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// This program tests a password for the American Equities
// web page to see if the format is correct

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#include <iostream>
#include <cctype>
#include <cstring>
using namespace std;

//function prototypes
bool testPassWord(char[]);
int countLetters(char*);
int countDigits(char*);
bool hasUpper(char[]);

int main()
{
	char passWord[20];

	cout << "Enter a password consisting of exactly 6 "
		 << "letters and 4 digits:" << endl;

	cin.getline(passWord, 20);

	if (testPassWord(passWord))
		cout << "Please wait - your password is being verified" << endl;

	else
	{
		cout << "Invalid password. Please enter a password "
			 << "with exactly 6 letters, 4 digits and 0 capitol letters" << endl;
		cout << "For example, my37RuN9 is valid" << endl;
	}

	// Fill in the code that will call countLetters and
	// countDigits and will print to the screen both the number of
	// letters and digits contained in the password.
	cout << "The number of letters inside your password:    " << countLetters(passWord) <<
endl;
	cout << "The number of digits inside your password:    " << countDigits(passWord) << endl;

	return 0;
```

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}

//*************************************************************
//      testPassWord
//
//  task:             determines if the word in the
//                    character array passed to it, contains
//                    exactly 5 letters and 3 digits.
//  data in:          a word contained in a character array
//  data returned: true if the word contains 5 letters & 3
//                    digits, false otherwise
//
//*************************************************************
bool testPassWord(char custPass[])
{
      int numLetters, numDigits, length;
      bool capitolTest = hasUpper(custPass);

      length = strlen(custPass);
      numLetters = countLetters(custPass);
      numDigits = countDigits(custPass);

      if (numLetters == 6 && numDigits == 4 && length == 10 && capitolTest == false)
            return true;
      else
            return false;
}

// the next 2 functions are from Sample Program 10.5

//*********************************************************************
//      countLetters
//
//  task:             This function counts the number of letters
//                    (both capital and lower case) in the string
//  data in:          pointer that points to an array of characters
//  data returned: number of letters in the array of characters
//
//*********************************************************************
bool hasUpper(char *strPtr)
{
   bool occurs = false;
   while (*strPtr != '\0')     // loop is executed as long as
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            // the pointer strPtr does not point
            // to the null character which
            // marks the end of the string
        {
            if (isupper(*strPtr))   // isalpha determines if
                occurs=true;
                            // the character is a letter

            strPtr++;
        }
        return occurs;
}
int countLetters(char *strPtr)
{
        int occurs = 0;

        while (*strPtr != '\0') // loop is executed as long as
            // the pointer strPtr does not point
            // to the null character which
            // marks the end of the string
        {
            if (isalpha(*strPtr))   // isalpha determines if
                occurs++;
                            // the character is a letter

            strPtr++;
        }

        return occurs;
}
```