

Laboratory 12

Examination Preparation

- (1) Review the definition of functions. Then write a function that implements the function

$$f(x, y) = \sqrt{\frac{x^2 + y^2}{x^2 + y^2 + 1}}. \text{ You can test with } f(1, 1) = 0.816496580927726 \text{ and } f(2, 2) = 0.9428090415820634.$$

- (2) Review string processing. In general, we modify a string by creating an empty list, then walk through the input string using a for loop adding to the empty list, and finally making the empty list into a string. This is much more efficient than building up partial strings, even though that is also possible. Then write a function that changes each vowel in the string to the previous vowel, regardless of case.

(a) First, use an if-elif-elif-...-else template.

(b) Use a dictionary.

- (3) Review file processing. Review how to read a file line by line.

(a) Create a program that generates a file with 10 lines. Each line has a random integer between 1 and 1000, followed by a comma, followed by a random number between 0 and 1.

(b) Write a function that takes a file with two comma separated items. Then write out the same items now separated by a column in a separate file. The file names are the arguments of the function.