

COL100 PREP

Learn Programming

- How to use (and build) components
- How to describe action
- How to describe situation under which to take action
- Repeatedly perform actions:
 - Operate on a list of tasks
 - Make progress: a bite at a time
- Words and grammar
- There must be only one meaning of each construct

Languages

- Math like

- ▶ $\forall a \in X, \forall b \in B, \forall b' \in B, ((a, b) \in R \wedge P a, b') \in R \Rightarrow b = b'$

- ▶ $\forall a \in A, \exists b \in B$ s.t. $f(a) = b$, where $f: A \rightarrow B; f(x) = x * x$

- English like

- ▶ import x from y

- ▶ with “somefilename” as fileref:

- fileref.read()

Regular Expression

- a^* means a repeated any number of times (including 0)
- a^+ means a repeated one or more time
- $(a|b)$ means a or b
- $[abc]$ means any from the set
- $[^abc]$ means none of these characters
- $-$ indicates a range
- $.$ means any character
- e.g.,
 - $[1-9][0-9]$ is a two digit number
 - $[1-9][0-9]^*[24680]$ is an even number

Home Exercise

- Take take numbers as input from the user (say, lo and hi)
 - ▶ Print the number of numbers in the range lo to hi (both inclusive)
 - ▶ Print all numbers in the range separate by the space character: ' '
 - ▶ Print numbers so that each printed number takes $k+1$ spaces, where k is the number of digits in hi
 - Right or Left justify each number within its space
 - ▶ Print numbers not in a single line but as a matrix, m numbers per row
 - first, m be a part of the program. Second take m from command line
 - ▶ Produce the output in a file
- Write a python program to read the matrix file produced in the previous exercise
 - ▶ Write to a new file, squaring each number (keep the spacing in the output)