ATILIM UNIVERSITY

DEPARTMENT OF COMPUTER ENGINEERING

Computer Programming 2 (CMPE114)

Assignment-1

2020-2021 Spring Semester

Prepeared by

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Due date: _/_/_

RULES & REGULATIONS

- You must submit your homework via Moodle before the due date/time.
- Homework submitted via email will be ignored.
- Late submissions will NOT be graded.
- Before submission check that:
    1) Use CodeBlocks or Dev-C++ as the IDE
    2) Name your homework file as in the format lastname_firstname_hw1.c
    3) Do NOT use Turkish characters when you name C source file.
    4) Your homework must be a source file (a C file not CPP).
    5) Do NOT upload .exe file. Otherwise you will get ZERO.
- Your codes will be checked by special software (JPLAG & MOSS) for code similarity. If the code similarity between any two or more submissions is higher than %90, we will also examine and compare these codes by eye. If we are convinced that the similarity between two codes is not merely a coincidence, all involved HWs will get 0 as the grade.
- Therefore;
    1) Group study is not allowed. Everyone needs to do his/her homework as an individual.
    2) Do not use Internet resources! If any other student use the same source then your submissions will be found as similar!
    3) Do not share your solution/ideas with others.
- Moreover, if we believe that the students cheat on these exams, we will initiate a disciplinary act!
- GRADING POLICY: If your code can not run *at all* or *as expected*, your code will be evaluated over 70 points not 100 points.

Question

In your assignment, you are asked to design a lucky number guess game. The game will be played by Player 1 and Player 2.

At the beginning of the game, your program will generate a random number between 1-1000. In order to do this; you will use the library #include<time.h> and #include <stdlib.h>.

The formula and the function of the code snippet to generate the random number in your main function is given below:

```
srand(time(0));
luckyNum=(rand() % 1000) + 1;
printf("\n A lucky number has been generated randomly.\n");
printf(" The lucky number is: %d\n",luckyNum);
```

After generating , print your lucky number so that you check it while playing the game (Don't guess it right away, .

After the print, You will have a loop that will ask the Player 1 and the Player 2 for a guess input untill there is a correct guess (which can be checked if flag value is set to 1). If there is a negative guess number, print the messaage "There is an invalid guess! Try again." . In your loop, you will call a function called *void checkGuess* which should do three objectives:

1. Calculation & printing of the Player 1's and Player 2's guess proximities to the lucky number. Display the message "Proximity of Player 1's guess to the lucky number is: X" where X is the proximity value.
2. Checks if either one of these players or both guessed the number correctly.
   - ✓ If there is a correct guess, change the flag value to 1 and return it.
   - ✓ Display the message "Player n has guessed the number correctly." where n represents either 1 or 2 for Player 1 and Player 2 respectively.
3. Update the scores of Player 1 and Player 2. Whoever makes the closest guess to the lucky number is printed as a message "Player n's guess is the closest to the lucky number." And their scores are returned as increased by one.
   - ✓ If both the players make the same guess they both get +1 points. Print a message to show their guesses are the same.
   - ✓ Guessing the lucky number itself is also grants +1 points.

After the loop ends, print a message showing both the final scores of Player 1 and Player 2. After displaying the scores, program ends. The variables that will gold the values for flag, input guesses, scores and lucky number will be declared in your main function. You are expected to use the help of pointers to change the values of these variables from the function.

Example Output:

```
A lucky number has been generated randomly.
The lucky number is: 617

**********
 Player 1 enter your guess: 200
 Player 2 enter your guess: 317

Proxymity of Player 1's guess to the lucky number is: 417
Proxymity of Player 2's guess to the lucky number is: 300

Player 2's guess is the closest guess to the lucky number.
**********
 Player 1 enter your guess: -100
 Player 2 enter your guess: 217

There is an invalid guess! Try again.
**********
 Player 1 enter your guess: 500
 Player 2 enter your guess: 100

Proxymity of Player 1's guess to the lucky number is: 117
Proxymity of Player 2's guess to the lucky number is: 517

Player 1's guess is the closest guess to the lucky number.
**********
 Player 1 enter your guess: 90
 Player 2 enter your guess: 600

Proxymity of Player 1's guess to the lucky number is: 527
Proxymity of Player 2's guess to the lucky number is: 17

Player 2's guess is the closest guess to the lucky number.
**********
 Player 1 enter your guess: 610
 Player 2 enter your guess: 617

Proxymity of Player 1's guess to the lucky number is: 7
Proxymity of Player 2's guess to the lucky number is: 0
Player 2 has guessed the number correctly!.

Player 2's guess is the closest guess to the lucky number.

The scores are
Player 1: 1
Player 2: 4
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Process exited after 44.52 seconds with return value 0
Press any key to continue . . .
```