CSc 3320: Systems Programming
Spring 2021
Homework
4: Total points 100

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Part 1

1. Write a C program `checkPasswd.c` to check if the length of a given password string is 10 characters or not. If not, deduct 5 points per missing character. If the total deduction is greater than 30 points, print out the deduction and message "The password is unsafe! Please reset."; otherwise, print out "The password is safe."

   Outputs:
   -- Safe example

   ```
   Enter 10 character password:1234567890
   The password is safe.
   ```

   -- Unsafe example

   ```
   Enter 10 character password:123
   The password is unsafe! Please reset.
   ```

2. Similar to above question, update the C program `checkPasswd.c` to check if a password is safe or by not by checking only the evaluation criteria below. It will still print out the final score, and "safe" or "unsafe" when deduction is more than 30 points.

   - Missing lower case   -20 points
   - Lack of capital letters   -20 points
   - Missing numbers   -20 points
   - More than 2 consecutive characters (e.g. 123 or abc)   -20 points

   Outputs:
   -- Safe example

   ```
   Enter password: abB3dB4k
   The password is safe.
   ```

   -- Unsafe example

```
Enter password: BBBBBBBBcc
The password is unsafe! Please reset.
```

Part 2

3. Write a program that reads a message (can be characters,numeric or alphanumeric) and checks whether it is a palindrome (the characters in the message are the same when read from left- to-right or right-to-left).

   Outputs:

   -- Palindrome

   ```
   Enter the word or sentence to be tested: Gateman sees name, garageman sees nametag
   This is a palindrome
   ```

   -- Not a Palindrome

   ```
   Enter the word or sentence to be tested: hello
   This is not a palindrome
   ```

4. Write a program that will swap two variables without the use of any third variable. Utilize this program to write a program that reads two sentences that contain alphanumeric characters and the program must swap all the numerics in sentence1 with alphabet characters from sentence 2 and vice-versa. Keep the lengths of the sentences as identical.

   Output:

```
Before swap:
String 1: ad6hj865r
String 2: 17u96ytf0
-------
After swap:
String 1: aduhjytfr
String 2: 176968650
```

Part 3

5. Write a program that asks the user to enter an international dialing code and then looks it up in the country_codes array (see Sec 16.3 in C textbook). If it finds the code, the program should display the name of the corresponding country; if not, the program should print an error message. For demonstration purposes have at least 20 countries in your list.

Output:

```
Enter country code: 84
Country: Vietnam
```