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Assignment 1

Steganography

FIT3042 - System Tools and Programming - 1 - 2017

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Task 1: Basic functionality

Task 1.1: Functional correctness: hide/unhide

Task 1.1.1: hide

Successfully encodes messages	<input type="checkbox"/> No <input type="checkbox"/> Some <input checked="" type="checkbox"/> All
Supports any bitstream as a message	<input type="checkbox"/> No <input checked="" type="checkbox"/> Some <input type="checkbox"/> All
Signals end of message in a sensible way	<input type="checkbox"/> Poor <input checked="" type="checkbox"/> Okay <input type="checkbox"/> Good
Handles correctly-formatted PPM headers	<input checked="" type="checkbox"/> Poor <input type="checkbox"/> Okay <input type="checkbox"/> Good
Output file is correctly formatted	<input type="checkbox"/> Poor <input type="checkbox"/> Okay <input checked="" type="checkbox"/> Good

Task 1.1.1 Comment: Supports multiline ascii messages, but in an annoying manner. Lines are limited to 500 characters.

Correctly handles PPM headers in cat test image, fails to handle all other valid test ppms.

Mark for task 1.1.1: 1.5 out of 3.0

Task 1.1.2: unhide

Decodes messages hidden with hide	<input type="checkbox"/> No <input type="checkbox"/> Some <input checked="" type="checkbox"/> All
Handles correctly-formatted PPM headers	<input checked="" type="checkbox"/> Poor <input type="checkbox"/> Okay <input type="checkbox"/> Good

Task 1.1.2 Comment: Correctly handles PPM headers in cat test image, fails to handle all other valid test ppms.

Mark for task 1.1.2: 1.0 out of 2.0
Mark for task 1.1: 2.5 out of 5.0

Task 1.2: I/O and command line parameters

Handles command line parameters as per spec ☐ Poor ☐ Okay ☒ **Good**
Accepts message from stdin ☐ Poor ☒ **Okay** ☐ Good
Correct use of file functions ☐ Poor ☐ Okay ☒ **Good**
Closes all files opened ☐ No ☐ Some ☒ **All**

Task 1.2 Comment: Will not read multiline message correctly from stdin with redirection.

Mark for task 1.2: 2.5 out of 3.0

Task 1.3: Submission guidelines

Tarfile submitted ☐ No ☒ **Yes**
README contains required information ☐ No ☐ Some ☒ **All**
Makefile submitted ☐ No ☒ **Yes**
Makefile builds both hide and unhide properly ☐ Poor ☐ Okay ☒ **Good**

Task 1.3 Comment: When compiling with -Wall, there are warnings.

Mark for task 1.3: 2.0 out of 2.0
Mark for task 1: 7.0 out of 10.0

Task 2: Code quality

Task 2.1: Error handling

Handles invalid command line parameters ☐ Poor ☐ Okay ☒ **Good**
Checks for error returns from file I/O calls ☐ Poor ☒ **Okay** ☐ Good
Handles truncated image file ☐ Poor ☒ **Okay** ☐ Good
Handles PPM files with invalid headers ☐ Poor ☐ Okay ☒ **Good**
Handles messages that are too long for image ☐ Poor ☒ **Okay** ☐ Good

Task 2.1 Comment: Return values from file I/O function calls rarely tested for success or failure.

Does not detect truncated image file, writes message into available bytes.

Mark for task 2.1: 2.5 out of 4.0

Task 2.2: Memory management

Checking for null pointers before access	<input type="checkbox"/> Poor <input type="checkbox"/> Okay <input checked="" type="checkbox"/> Good
Checking array bounds	<input type="checkbox"/> Poor <input checked="" type="checkbox"/> Okay <input type="checkbox"/> Good
All memory allocated is freed	<input type="checkbox"/> No <input type="checkbox"/> Some <input type="checkbox"/> All <input checked="" type="checkbox"/> N/A
Any allocated memory is of an appropriate size	<input type="checkbox"/> No <input type="checkbox"/> Some <input type="checkbox"/> All <input checked="" type="checkbox"/> N/A

Task 2.2 Comment: Valgrind says unhide is accessing memory incorrectly.

Mark for task 2.2: 2.0 out of 3.0

Task 2.3: Readability/usability

Inline comments	<input type="checkbox"/> None <input type="checkbox"/> Uninformative/insufficient <input checked="" type="checkbox"/> Good
Function header comments	<input type="checkbox"/> None <input checked="" type="checkbox"/> Uninformative/insufficient <input type="checkbox"/> Good
File header comments	<input checked="" type="checkbox"/> None <input type="checkbox"/> Uninformative/insufficient <input type="checkbox"/> Good
README is readable	<input type="checkbox"/> Poor <input type="checkbox"/> Okay <input checked="" type="checkbox"/> Good
Are identifier names well-chosen?	<input type="checkbox"/> No <input type="checkbox"/> Some <input checked="" type="checkbox"/> All
Functions are an appropriate size	<input checked="" type="checkbox"/> Too long <input type="checkbox"/> Too short <input type="checkbox"/> Just right
Structure of .c files	<input type="checkbox"/> Poor <input type="checkbox"/> Okay <input checked="" type="checkbox"/> Good
Use of header files	<input type="checkbox"/> Poor <input type="checkbox"/> Okay <input checked="" type="checkbox"/> Good

Task 2.3 Comment: Inline comments could better clarify behaviour of algorithm or individual instructions.

Function header comments should always describe function arguments and return values.

No comments at top of file explaining what that file contains or how it relates to the larger program.

Instead of using ascii decimal codes in source, use single characters when printable (32 -> '#', 1- -> '\n')

Mark for task 2.3: 2.0 out of 3.0

Mark for task 2: 6.5 out of 10.0

Task 3: Penalty

Marks may be deducted for lateness or for breaches of the academic integrity policy. No marks may be deducted here without discussing it beforehand with a lecturer.

Task 3 Comment: None

Mark for task 3: -0.0 out of 20.0

Task 4: Bonus: hide/unhide in BMPs

Hides messages in BMP files ☐ Poor ☐ Okay ☐ Good ☒ **N/A**

Unhides messages in BMP files ☐ Poor ☐ Okay ☐ Good ☒ **N/A**

Integration with PPM code ☐ Poor ☐ Okay ☐ Good ☒ **N/A**

Task 4 Comment: None

Mark for task 4: 0.0 out of 2.0

Total mark: 13.5