Captcha

# Platform

Microsoft Visual Studio Professional 2013, Win32 application

# Language

Visual C++

# Problem Statement

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| Captcha - display a captcha and verify the input and display result |

# Objective

To develop a captcha generator which is capable of differentiating between a machine’s input and human input. This can also be used by various developers who wish to use a captcha input in their softwares/websites.

# Target User Group

* Interested people can work on its future extensions, increasing its applications.
* Developers who want to distinguish between human users and robot users.

# Major functionality

#### The Starter

Captcha with randomized noise will be generated and verified with user input. Option to refresh the current display will also be provided.

#### Next Level

The software will be modified to facilitate its use as a plugin on various platforms. The captcha string will be hashed, hence increasing the security of the product.

#### Warrior

Multiple difficulty levels will be added, i.e., the level of noise introduced can be controlled by the user. And mathematical captcha will also be provide.

# Future Extensions

* Audio captcha: Instead of the displayed captcha, user can request for an audio clip and enter the characters spoken.
* Self-learning: The users giving correct response to the captcha will be given a second one whose answer will be unknown. Assuming that the user is intelligent (since he got the first one right) his input will be regarded as the right answer for the second one.
* Captcha location and size: The developers using this software will be given the flexibility to change the image size and location.

# Modules

#### Generate Captcha

A random string is generated and displayed in bitmap using graphics library. Structure of the characters (small and capital alphabets and numerals) will be stored in a text file from which information regarding pixels will be retrieved.

#### Display Captcha

The bitmap generated will be distorted.

* Background Noise: Color gradients are changed, circles lines, dots, etc. will be added in the background.
* Frontend Noise: Font spacing, size, type, color and spacing can be manipulated to distort the characters.

Apart from these the pixels generated can be shifted within some limit to add noise.

#### Validation

The generated random string will be stored in hashed form. User’s input will be hashed and verified against the stored string.

#### Refresh Captcha

A button would be provided to generate fresh captcha, in case user fails to interpret it.

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