100.

10% of your project will be graded on its adherence to the coding style standards.

6. Sample Run

The following is a sample run where user input is denoted in *italics*.

```
_ * _ * _ * _ * _ * _ * _ * _ * _ * _ * _ * _ * _ * _ * _
_ * _ * _ * _ * _ *   WELCOME TO THE  * _ * _ * _ * _ * _
_ * _ * _ * _ * _ *  SPRING FESTIVAL! * _ * _ * _ * _ * _
_ * _ * _ * _ * _ * _ * _ * _ * _ * _ * _ * _ * _ * _ * _



_ * _ * _ * _ * _ * _ * _ * _ * _ * _ * _ * _ * _ * _ * _

Which festival game would you like to play?
1. bbq contest
2. guess your age
3. personality test
Enter the integer corresponding to your choice: 4

_ * _ * _ * _ * _ * _ * _ * _ * _ * _ * _ * _ * _ * _ * _


 ... invalid response ...

1. bbq contest
2. guess your age
3. personality test
Enter the integer corresponding to your choice: 1

_ * _ * _ * _ * _ * _ * _ * _ * _ * _ * _ * _ * _ * _ * _
_ * _ * _ * _ * _ *    BBQ CONTEST    * _ * _ * _ * _ * _

Enter the 6 scores:
10
9
10
9
10
9

The average score for that bbq dish is: 9.6
That contestant wins a t-shirt!!

Do you have another bbq dish to enter scores for? (Enter: 1 for Yes, 0 for No) 3


 ... invalid response ...
Please enter a 1 for Yes or 0 for No:

 1
```

Enter the 6 scores:
8
5
10
4
9
8

The average score for that bbq dish is: 8.0

Do you have another bbq dish to enter scores for? (Enter: 1 for Yes, 0 for No) *0*

- * - * - * - * - * - * SUMMARY * - * - * - * - * - * -

There were 2 bbq dishes in the contest.
1 t-shirts were won!
The average of the scores was 8.8

Would you like to play another game? (Enter 1 for Yes, 0 for No) *1*

- * - * - * - * - * - * - * - * - * - * - * - * - * - * -

Which festival game would you like to play?
1. bbq contest
2. guess your age
3. personality test
Enter the integer corresponding to your choice: 2

- * - * - * - * - * - * - * - * - * - * - * - * - * - * -

- * - * - * - * - * - * - * - * - * - * - * - * - * - * -
- * - * - * - * - *   GUESS MY AGE   * - * - * - * - * -

Enter your age as an integer
23

I guessed 25
which is within 3 years of your age! Sorry, no teddy bear this time :(

- * - * - * - * - * - * SUMMARY * - * - * - * - * - * -

No teddy bears were won!

Would you like to play another game? (Enter 1 for Yes, 0 for No) *1*

- * - * - * - * - * - * - * - * - * - * - * - * - * - * -

Which festival game would you like to play?
1. bbq contest
2. guess your age
3. personality test
Enter the integer corresponding to your choice: *2*

- * - * - * - * - * - * - * - * - * - * - * - * - * - * -

```
- * - * - * - * - * - * - * - * - * - * - * - * - * -
- * - * - * - * - *    GUESS MY AGE     * - * - * - * - * -

Enter your age as an integer
19

I guessed 23
which wasn't close enough to your age!

You win a teddy bear!!

Do you want me to try again? (Enter: 1 for Yes, 0 for No) 3


 ... invalid response ...
Please enter a 1 for Yes or 0 for No:

  1

I guessed 33
which wasn't close enough to your age!

You win a teddy bear!!

Do you want me to try again? (Enter: 1 for Yes, 0 for No) 1

I guessed 14
which wasn't close enough to your age!

You win a teddy bear!!

Do you want me to try again? (Enter: 1 for Yes, 0 for No) 1

I guessed 6
which wasn't close enough to your age!

You win a teddy bear!!

Do you want me to try again? (Enter: 1 for Yes, 0 for No) 1

I guessed 23
which wasn't close enough to your age!

You win a teddy bear!!

Do you want me to try again? (Enter: 1 for Yes, 0 for No) 1

I guessed 31
which wasn't close enough to your age!

You win a teddy bear!!

Do you want me to try again? (Enter: 1 for Yes, 0 for No) 1

I guessed 5
which wasn't close enough to your age!

You win a teddy bear!!
```

Do you want me to try again? (Enter: 1 for Yes, 0 for No) *1*

I guessed 30
which wasn't close enough to your age!

You win a teddy bear!!

Do you want me to try again? (Enter: 1 for Yes, 0 for No) *1*

I guessed 19
which is within 3 years of your age! Sorry, no teddy bear this time :(

- * - * - * - * - * - * SUMMARY * - * - * - * - * - * -

The contestant won 8 teddy bears!

Would you like to play another game? (Enter 1 for Yes, 0 for No) *1*

- * - * - * - * - * - * - * - * - * - * - * - * - * -

Which festival game would you like to play?
1. bbq contest
2. guess your age
3. personality test
Enter the integer corresponding to your choice: *3*

- * - * - * - * - * - * - * - * - * - * - * - * - * -

- * - * - * - * - * - * - * - * - * - * - * - * - * -
- * - * - * - * - * PERSONALITY READING * - * - * - * -

Enter the integer that corresponds to your birth month:
     - - > *1*

Enter the integer that corresponds to your favorite color:
1 - red
2 - orange
3 - yellow
4 - green
5 - blue
6 - purple
7 - pink
     - - > *5*

Born in January, you are bold and alert.

Blue means you have a deep need to find inner peace and truth, to
live your life according to your ideals and beliefs without having
to change your inflexible viewpoint of life to satisfy others.

Would you like to play another game? (Enter 1 for Yes, 0 for No) *1*

```
_ * _ * _ * _ * _ * _ * _ * _ * _ * _ * _ * _ * _ * _ * _

Which festival game would you like to play?
1. bbq contest
2. guess your age
3. personality test
Enter the integer corresponding to your choice: 4

_ * _ * _ * _ * _ * _ * _ * _ * _ * _ * _ * _ * _ * _ * _


 ... invalid response ...

1. bbq contest
2. guess your age
3. personality test
Enter the integer corresponding to your choice: 3

_ * _ * _ * _ * _ * _ * _ * _ * _ * _ * _ * _ * _ * _ * _
_ * _ * _ * _ * _ *  PERSONALITY READING  * _ * _ * _ * _


Enter the integer that corresponds to your birth month:
     - - > 13


Invalid input!

Enter the integer that corresponds to your birth month:
     - - > 5


Enter the integer that corresponds to your favorite color:
1 - red
2 - orange
3 - yellow
4 - green
5 - blue
6 - purple
7 - pink
     - - > 8

Invalid input!

Enter the integer that corresponds to your favorite color:
     - - > 2



Born in May, you are loving and practical.

Orange means you have a great need to be with people, to socialize
with them, and be respected as part of a group. You also have a need
for challenges in your life, whether physical or social challenges.



Would you like to play another game? (Enter 1 for Yes, 0 for No) 0
Hope you had fun at the festival!!
```