Outline for November 3, 2021

Reading: §14   **Assignments:** Homework 3, due November 8, 2021

1. Recursion: permutations of characters in a string [*perm.py*]

2. Pattern matching

   (a) Regular expressions

   (b) Atoms: letters, digits

   (c) Match any character except newline: .

   (d) Match any of a set of characters: `[0123456789]`, `[^0123456789]`, `[0-9]`

   (e) Repetition: `*`, `+`, $\{m, n\}$; greedy matching; put `?` after and they match as few characters as possible

   (f) Match start, end of string: `^`, `$`; `$` matches end of line, also

   (g) Grouping: `(, )`

   (h) Escape metacharacters: `\`

3. Useful functions/methods [*recomp.py*, *renocomp.py*, *regroup.py*]

   (a) `re.compile(`*str*`)` compiles the pattern into *pc* (that is, `pc = re.compile(str)`)

   (b) *pc*`.match(`*str*`)` returns None if compiled pattern *pc* does not match beginning of string *str*

   (c) *pc*`.search(`*str*`)` returns None if pattern *pc* does not match any part of string *str*

   (d) *pc*`.findall(`*str*`)` returns a list of substrings of the string*str* that match the pattern *pc*

   (e) *pc*`.group(`*str*`)` returns the substring of the string *str* that the pattern *pc* matches

   (f) *pc*`.start(`*str*`)` returns the starting position of the match

   (g) *pc*`.end(`*str*`)` returns the ending position of the match

   (h) *pc*`.span(`*str*`)` returns tuple (start, end) positions of match