

---

# PLIP: Informal Language Specification

100927938

---

Name: A Polite Language for 2D Image Processing (PLIP)

Domain: 2D Image Processing

Key Signatures:

**S: Subtraction**

PLIP can subtract two given integer values using the '-' symbol. It will account for brackets ensuring BODMAS works.

**S: Addition**

PLIP can add two given integer values using the '+' symbol. It will account for brackets ensuring BODMAS works.

**S: Multiplication**

PLIP can multiply two given integer values using the '\*' symbol. It will account for brackets ensuring BODMAS works.

**S: Division**

PLIP can divide two given integer values using the '/' symbol. It will account for brackets ensuring BODMAS works.

**S: Greater Than**

PLIP can compare two integers and return a Boolean based on whether the first integer is greater than the second integer.

**S: Less Than**

PLIP can compare two integers and return a Boolean based on whether the first integer is less than the second integer.

**S: Not Equal**

PLIP can compare two integers and return a Boolean based on whether the first integer is not equal to the second integer.

**S: Equal**

PLIP can compare two integers and return a Boolean based on whether the first integer is equal to the second integer.

**S: If (and Else)**

PLIP can execute a statement after evaluating integers using comparison functions. This can be followed by an 'else' statement to execute an alternate symbol. However, plip allows a user not to include an 'else' statement (thereby making it optional). Additionally, multiple statements can be run in both 'if' and 'else' blocks.

**S: While**

PLIP can repeatedly execute a statement and will continue to check an evaluation using comparison functions. Upon the comparison function returning a False Boolean, execution will end. Multiple statements can be run in this 'while' block.

**S: Load**

PLIP can load images in a new JavaFX Scene, when given a reference string.

**S: Invert**

PLIP can invert loaded images by iterating over pixels and grey scaling.

**S: Rotation**

PLIP can rotate images when given a loaded image and a degree to tilt by. The rotated image will appear in a new JavaFX Scene.

**S: Flip**

PLIP iterates over the pixels of a loaded image and (using a reference copy of the un-flipped image) changes the pixels of the image in the current scene, such that the first half of scanned images are changed to the latter half and vice versa.

A flip can be performed horizontally, vertically, and diagonally. The desired flip is specified by the user when calling the function.

**S: Contrast**

PLIP can take a loaded image and increase the contrast with the following enhancements:

- Saturating the image twice
- Brightening the image once

As this adds more flair to the images (especially images with colour) is it presented as an automatic enhancer to end users.

**S: Resize**

PLIP can accept a reference to an image to resize it to any desired width and height (inputted by the user) and will create a new scene to display the image.